AISSMS

COLLEGE OF ENGINEERING

ज्ञानम् सकलजनहिताय

(Accredited by NAAC with grade A+)

SELF ASSESSMENT REPORT (SAR)

For Bachelor of Chemical Engineering (Tier II)

National Board of Accreditation

New Delhi



Department of Chemical Engineering

AISSMS College of Engineering Pune - 411001

Department of Chemical Engineering

AISSMS College of Engineering Pune – 411001

NBA SAR (Tier II)

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Part A: Institutional Information

1. ***Name and Address of the Institution:***

ALL INDIA SHRI SHIVAJI MEMORIAL SOCIETY S COLLEGE OF ENGG KENNEDY ROAD

NEAR R.T.O. PUNE, KENNEDY ROAD, PUNE- 411001

2. ***Name and Address of Affiliating University:***

UNIVERSITY OF PUNE GANESHKHIND ROAD PUNE-411007

3. Year of establishment of the Institution:

1992

4. Type of the Institution:

☐ University	☐ Autonomous
☐ Deemed University	☑ **Affiliated**
☐ Government Aided	

5. Ownership Status:

☐ Central Government	☑ **Trust**
☐ State Government	☐ Society
☐ Government Aided	☐ Section 25 Company
☐ Self-financing	☐ Any Other (Please Specify)

6. Other Academic Institutions of the Trust/Society/Company etc., if any:

Name of Institutions	Year of Establishment	Programs of Study	Location

All India Shri Shivaji Memorial Society's Institute of Information Technology, Pune – 1	1999	Engineering and Technology: (Under Graduate Courses) 1) Computer Engineering, 2) Electrical Engineering, 3) Instrumentation Engineering, 4) Electronics and Telecommunication Engineering, 5) Information Technology, 6) Artificial Intelligence and Data Science (Post Graduate Courses) 1) Electronics and Telecommunication Engineering (VLSI & Embedded Systems), 2) Electrical Engineering (Power Electronics and Drives)	Kennedy Road, Pune - 1
All India Shri Shivaji Memorial Society's College of Polytechnic, Pune – 1	1994	Diploma Courses 1) Civil Engineering, 2) Computer Engineering, 3) Electronics and Telecommunication Engineering, 4) Information Technology, 5) Instrumentation Engineering, 6) Mechanical Engineering, 7) Automobile Engineering	Kennedy Road, Pune - 1
All India Shri Shivaji Memorial Society's College of Pharmacy, Pune – 1	1996	B Pharm and M Pharm	Kennedy Road, Pune - 1
All India Shri Shivaji Memorial Society's Institute of Management, Pune – 1	2002	MBA	Kennedy Road, Pune - 1
All India Shri Shivaji Memorial Society's College of Hotel Management & Catering Technology, Pune – 5	1997	CHMCT Course: BHMCT, B Sc HS	55-56, Shivajinagar, Pune – 411 005
All India Shri Shivaji Memorial Society's Private Industrial Training Institute, Pune – 02	1991	ITI Courses: Welder (Gas & Electric), Mechanic Diesel, Fitter, Turner, Machinist, Machinist (Grinder), Mechanic (Refrigeration and Air- Conditioner), Electrician, Mechanic (Motor Vehicle), Electronic Mechanic, Painter (	At – Daund, Urulikanchan, Dist – Pune – 412 202

		General), Tool and Die Maker (Press, Tool, Jig and Fixture)	
All India Shri Shivaji Memorial Society's SSPM Day School & Junior College, Pune – 5	1972	School & Jr College : Std. 5th to 10th (School), Std. 11th to 12th (College – Science & Commerce)	55-56, Shivajinagar, Pune – 411 005
All India Shri Shivaji Memorial Society's Shri Shivaji Preparatory Military School, Pune – 5	1932	School & Jr College : Std. 1st to 10th (School) &11th to 12th (College – Science & Commerce)	55-56, Shivajinagar, Pune – 411 005

7. Details of all the programs being offered by the institution under consideration:

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Electrical Engg.	UG	1992	1992	60	No	60	Not accredited (specify visit dates, year)	18/01/2013	20/01/2013	Yes	4
Electrical Engg.	PG	2011	2011	18	No	18	Eligible but not applied	--	--	No	2
Chemical Engineering	UG	1996	1996	40	Yes	60	Granted provisional accreditation for two years for the period(specify period)	2013	2015	No	4
ME - Chemical Engineering	PG	2011	2011	18	No	18	Eligible but not applied	--	--	0	2

Civil Engineering	UG	2002	2002	60	Yes	120	Not accredited (specify visit dates, year)	18/01/2013	20/01/2013	0	4
ME - Civil Engineering (Structural Engineering)	PG	2010	2010	18	No	18	Eligible but not applied	--	--	0	2
Computer Engineering	UG	1998	1998	40	Yes	120	Granted provisional accreditation for two years for the period(specify period)	2013	2015	0	4
ME - Computer Engineering (Artificial Intelligence and Data Science)	PG	2013	2013	18	No	18	Not eligible for accreditation	--	--	0	2
Electronics and TelecommunicationEngineering	UG	1992	1992	60	No	60	Not accredited (specify visit dates, year)	18/01/2013	20/01/2013	0	4
ME - Electronics &Telecommunication Engineering (IOT and Sensor Systems)	PG	2009	2009	18	No	18	Not eligible for accreditation	--	--	0	2
Mechanical Engineering	UG	1992	1992	60	Yes	120	Granted provisional	2013	2015	0	4

							accreditation for two years for the period(specify period)				
ME - Mechanical Engineering (Design)	PG	2013	2013	18	No	18	Eligible but not applied	--	--	0	2

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Mechanical Engineering (Sandwich)	UG	1994	1994	30	Yes	60	Grantedprovisional accreditation for two years for the period(specify period)	2013	2015	0	4
Production Engineering (Sandwich)	UG	1994	1994	30	Yes	60	Grantedprovisional accreditation for two years for the period(specify period)	2013	2015	0	4
ME - Mechanical Engineering (Automotive Engineering)	PG	2009	2009	18	No	18	Eligible but not applied	--	--	No	2

Robotics and Automation	UG	2022	2022	30	No	30	Not eligible for accreditation	--	--	No	4

8. Programs to be considered for Accreditation vide this application:

Sr. No.	Level	Discipline	Program
1	Under Graduate	Engineering & Technology	Civil Engg.
2	Under Graduate	Engineering & Technology	Computer Engg.
3	Under Graduate	Engineering & Technology	Electrical Engg.
4	Under Graduate	Engineering & Technology	Mechanical Engg.
5	Under Graduate	Engineering & Technology	Chemical Engineering

9. Total number of employees in the institution:

A. Regular* Employees (Faculty and Staff):

Items	2021-22		2020-21		2019-20	
	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering (Male)	85	86	90	90	89	93
Faculty in Engineering (Female)	64	64	55	57	60	60
Faculty in Maths, Science & Humanities (Male)	9	10	7	7	8	9
Faculty in Maths, Science & Humanities (FeMale)	4	5	7	7	7	7
Non-teaching staff (Male)	105	105	105	107	107	109
Non-teaching staff (FeMale)	9	10	9	10	9	9

B. Contractual* Employees (Faculty and Staff):

Items	2021-22		2020-21		2019-20	
	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering (Male)	4	4	0	0	1	1
Faculty in Engineering (Female)	1	1	2	2	3	3
Faculty in Maths, Science & Humanities (Male)	0	0	0	0	0	0
Faculty in Maths, Science & Humanities (FeMale)	0	0	0	0	0	0
Non-teaching staff (Male)	0	0	0	0	0	0
Non-teaching staff (FeMale)	0	0	0	0	0	0

10. Total number of Engineering Students:

Engineering and Technology- UG	☑ **Shift1**	☐ Shift2
Engineering and Technology- PG	☑ **Shift1**	☐ Shift2
Engineering and Technology- Polytechnic	☐ Shift1	☐ Shift2
MBA	☐ Shift1	☐ Shift2
MCA	☐ Shift1	☐ Shift2

Engineering and Technology- UG Shift-1

Items	**2021-22**	**2020-21**	**2019-20**
Total no. of Boys	2312	2342	2075
Total no. of Girls	718	770	740
Total	**3030**	**3112**	**2815**

11. Engineering and Technology- PG Shift-1

Items	**2021-22**	**2020-21**	**2019-20**
Total no. of Boys	45	50	48
Total no. of Girls	28	27	21
Total	**73**	**77**	**69**

12. Vision of the Institution:

Service to Society through quality education

13. Mission of the Institution:

1) Generation of national wealth through education and research.

2) Imparting quality technical education at the cost affordable to all strata of the Society.

3) Enhancing the quality of life through sustainable development.

4) Carrying out high quality intellectual work.

5) Achieving the distinction of highest preferred Engineering College in the eyes of the stake holders.

14. Contact Information of the Head of the Institution and NBA coordinator, if designated:

Head of the Institution	
Name	Dr Dattatraya Shankar Bormane
Designation	Principal
Mobile No.	9850282286
Email ID	principal@aissmscoe.com

NBA Coordinator, If Designated

Name	Dr Mangesh Ravindra Phate
Designation	Professor in Mechanical Engineering
Mobile No.	7058816968
Email ID	mrphate@aissmscoe.com

CRITERION 1	VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES	60

1. VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES (60)

1.1. State the Vision and Mission of the Department and Institute (5)

(Vision statement typically indicates aspirations and Mission statement states the broad approach to achieve aspirations)

(Here Institute Vision and Mission statements have been asked to ensure consistency with the department Vision and Mission statements; the assessment of the Institute Vision and Mission will be taken up in Criterion 10)

Institute Vision:

Service to society through quality education

Institute Mission:

- Generation of national wealth through education and research
- Imparting quality technical education at the cost affordable to all strata of the society
- Enhancing the quality of life through sustainable development
- Carrying out high-quality intellectual work
- Achieving the distinction of the highest preferred engineering college in the eyes of the stakeholders

Department Vision:

To be a leader in Chemical Engineering education providing service to society

Department Mission:

1. To prepare graduates for **responsible positions** in chemical industry, academia and research
2. To prepare graduates to **analyze and solve problems** of chemical industry, academia and research

3. To strengthen industry-institute interaction to develop **industry-oriented attributes** like attitude, soft skills, team work and leadership

1.2. State the Program Educational Objectives (PEOs) (5)

(State the PEOs (3 to 5) of program seeking accreditation)

Graduates from Chemical Engineering program are expected to attain or achieve the following program educational objectives 3 to 5 years after graduation.

PEO1: Competency: To prepare competent graduates in Chemical Engineering so that they are successful in their professional career in industry, academia or research

PEO2: Problem Solving Skills: To prepare graduates who can identify, analyze, research and solve Chemical Engineering problems of practical importance to industry, academia or research

PEO3: Leadership Skills: To prepare graduates with effective communication, teamwork and leadership skills so that they can play effective role in industry, academia and research institutes.

1.3. Indicate where the Vision, Mission and PEOs are published and disseminated among stakeholders (10)

(Describe where (websites, curricula, posters etc.) the Vision, Mission and PEOs are published and detail the process which ensures awareness among internal and external stakeholders with effective process implementation)

(Internal stakeholders may include Management, Governing Board Members, faculty, support staff, students etc. and external stakeholders may include employers, industry, alumni, funding agencies, etc.)

The Vision, mission and PEOs are published and disseminated for internal stakeholders (management, governing council members, faculty members and students) and external stakeholders (parents, employers, industry persons, professional bodies and alumni) at various locations through various modes and occasions. They are highlighted in the following tables 1.3 (a) and 1.3 (b)

- Publication of Vision Mission and PEOs

Level	No.	Medium of Publishing	Stake holders	
			Internal	External
Institute Vision Mission	1	The Institute website www.aissmscoe.com	✓	✓
	2	Admission Brochure	✓	✓
	3	Administrative office	✓	✓
	4	Conference room, CITP	✓	✓
	5	Annual Magazine	✓	✓
	6	Library	✓	✓

Vision Mission PEOs (Dept.)	1	HOD Office, Seminar Hall	✓	✓
	2	Institute website - Department	✓	✓
	3	Department notice Board	✓	✓
	4	Laboratory Manuals	✓	
	5	Course file	✓	
	6	Newsletter	✓	✓
	7	Classrooms, Labs	✓	

Table 1.3-(a) Publication Medium

- Dissemination of Vision Mission and PEOs

Level	No	Method of Publishing	Stake holders	
			Internal	External
Institute Vision Mission	1	First Year (FE) Induction Program	✓	✓
Vision Mission PEOs (Dept.)	2	Department Advisory Board Meeting	✓	✓
	3	Industry Institute Interaction Meeting	✓	✓
	4	Parent Teacher Meetings	✓	✓
	5	Alumni Meetings	✓	✓
	6	Students Chapter activities	✓	✓
	7	Brochure of programs (Seminars/ Conferences)	✓	✓
	8	E-mail correspondence	✓	✓

Table 1.3 – (b) Dissemination Methods

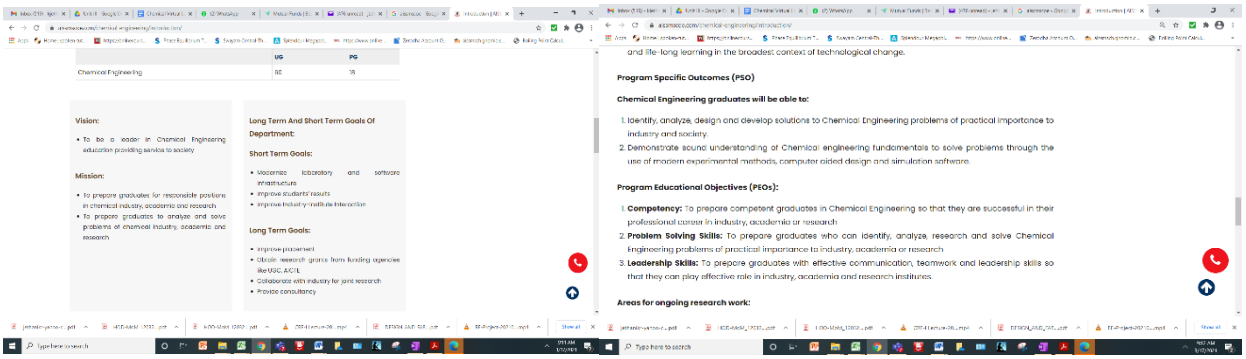


Figure 1.3 (a) Publication mode -Institute website-Department



Figure 1.3 (b) Publication and dissemination mode – Seminar Brochure - Newsletter

1.4. State the process for defining the Vision and Mission of the Department, and PEOs of the program (25)

(*Articulate the process for defining the Vision and Mission of the department and PEOs of the program)*

Process of defining the Vision and Mission of the department:

Step 1: Vision and Mission of the Institute are taken as the basis for defining the department Vision and Mission

Step 2: Brainstorming session is conducted in the department meeting with all faculty members to define the draft Department Vision and Mission. Suggestions and inputs collected through discussions with various stakeholders like students, industry experts, employers, parents, alumni, recruitment drives, and Industry Institute interactions are taken as inputs to the brainstorming session.

Step 3: Finalize the **draft** Vision and Mission of the department based on brainstorming in the department meeting

Step 4: The Vision and Mission statements are reviewed by Internal Quality Assurance Cell (IQAC).

Step 5: Publish and disseminate Vision and Mission of department

Step 6: Periodically **review** Vision and Mission of the department with all stakeholders like Department Advisory Board (DAB), Management (Principal), Students, Parents, Alumni, Employers, Industry personnel.

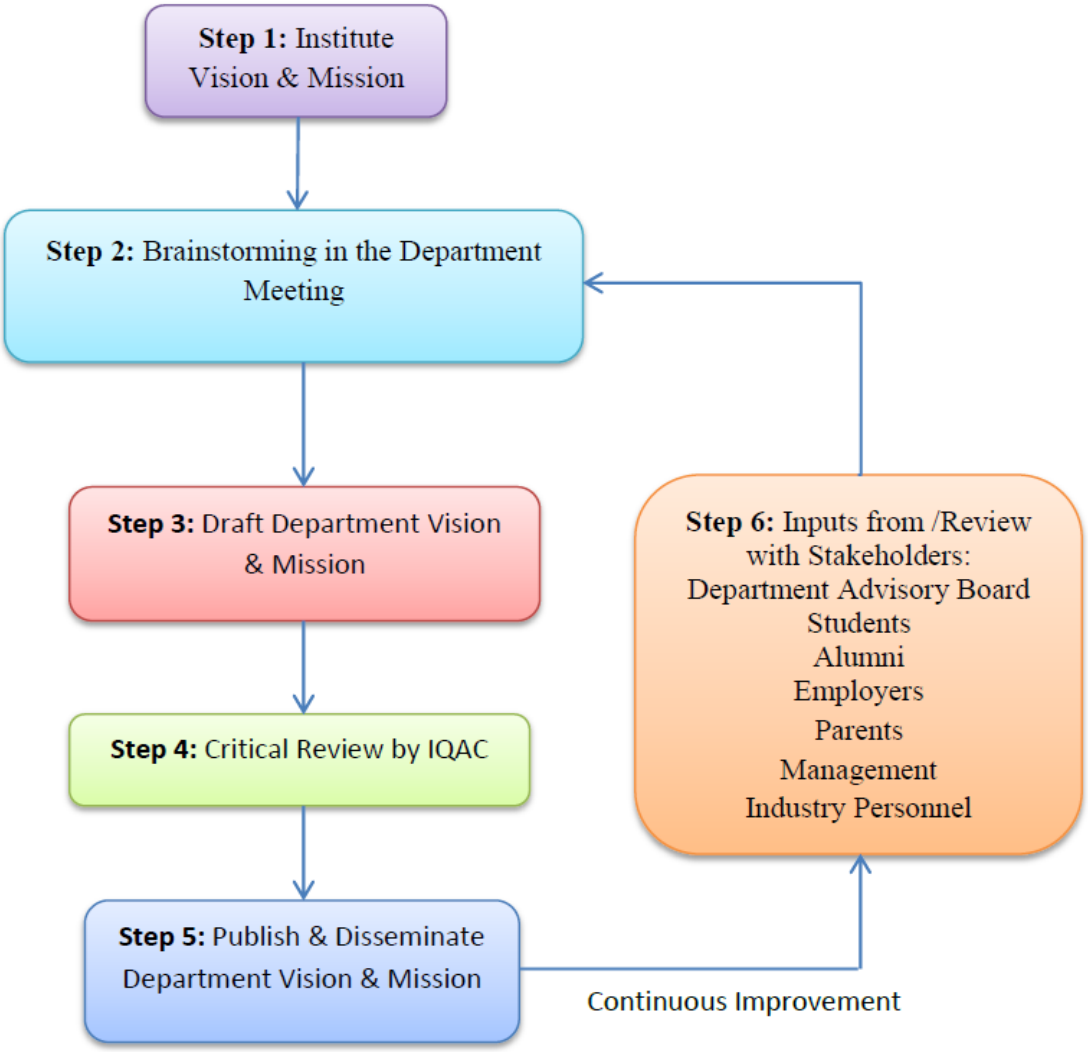


Figure 1.4 (a) Process of establishing the department Vision and Mission

Process of defining Program Educational Objectives of the department:

Step 1: Vision and Mission of the Institute and the department are taken as the basis for defining the Program Educational Objectives

Step 2: Brainstorming session is conducted in the department meeting with all faculty members to define the draft Program Educational Objectives. Suggestions and inputs collected through discussions with various stakeholders like students, industry experts, employers, parents, alumni, recruitment drives, and Industry Institute interactions are taken as inputs to the brainstorming session.

Step 3: Finalize the **draft** Program Educational Objectives based on brainstorming in the department meeting

Step 4: The Program Educational Objectives are reviewed by Internal Quality Assurance Cell (IQAC).

Step 5: Publish and disseminate Program Educational Objectives

Step 6: Periodically **review** the Program Educational Objectives with all stakeholders like Department Advisory Board (DAB), Management (Principal), Students, Parents, Alumni, Employers, Industry personnel.

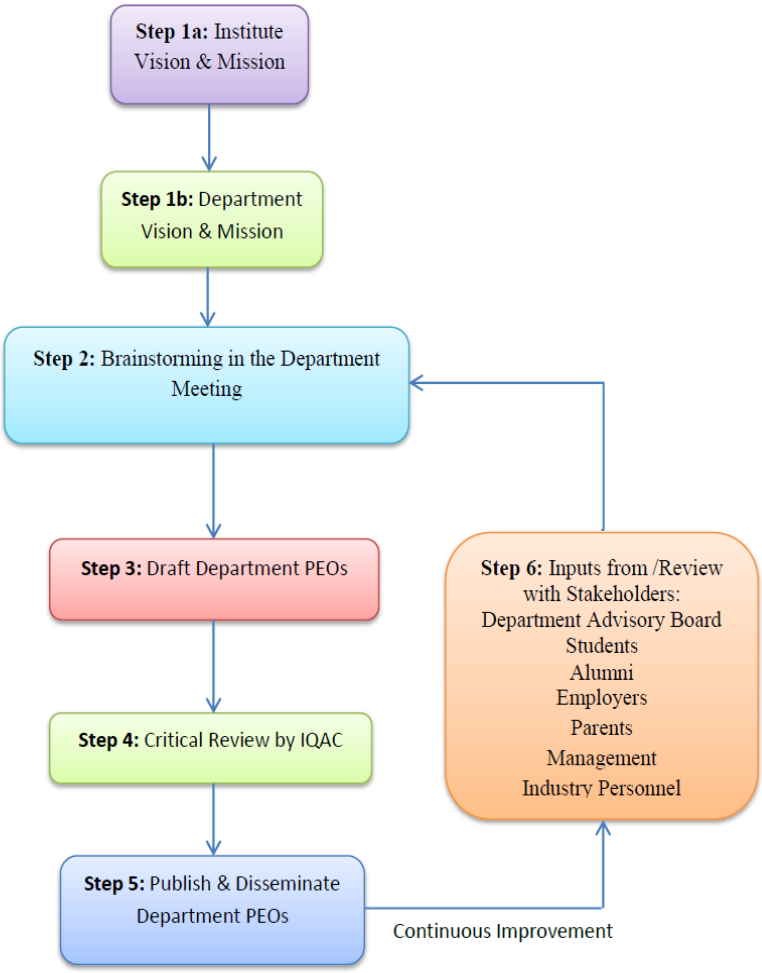


Figure 1.4 (b) Process of establishing Program Educational Objectives

1.5. Establish consistency of PEOs with Mission of the Department (15)

(*Generate a "Mission of the Department – PEOs matrix" with justification and rationale of the mapping*)

Mission Statements ⇒	**M1** To prepare graduates for **responsible positions** in chemical industry, academia and research	**M2** To prepare graduates to **analyze and solve problems** of chemical industry, academia and research	**M3** To strengthen industry-institute interaction to develop **industry oriented attributes** like attitude, soft skills, team work and leadership
PEO Statements ⇓			

PEO1: **Competency:** To prepare competent graduates in Chemical Engineering so that they are successful in their professional career in industry, academia or research.	3	3	2
PEO2: **Problem Solving Skills:** To prepare graduates who can identify, analyze, research and solve Chemical Engineering problems of practical importance to industry, academia or research	3	3	2
PEO3: **Leadership Skills:** To prepare graduates with effective communication, teamwork and leadership skills so that they can play effective role in industry, academia and research institutes.	2	2	2

Note: M1, M2,... Mn are distinct elements of Mission statement. Enter correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

It there is no correlation, put "-"

Note: In this document wherever the term 'Process' has been used its meaning is process formulation, notification and implementation.

Splitting of Mission into levels:

1. Low (Mark 1)
2. Moderate (Mark 2)
3. High (Mark 3)

Mission 1: To prepare graduates for **responsible positions** in chemical industry, academia and research

PEO 1 Competency: To prepare competent graduates in Chemical Engineering so that they are successful in their professional career in industry, academia or research.

PEO1 Mapping: Substantial

It is justified through:

- Effective mechanism for the conduction of teaching learning processes
- Hands-on exposure on simulation software packages
- Final year project
- Guest lectures by experts from industry and research organizations

PEO2: Problem Solving Skills: To prepare graduates who can identify, analyze, research and solve Chemical Engineering problems of practical importance to industry, academia or research

PEO2 Mapping: Substantial

It is justified through:

- Industry internship
- Industrial visits
- Final year project
- Co-curricular activities such as Paper presentation, Technical quiz, design competitions, etc.

PEO3: Leadership Skills: To prepare graduates with effective communication, teamwork and leadership skills so that they can play effective role in industry, academia and research institutes.

PEO3 Mapping: Moderate

It is justified through:

- Final year project as a group activity
- Conduction of co-curricular activities through student chapters of various professional bodies
- Conduction of extra-curricular activities through sports/cultural and NSS unit of the Institute

Mission 2: To prepare graduates to **analyze and solve problems** of chemical industry, academia and research

PEO 1 Competency: To prepare competent graduates in Chemical Engineering so that they are successful in their professional career in industry, academia or research.

PEO1 Mapping: Substantial

It is justified through:

- Effective mechanism for the conduction of teaching learning processes.
- Final year project as a group activity
- Hands-on exposure on simulation software packages
- Guest lectures by experts from industry and research organizations
- Co-curricular activities such as Paper presentation, Technical quiz, design competitions, etc.

PEO2: Problem Solving Skills: To prepare graduates who can identify, analyze, research and solve Chemical Engineering problems of practical importance to industry, academia or research

PEO2 Mapping: Substantial

It is justified through:

- Industry internship
- Industrial visits
- Final year project
- Co-curricular activities such as Paper presentation, Technical quiz, design competitions, etc.

PEO3: Leadership Skills: To prepare graduates with effective communication, teamwork and leadership skills so that they can play effective role in industry, academia and research institutes.

PEO3 Mapping: Moderate

It is justified through:

- Final year project as a group activity
- Conduction of co-curricular activities through student chapters of various professional bodies
- Conduction of extra-curricular activities through sports/cultural and NSS unit of the institute

Mission 3: To strengthen industry-institute interaction to develop **industry oriented attributes** like attitude, soft skills, team work and leadership

PEO 1 Competency: To prepare competent graduates in Chemical Engineering so that they are successful in their professional career in industry, academia or research.

PEO1 Mapping: Moderate

It is justified through:

- Final year project in collaboration with industry
- Industry internship for SE and TE students
- Industrial visits
- Guest lectures by experts from industry and research organizations

PEO2: Problem Solving Skills: To prepare graduates who can identify, analyze, research and solve Chemical Engineering problems of practical importance to industry, academia or research

PEO2 Mapping: Moderate

It is justified through:

- Industry internship
- Industrial visits
- Final year project in collaboration with industry
- Co-curricular activities such as Paper presentation, Technical quiz, design competitions, etc.

PEO3: Leadership Skills: To prepare graduates with effective communication, teamwork and leadership skills so that they can play effective role in industry, academia and research institutes.

PEO3 Mapping: Moderate

It is justified through:

- Final year project in collaboration with industry
- Guest lectures by experts from industry and research organizations
- Industrial visits
- Industry internship
- Conduction of extra-curricular activities through sports/cultural and NSS unit of the institute

CRITERION 2	PROGRAM CURRICULUM AND TEACHING - LEARNING PROCESSES	120

2.1 Program Curriculum

2.1.1 State the process used to identify extent of compliance of the University curriculum for attaining the Program Outcomes and Program Specific Outcomes as mentioned in Annexure I. Also mention the identified curricular gaps, if any (10)

A. Process used to identify extent of compliance of university curriculum for attaining POs and PSOs (6)

All India Shri Shivaji Memorial of Society's College of Engineering Pune is affiliated Savitribai Phule Pune University. Hence the syllabus prescribed by the SPPU is followed.The Syllabus is framed and reviewed by the university once in 5 years by the board of studies. The Table 2.1.1.A.1 gives a comparison of syllabus suggested by AICTE and syllabus followed by AISSMS COE Pune.

Table No: 2.1.1.A.1: Comparison of syllabus of AICTE and SPPU

Types of Course	AICTE		SPPU	
	Courses	**Credits**	**Courses**	**Credits**
Basic Science Course [BCS]	08	27	11	32
Engineering Science courses	07	27	17	31
Humanities and Social Sciences including Management courses	04	12	01	01
Professional core courses	17	55	30	70
Professional Elective courses and Open Elective	08	24	10	30
Project work, seminar and internship in industry or elsewhere	02	15	06	17

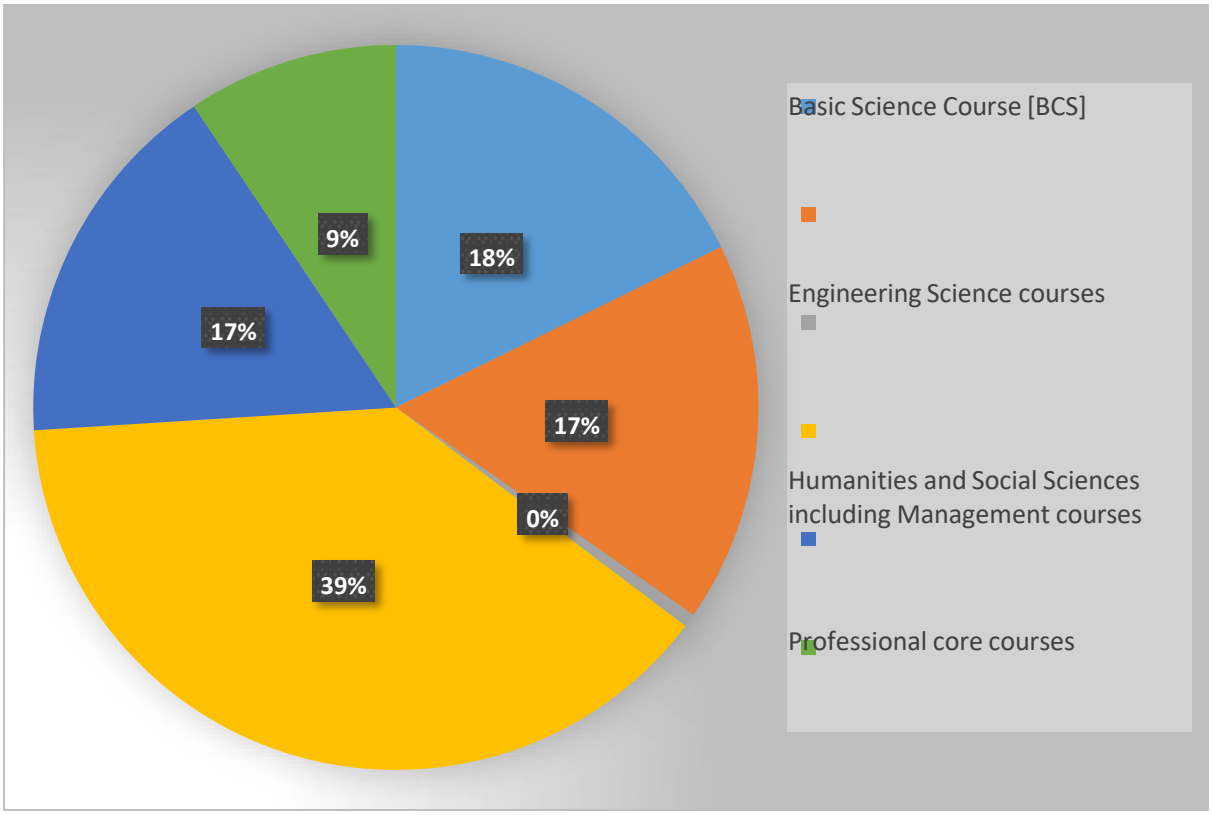


Fig. 2.1.1.1. Pie Chart of Constituents of university Syllabus of Chemical Engineering Program

The university follows the overall curriculum break up suggested by AICTE and implementedit in its program, which is for a period of 8 semesters or 4 years. The curriculum of SPPU for Bachelor of Chemical Engineering is given in Table 2.1.1.A.2

Table 2.1.1.A.2: SPPU Syllabus structure

First Engineering _Structure for Semester-I														
Course Code	**Course Name**	**Teaching Scheme (Hours/Week)**			**Examination Scheme and Marks**						**Credits**			
		Theory	**Practical**	**Tutorial**	**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**	**TH**	**PR**	**TUT**	**Total**
107001	Engineering Mathematics-I	03	--	01	30	70	25	--	--	125	03	--	01	04
107002/ 107009	Engineering Physics / Engineering Chemistry	04	02	--	30	70	--	25	--	125	04	01	--	05
102003	Systems in Mechanical Engineering	03	02	--	30	70	--	25	--	125	03	01	--	04

103004 / 104010	Basic Electrical Engineering / Basic Electronics Engineering	03	02	--	30	70	--	25	--	125	03	01	--	04
110005/ 101011	Programming and Problem Solving / Engineering Mechanics	03	02	--	30	70	--	25	--	125	03	01	--	04
111006	Workshop[@]	--	02	--	--	--	--	25	--	25	--	01	--	01
	Total	16	10	01	150	350	25	125	--	650	16	05	01	22
101007	Audit Course 1[&]	02	Environmental Studies-I											
Induction Program : 2 weeks at the beginning of semester-I and 1 week at the beginning of semester-II														
First Engineering_ Structure for Semester-II														
Course Code	**Course Name**	**Teaching Scheme (Hours/Week)**			**Examination Scheme and Marks**						**Credits**			
		Theory	**Practical**	**Tutorial**	**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**	**TH**	**PR**	**TUT**	**Total**
107008	Engineering Mathematics-II	04	--	01	30	70	25	--	--	125	04	--	01	05
107002/ 107009	Engineering Physics/ Engineering Chemistry	04	02	--	30	70	--	25	--	125	04	01	--	05

103004 / 104010	Basic Electrical Engineering / Basic Electronics Engineering	03	02	--	30	70	--	25	--	125	03	01	--	04
110005/ 101011	Programming and Problem Solving / Engineering Mechanics	03	02	--	30	70	--	25	--	125	03	01	--	04
102012	Engineering Graphics [Ω]	01	02	01	--	50	25		--	75	01	01		02
110013	Project Based Learning[§]	--	04	--	--	--	25	50	--	75	--	02	--	02
Total		15	12	02	120	330	75	125	--	650	15	05	02	22
101014	Audit Course 2[&]	02	Environmental Studies-II											
107015		--	Physical Education-Exercise and Field Activities											
SE (Chemical) 2019 Course for Semester-III														
Course Code	**Course Name**	**Teaching Scheme (Hours/Week**			**Examination Scheme andMarks**						**Credits**			
		Theory	**Practical**	**Tutorial**	**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**	**TH**	**PR**	**TUT**	**Total**
207004	Engineering Mathematics-III	03	--	01	30	70	25	--	--	125	03	--	01	04
209341	Industrial Chemistry I	03	04	--	30	70	--	50	--	150	03	02	--	05

209342	Fluid Mechanics	03	02	--	30	70	25	--	25	150	03	01	--	04
209343	Engineering Materials	03	02	--	30	70	--	--	25	125	03	01	--	04
209344	Process Calculations	03	--	01	30	70	25	--	--	125	03	--	01	04
209345	Soft Skills	--	02	--	--	--	25	--	--	25	--	01	--	01
	Total	**15**	**10**	**02**	**150**	**350**	**100**	**50**	**50**	**700**	**15**	**05**	**02**	**22**
209346	Audit Course 3	--	MOOC Certificate Course in Chemical &Allied Engineering											

SE(Chemical) 2019 Course for Semester-IV

Course Code	**Course Name**	**Teaching Scheme (Hours/Week**			**Examination Scheme andMarks**						**Credits**			
		Theory	**Practical**	**Tutorial**	**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**	**TH**	**PR**	**TUT**	**Total**
209347	Industrial Chemistry II	03	04	--	30	70	--	50	--	150	03	02	--	05
209348	Heat Transfer	03	02	--	30	70	--	--	25	125	03	01	--	04
209349	Principles of Design	03	02	--	30	70	25		--	125	03	01	--	04
209350	Chemical Technology I	03	--	--	30	70	--	--	--	100	03	--	--	03
209351	Mechanical Operations	03	02	--	30	70	25	--	25	150	03	01	--	04
209352	Project Based Learning	--	04	--	--	--	50	--	--	50	--	02	--	02
	Total	**15**	**14**	**--**	**150**	**350**	**100**	**50**	**50**	**700**	**15**	**07**	**--**	**22**
209353	Audit Course 4	--	Online Course/Spoken Tutorial/NPTEL Certificate Course in Chemical & Allied Engineering											

TE(Chemical) 2019 Course for Semester-V

Course Code	**Course Name**	**Teaching Scheme (Hours/Week**			**Examination Scheme andMarks**						**Credits**			
		Theory	**Practical**	**Tutorial**	**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**	**TH**	**PR**	**TUT**	**Total**
309341	Mass Transfer-I	3	4	-	30	70		50	-	150	3	2		5
309342	Chemical Technology -II	3	4	-	30	70	25		50	175	3	2		5
309343	Chemical Engineering Mathematics	3	-	-	30	70	-	-	-	100	3			3

309344	Chemical Engineering Thermodynamics	3	-	-	30	70	-	-	-	100	3			3
309345	Elective-I	3	-	-	30	70	-	-	-	100	3			3
309346	Computer Aided ChemicalEngineering- I	-	2	-	-	-	25	-	-	25		1		1
309347	Seminar	-	-	1	-	-	50	-	-	50			1	1
	Total	**15**	**10**	**1**	**150**	**350**	**100**	**50**	**50**	**700**	**15**	**5**	**1**	**21**
311087 BS	Audit Course 5	-	Industrial Waste Management											

TE(Chemical) 2019 Course for Semester-VI

Course Code	**Course Name**	**Teaching Scheme (Hours/Week**			**Examination Scheme andMarks**						**Credits**			
		Theory	**Practical**	**Tutorial**	**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**	**TH**	**PR**	**TUT**	**Total**
309348	Chemical Reaction Engineering I	3	4	-	30	70	25	50	-	175	3	2		5
309349	Mass Transfer II	3	4		30	70	50	50	-	200	3	2		5
309350	Transport Phenomena	3		2*	30	70	25	-	-	125	3		1	4
309351	Elective-II	3	-	-	30	70	-	-	-	100	3			3
309352	Internship	-	-	4@			100	-	-	100			4	4
	Total	12	08	2+4	120	280	200	100	--	700	12	4	5	21
304191F	Audit Course 6	-	Non-Conventional Energy Resources											
		***Subject Teacher should conduct Tutorial of 2 Hrs per Batch per week.** @Hrs representing under Internship												

BE(Chemical) 2019 Course for Semester-VII

Course Code	**Course Name**	**Teaching Scheme (Hours/Week**			**Examination Scheme andMarks**						**Credits**			
		Theory	**Practical**	**Tutorial**	**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**	**TH**	**PR**	**TUT**	**Total**
409341	Process Dynamics and Control	03	02	-	30	70	-	50	-	150	3	1	-	4
409342	Chemical Reaction Engineering- II	03	-	-	30	70	-	-	-	100	3	-	-	3

409343	Chemical Engineering Design	03	02	-	30	70	-	-	50	150	3	1	-	4
409344	Elective-III	03	-	-	30	70	-	-	-	100	3	-	-	3
409345	Elective-IV	03	-	-	30	70	-	-	-	100	3	-	-	3
409346	Computer Aided Chemical Engineering- II	-	02	-	-	-	50	-	-	50	-	1	-	1
409347	Project Stage I	-	04	-	-	-	50	-	-	50	-	2	-	2
	Total	**15**	**10**	**-**	**150**	**350**	**100**	**50**	**50**	**700**	**15**	**05**	**-**	**20**
409348	Audit Course 7	-	MOOC/NPTEL- Learn New Skills											
BE (Chemical) 2019 Course for Semester-VIII														

Course Code	**Course Name**	**Teaching Scheme (Hours/Week**			**Examination Scheme andMarks**						**Credits**			
		Theory	**Practical**	**Tutorial**	**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**	**TH**	**PR**	**TUT**	**Total**
409349	Process Modeling and Simulation	03	02	-	30	70	25	-	50	175	03	1		04
409350	Process Engineering Costing & Plant Design	03	02	-	30	70	25	-	50	175	03	1		04
419351	Elective-V	03	-	-	30	70	-	-	-	100	03			03
419352	Elective-VI	03	-	-	30	70	-	-	-	100	03			03
419353	Project Phase- II	-	12	-	-	-	100	-	50	150		06		06
	Total	**12**	**14**	**-**	**120**	**280**	**150**	**-**	**150**	**700**	**12**	**08**	**-**	**20**
409354	Audit Course 8	-	MOOC/NPTEL/- Learn New Skills											

B. List the curricular gaps for the attainment of defined POs and PSOs

i. Course outcomes (CO) are framed according to University Syllabus

ii. COs are mapped with POs and PSOs.

iii. Weakly mapped POs and PSOs give us the direction towards thecurricular gaps. Few of the identified gaps for last three

Table 2.1.1.B.1. Curriculum Gaps

A Y 2022-23	
Sr. No.	Gaps
1	The role of engineer in the society
2	Professional engineering solutions on Society and Environment
3	Ethical principle and professional ethics
4	Knowledge of Project management and finance
5	Ability to engage in independent and lifelong Learning in the context of technology
A Y 2021-22	
S N	Gaps
1	The role of engineer in the society
2	Professional engineering solutions on Society and Environment
3	Ethical principle and professional ethics
4	Knowledge of Project management and finance
5	Ability to engage in independent and lifelong Learning in the context of technology
A Y 2020-21	
1	The role of engineer in the society
2	Professional engineering solutions on Society and Environment
3	Ethical principle and professional ethics
4	Knowledge of Project management and finance
5	Ability to engage in independent and lifelong Learning in the context of technology
AY 2019-20	
1	The role of engineer in the society
2	Professional engineering solutions on Society and Environment
3	Ethical principle and professional ethics
4	Knowledge of Project management and finance
5	Ability to engage in independent and lifelong Learning in the context of technology
AY 2018-19	

1	The role of engineer in the society
2	Professional engineering solutions on Society and Environment
3	Ethical principle and professional ethics
4	Knowledge of Project management and finance
5	Ability to engage in independent and lifelong Learning in the context of technology

2.1.2. State the delivery details of the content beyond the syllabus for the attainment of POs and PSOs (10)

A. Steps taken to get identified gaps included in the curriculum. (e.g., letter to university/BOS) (2)

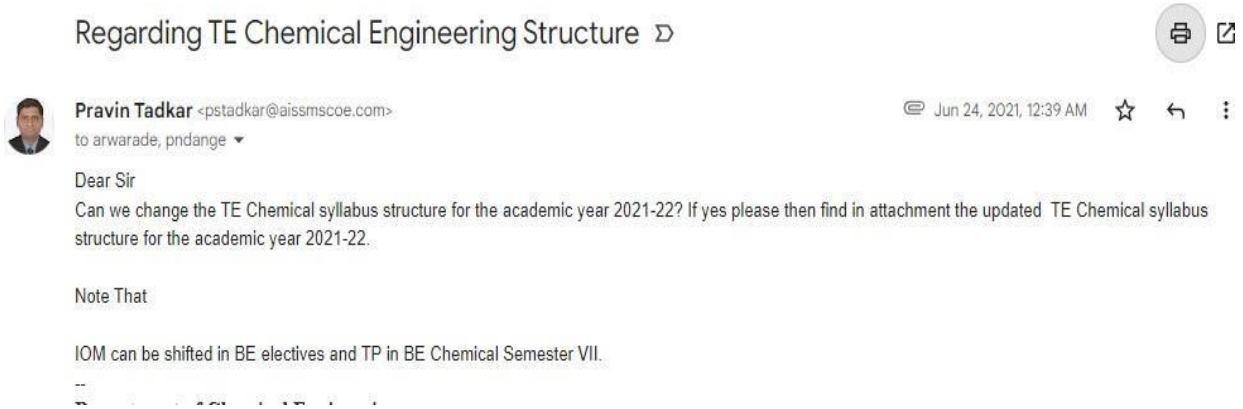
B. Delivery details of content beyond syllabus (5)

C. Mapping of content beyond syllabus with the POs and PSOs (3)

A. Steps taken to get identified gaps included in the curriculum. (e.g., letter to university/BOS)

Steps to finding out curriculum gaps

- Study of SPPU syllabus of SE, TE, BE for Chemical Engineering program.
- Study the recent advancements in Chemical Process Industry.
- Recommendations from, DAB, Industry Institute Interactions.
- Brain storming in the Departmental meetings.
- Feedback and recommendations from all stake holders, the concerned faculty members Identify the gap in the syllabus.
- To bridge the gap, different activities are planned by faculty.
- Request letter to BOS of Chemical Engineering for modification in syllabus, is sent.



Regarding TE Chemical Engineering Structure

Pravin Tadkar <pstadkar@aissmscoe.com> Jun 24, 2021, 12:39 AM

to arwarade, pndange

Dear Sir

Can we change the TE Chemical syllabus structure for the academic year 2021-22? If yes please then find in attachment the updated TE Chemical syllabus structure for the academic year 2021-22.

Note That

IOM can be shifted in BE electives and TP in BE Chemical Semester VII.

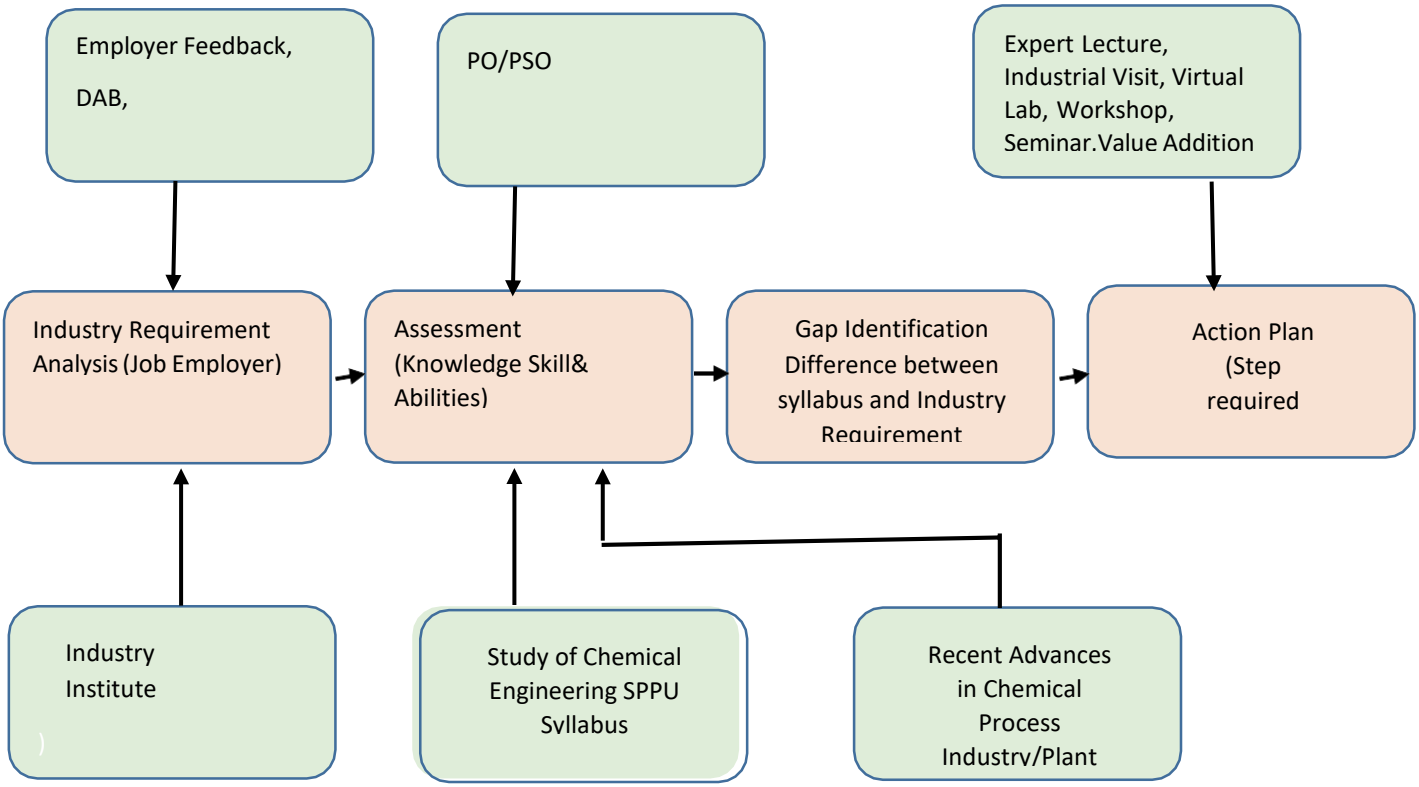


Fig. 2.1.2 Process details of finding gap in curriculum

B. Delivery details of content beyond syllabus (05)

Department regularly arranges the meeting with the stakeholders to analyze the desired Curriculum requirement and get the input and suggestions, regarding curricular gaps and possible addition of new content/add-on courses in the curriculum, tobridge the gap for the attainment of POs and PSOs

Department also organizes additional workshops, seminars, laboratory experiments, mini projects, etc arising from the gaps identified

Table 2.1.2.1. Curricular Gaps

CAY (AY 2022-23)						
Sr. No.	**Gap**	**Action Taken**	**Date Month Year**	**Resource Person with Designation**	**% of student s**	**Relevance to POs and PSOs**
1	**G 1**	Fluid Mechanics & Flow Chemistry	08/01/2023	Mr Chetan A Shende	**57**	PO1, 2,3,4,6,7,8,9,10,11,12 and PSO1, 2
2	**G2**	Safety Aspects in Chemical Industry	21/02/2023	Mr M R Joshi		PO6,7,8,9,10,11, 12 PSO 1
3	**G3**	Industrial Hygiene	03/05/2023	Mr Pravin Totala		PO 8,9,10,11,12 PSO 1
4	**G 4**	Business Opportunities in Finance	11/11/2022	Mr Lokesh D. Bora		PO 8,9,10,11,12 PSO 1
5	**G5**	Design of Process & Control Structures in Pharmaceutical Industries	10/11/2022	Mr. Vinod V. Kenekar		PO1, 2,3,4,6,7,8,9,10,11,12 and PSO1, 2
CAY (AY 2021-22)						

Sr. No.	Gap	Action Taken	Date Month Year	Resource Person with Designation	% of student s	Relevance to POs and PSOs
1	G1	Expert Lecture on Roles of Chemical Engineer in Industry	16/12/2021	Sachin Jadhao Director ChemEngg Reseach Pvt Ltd	42	PO 1 to 12, PSO 1 and 2
2	G 2	Expert Lecture on Environmental Sustainable	27/11/2021	Girish Bhunje Process Engineer Sunpharma Ltd	94	PO:1,2,5 PSO 2
3	G3	Expert Lecture on Research, Innovation and IPR in Chemical Engineering	10/12/2021	Prashant Gunjal Manager, R&D Reliance Industries Ltd.	90	PO:1,3, 8, 10, 12; PSO:1, 2

4	G4	Expert Lecture on Role of Economics in Selection of Technology	16/03/2022	Mr. Nikunj Prataprai Tanna Organisation: Honeywell UOP	56.25	PO1, 2, 3, 6, 7. 8,9, 10,11, 12, PSO1, 2
				Sustainable Technology Solutions		
5	G 5	Expert Lecture on Multidisciplinary Career Opportunities For Engineers	10/08/2021	Narendra Gadre DirectorNapro Scientific	95	PO: 1,9, 10, 12, PSO 1
CAY m1 (2020-21)						
1	G1	Expert Lecture on Safety devices for Process Equipment	20/06/2021	Avishek Mukherjee Principal Process Engg Wood PLC, England	42	PO1,3,6 ,12,
2	G2	Expert Lecture on Food Quality Assurance	30/05/2021	Kanan Patel Management and Food Systems Auditor, Australia	26% (BE)	PO 1, PSO 1

3	G 3	Expert Lecture on Intellectual Property	5/06/2021	Jaspreet Singh CEO IP QUAD,Gurga on	65 %	PO8
4	G 4	Expert Lecture on Process Engineering Costing and Plant Design	26/05/2021	Mr Kedar Choudhary MD, Reva Process Technology	80.26	PO1, 2, 3, 6, 7. 8,9, 10,11, 12, PSO:1,2
5	G5	Expert Lecture on Opportunities after BE in Chemical Engineering	10/10/2020	Uttam Meshram L&T Technology Services	69	PO 5 to 12, PSO 1 to 2
CAY m2 (2019-20)						
1	G 1	Expert Lecture on Energy Conservation, Global Warming and New Emerging	12/07/2019	Mr. Sudhir Shah, PCRA	86	PO:1 7, PSO: 1
2	G 2	Expert Lecture on Multipurpose Distillation , Blendingof ethanol	15/10/2019	Mr. Anil MRaut Sr. Manager	75% (TE)	PO:1,2, 3,4 PSO :1
3	G 3	Soft Skill Training	20/01/20 20 to 30/01/20 20	Institute of Holistic Healing Pvt. Ltd., Pune	49% (SE, TE& BE)	PO :9, 10 PSO: 2
4	G 4	Expert Lecture on Technical Selling: Acareer option for Engineers	07/01/2020	Mr. Sameer Sathe, Corporate Trainer, App Train Systems, Vadodara, Gujarat	50	PO :8,9, 10, PSO: 1

5	G 5	Expert Lecture on Basic Chemical Engineering and Opportunities to Chemical Engineers	28/06/2019	Mr. Aniruddha Kulkarni, Ph D Student University of Florida	78	PO:6,7, PO8, 9, 10
	G1	Expert Lecture on Waste Water Treatment	10-04-2019	Madhav Deshpande Rtd. G M-Earth Water Ltd.,Baner ,Pune	90	PO:1, 5, 6,7,8, 9,10,12
	G 2	Expert Lecture on Membrane Separation in EffluentTreatment -Recovery Perspective	07-09-2018	Yoesh Chendake Associate Professor BharatI Vidyapeeth	**76**	PO:1,2, 3,5,6, 7, 8
	G 3	Expert Lecture on Use of Social Media forPlacement	17/09/2018	Swapnil Patwardhan Project Engineer AP Moller Maersk Ltd.,Mumbai	78	PO:1,5, 9, 10
	G4	Expert Lecture on Process Engg. Costing and PlantDesign	27/03/2019	Dr. R. Khante Director Shubhjyot Consulting Engineers Pvt.Ltd., Pune	**74**	PO:1,5, 6,7,8,9, 10PSO: 1& 2
	G5	Expert Lecture on Opportunities for Chemical Engineers in Process Industry	26/02/2019	Ajinkyaraj VaradeMarketing Head Chemsys Process Engineering Pvt Ltd. Pune	86	PO:6,1 ,12 PSO:1

2.2 Teaching - Learning Processes (100)

As per the prescribed syllabus of the University, HOD allocates the teaching load. Each facultymember prepares a teaching plan of entire semester in-line with the Department'sAcademic Calendar. Detailed unit-wise and date-wise plan is filled by individual faculty in ERP. Each Course has well defined Course Objectives and Course Outcomes. The mapping of COs with POs and PSOs ofthe program are done bythe individual teacher. Also the PAQIC is formed at department level which conducts academic audit.

The Department has adopted innovative and creative teaching learning process, tools and techniques by implementing advanced concept of pedagogy, use of ICT, learning managementsystem, student centric methods, participative learning etc. for enhancing teaching and learningexperience.

The effective implementation of curriculum is ensured by supplementing classroom teaching with expert lectures, seminars, mini projects, in-house and industry supported projects, industry visits, industrial internships, hands-on-sessions, tutorials, case studies, e-learning, NPTEL lectures, MOODLE, knowledge wall, technical quiz, assignments, internal-tests etc.

HOD monitorsthe progress ofsyllabus coverage through ERP. Students' feedback is taken twice in semester through ERP system. Continuous assessment for Practical, Term work, Projects, Seminars, internal examination, assignment evaluation is being continuously monitored by HOD/AC/PAC. University examination is conducted as per schedule prescribed by the university and termed as external assessment. Feedback from stake holders such as students, alumni, parents, employers, teachers to give input in framing the syllabus which is communicated to BOS members. Academic audit is conducted periodically.

2.2.1 Describe Processes followed to improve quality of Teaching & Learning 25

A. Adherence to Academic Calendar (3)

B. Use of various instructional methods and pedagogical initiatives (3)

C. Methodologies to support weak students and encourage bright students(4)

D. Quality of classroom teaching (Observation in a Class) (3)

E. Conduct of experiments (Observation in Lab) (3)

F. Continuous Assessment in the laboratory (3)

G. Student feedback of teaching learning process and action taken (6)

A. Adherence to Academic Calendar

All India Shri Shivaji College of Engineering Pune (AISSMS COE Pune) is affiliated to Savitribai Phule Pune University (SPPU). AISSMS COE prepares the institute academic calendar based upon the SPPU academic calendar. The Course Delivery and the conduct of activities are planned in accordance with the academic calendar. Department prepares the Academic Calendar at the beginning of the term which is basedupon the Institute Academic Calendar. It includes activities planned for the semester which includes internal test dates, conduction of events like organizing guest lectures, industrial visits, conferences/workshop etc. Academic calendar serves as an informationsource and planning documents for the students, faculty and staff.

The academic calendars of SPPU, Institute and Department is as shown in figure

Subject allotment is done in well and advance for the staff to prepare lesson plans adhering to the Academic Calendar

Savitribai Phule Pune University
(Formerly University of Pune)

Circular No. 284 of 2020

Important Notification

Dates of Commencement and Conclusion of I[st] & II[nd] terms for the Academic Year 2020-2021
For affiliated Colleges/recognised Institutes Only.

It is hereby informed that, the dates of Commencement and conclusion of the I[st] and II[nd] term of for the Academic Year 2020-2021 University Courses, under various faculties shall be as under :

Dates of Commencement and conclusion of First Year of academic session 2020-21 will be declared later.

Sr. No.	Name of the Courses and Faculties	2020-2021			
		First Term		Second Term	
		Commencement	Conclusion	Commencement	Conclusion
1	**Science & Technology**				
	Science	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	Engineering : SE,TE,BE	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	Engineering :ME - II Year. MCA- II & III Year	01/07/2020	24/12/2020	19/01/2021	31/05/2021
	B.Architecture II, III, IV & V Year.	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	M. Architecture II Year.	01/07/2020	24/12/2020	19/01/2021	31/05/2021
	B. Pharmacy	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	M. Pharmacy	01/07/2020	24/12/2020	19/01/2021	31/05/2021
2	**Commerce & Management**				
	Commerce	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	Management	01/07/2020	24/12/2020	19/01/2021	31/05/2021
3	**Humanities**				
	Arts & Fine Arts	15/06/2020	05/12/2020	01/01/2021	15/05/2021
	Mental Moral and Social Sciences				
	Law : UG & PG (II/III/IV/V Year.)	01/07/2020	24/12/2020	19/01/2021	31/05/2021
4	**Inter-disciplinary Studies**				
	Education II Year. (B.Ed., M.Ed.)	01/07/2020	24/12/2020	19/01/2021	31/05/2021
	Physical Education II Year. (B.P.Ed., M.P.Ed.)	01/07/2020	24/12/2020	19/01/2021	31/05/2021

-- 2 --

NOTE

1. **In view of prevailing COVID-19 situation in the Country, Colleges / Institutes shall required to follow the guidelines / instructions issued by the Government of Maharashtra time to time.**
2. **In case, the Principal of the affiliated Colleges require to give additional holiday in exceptional circumstances, he may do by the compensating the same by keeping the College working on Sunday.**
3. **The Term & holidays for the Post-Graduate courses coundected in the Colleges/Institutes will be as per the University Department.**

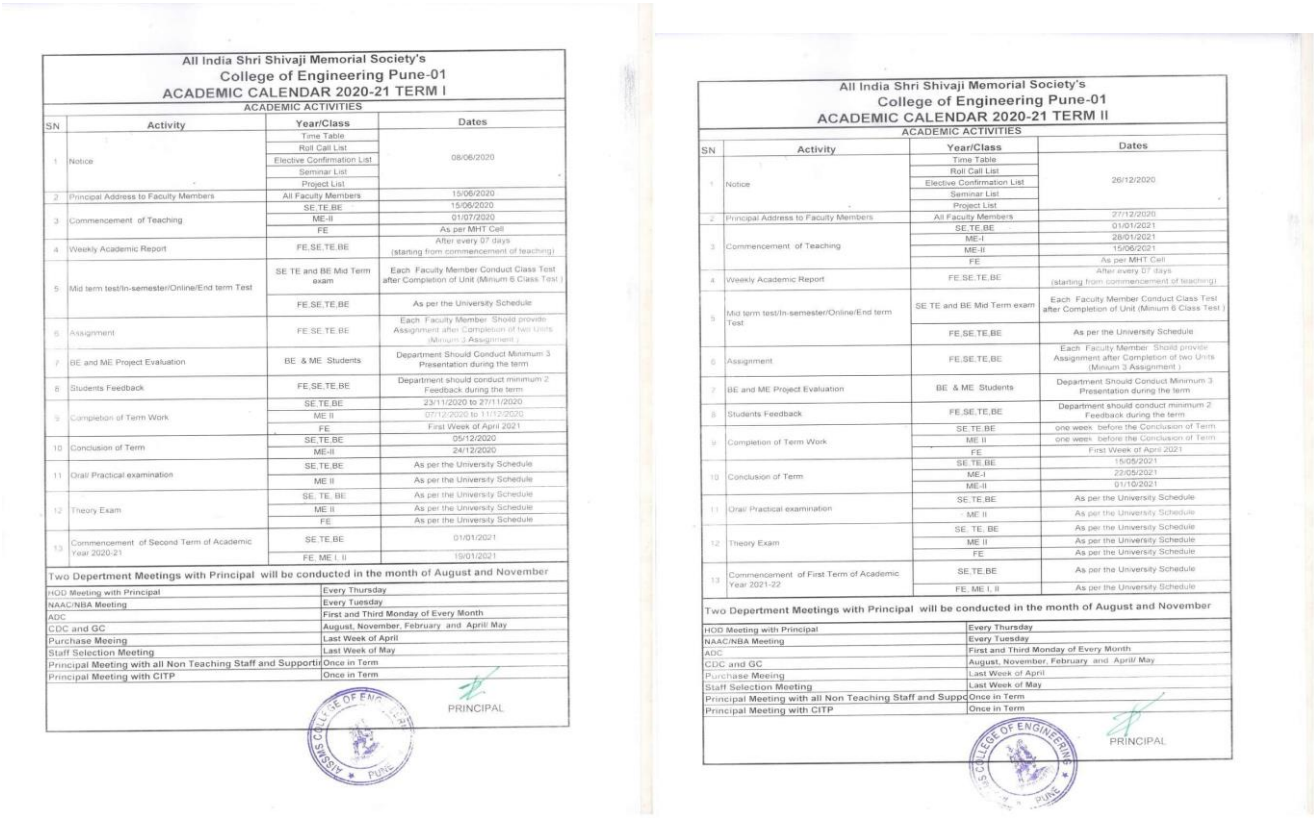
16/10/2020.
Deputy Registrar
(P.G.Admission)

Ganeshkhind, Pune-07
Ref. No. PGS/ 1817
Date: 15/10/2020

Copy to: for Information and necessary action

The Members of the Management Council.
The Deans of Faculties.
The Registrar, Savitribai Phule Pune University, Pune.
The Director, Examinations & Evaluation, Savitribai Phule Pune University, Pune.
The Heads of all University Departments.
The Principals of all Affiliated Colleges.
The Directors of all Recognized Institutes.
The Heads of all the Administrative Sections of the University Office.
Asstt. Registrar, office of the Hon. Vice-Chancellor, Savitribai Phule Pune University
Asstt. Registrar, office of the Hon. Pro-Vice-Chancellor, Savitribai Phule Pune University

Fig. 2.2.1.A.1 Academic Calendar of SPPU AY 2020-2021



All India Shri Shivaji Memorial Society's
College of Engineering Pune-01
ACADEMIC CALENDAR 2020-21 TERM I

ACADEMIC ACTIVITIES

SN	Activity	Year/Class	Dates
1	Notice	Time Table Roll Call List Elective Confirmation List Seminar List Project List	08/06/2020
2	Principal Address to Faculty Members	All Faculty Members	15/06/2020
3	Commencement of Teaching	SE,TE,BE	15/06/2020
		ME-II	01/07/2020
		FE	As per MHT Cell
4	Weekly Academic Report	FE,SE,TE,BE	After every 07 days (starting from commencement of teaching)
5	Mid term test/In-semester/Online/End term Test	SE TE and BE Mid Term exam	Each Faculty Member Conduct Class Test after Completion of Unit (Minium 6 Class Test)
		FE,SE,TE,BE	As per the University Schedule
6	Assignment	FE,SE,TE,BE	Each Faculty Member Should provide Assignment after Completion of two Units (Minium 3 Assignment)
7	BE and ME Project Evaluation	BE & ME Students	Department Should Conduct Minimum 3 Presentation during the term
8	Students Feedback	FE,SE,TE,BE	Department should conduct minimum 2 Feedback during the term
9	Completion of Term Work	SE,TE,BE	23/11/2020 to 27/11/2020
		ME II	07/12/2020 to 11/12/2020
		FE	First Week of April 2021
10	Conclusion of Term	SE,TE,BE	05/12/2020
		ME-II	24/12/2020
11	Oral/ Practical examination	SE,TE,BE	As per the University Schedule
		ME II	As per the University Schedule
12	Theory Exam	SE, TE, BE	As per the University Schedule
		ME II	As per the University Schedule
		FE	As per the University Schedule
13	Commencement of Second Term of Academic Year 2020-21	SE,TE,BE	01/01/2021
		FE, ME I, II	19/01/2021

Two Depertment Meetings with Principal will be conducted in the month of August and November

HOD Meeting with Principal	Every Thursday
NAAC/NBA Meeting	Every Tuesday
ADC	First and Third Monday of Every Month
CDC and GC	August, November, February and April/ May
Purchase Meeing	Last Week of April
Staff Selection Meeting	Last Week of May
Principal Meeting with all Non Teaching Staff and Supporti	Once in Term
Principal Meeting with CITP	Once in Term

PRINCIPAL

All India Shri Shivaji Memorial Society's
College of Engineering Pune-01
ACADEMIC CALENDAR 2020-21 TERM II

ACADEMIC ACTIVITIES

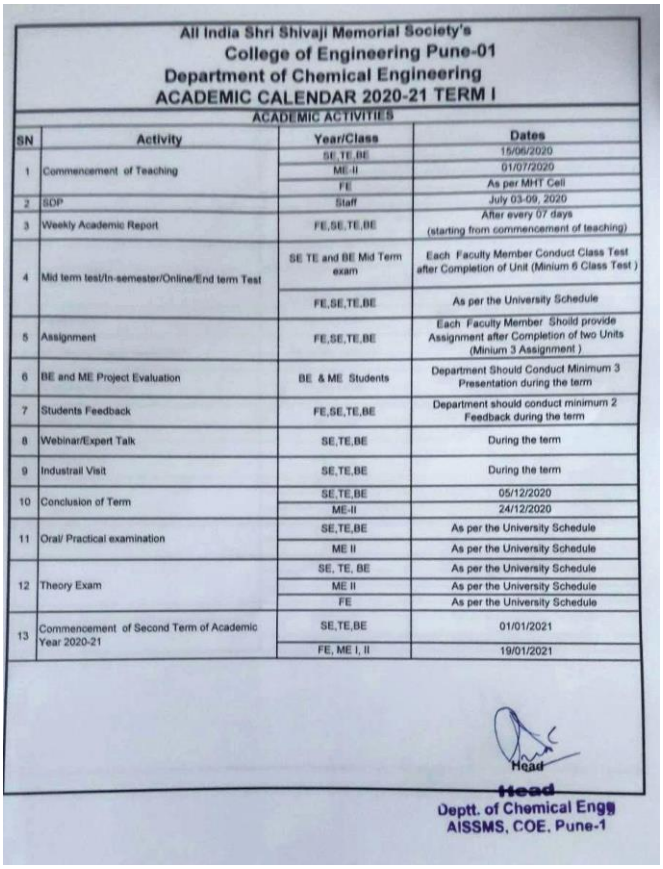
SN	Activity	Year/Class	Dates
1	Notice	Time Table Roll Call List Elective Confirmation List Seminar List Project List	26/12/2020
2	Principal Address to Faculty Members	All Faculty Members	27/12/2020
3	Commencement of Teaching	SE,TE,BE	01/01/2021
		ME-I	28/01/2021
		ME-II	15/06/2021
		FE	As per MHT Cell
4	Weekly Academic Report	FE,SE,TE,BE	After every 07 days (starting from commencement of teaching)
5	Mid term test/In-semester/Online/End term Test	SE TE and BE Mid Term exam	Each Faculty Member Conduct Class Test after Completion of Unit (Minium 6 Class Test)
		FE,SE,TE,BE	As per the University Schedule
6	Assignment	FE,SE,TE,BE	Each Faculty Member Should provide Assignment after Completion of two Units (Minium 3 Assignment)
7	BE and ME Project Evaluation	BE & ME Students	Department Should Conduct Minimum 3 Presentation during the term
8	Students Feedback	FE,SE,TE,BE	Department should conduct minimum 2 Feedback during the term
9	Completion of Term Work	SE,TE,BE	one week before the Conclusion of Term
		ME II	one week before the Conclusion of Term
		FE	First Week of April 2021
10	Conclusion of Term	SE,TE,BE	15/05/2021
		ME-I	22/05/2021
		ME-II	01/10/2021
11	Oral/ Practical examination	SE,TE,BE	As per the University Schedule
		ME II	As per the University Schedule
12	Theory Exam	SE, TE, BE	As per the University Schedule
		ME II	As per the University Schedule
		FE	As per the University Schedule
13	Commencement of First Term of Academic Year 2021-22	SE,TE,BE	As per the University Schedule
		FE, ME I, II	As per the University Schedule

Two Depertment Meetings with Principal will be conducted in the month of August and November

HOD Meeting with Principal	Every Thursday
NAAC/NBA Meeting	Every Tuesday
ADC	First and Third Monday of Every Month
CDC and GC	August, November, February and April/ May
Purchase Meeing	Last Week of April
Staff Selection Meeting	Last Week of May
Principal Meeting with all Non Teaching Staff and Suppo	Once in Term
Principal Meeting with CITP	Once in Term

PRINCIPAL

Fig. 2.2.1.A.2 Academic Calendar of Institute AY 2020-2021 (Term I and II)

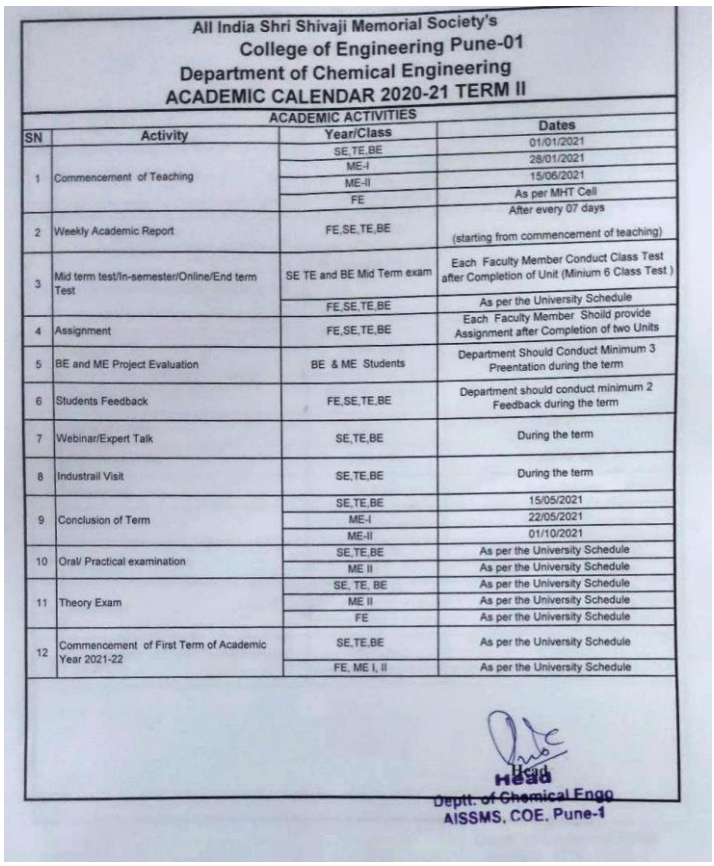


All India Shri Shivaji Memorial Society's
College of Engineering Pune-01
Department of Chemical Engineering
ACADEMIC CALENDAR 2020-21 TERM I

ACADEMIC ACTIVITIES

SN	Activity	Year/Class	Dates
1	Commencement of Teaching	SE,TE,BE	15/06/2020
		ME-II	01/07/2020
		FE	As per MHT Cell
2	SDP	Staff	July 03-09, 2020
3	Weekly Academic Report	FE,SE,TE,BE	After every 07 days (starting from commencement of teaching)
4	Mid term test/In-semester/Online/End term Test	SE TE and BE Mid Term exam	Each Faculty Member Conduct Class Test after Completion of Unit (Minium 6 Class Test)
		FE,SE,TE,BE	As per the University Schedule
5	Assignment	FE,SE,TE,BE	Each Faculty Member Shoild provide Assignment after Completion of two Units (Minium 3 Assignment)
6	BE and ME Project Evaluation	BE & ME Students	Department Should Conduct Minimum 3 Presentation during the term
7	Students Feedback	FE,SE,TE,BE	Department should conduct minimum 2 Feedback during the term
8	Webinar/Expert Talk	SE,TE,BE	During the term
9	Industrail Visit	SE,TE,BE	During the term
10	Conclusion of Term	SE,TE,BE	05/12/2020
		ME-II	24/12/2020
11	Oral/ Practical examination	SE,TE,BE	As per the University Schedule
		ME II	As per the University Schedule
12	Theory Exam	SE, TE, BE	As per the University Schedule
		ME II	As per the University Schedule
		FE	As per the University Schedule
13	Commencement of Second Term of Academic Year 2020-21	SE,TE,BE	01/01/2021
		FE, ME I, II	19/01/2021

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All India Shri Shivaji Memorial Society's
College of Engineering Pune-01
Department of Chemical Engineering
ACADEMIC CALENDAR 2020-21 TERM II

ACADEMIC ACTIVITIES

SN	Activity	Year/Class	Dates
1	Commencement of Teaching	SE,TE,BE	01/01/2021
		ME-I	28/01/2021
		ME-II	15/06/2021
		FE	As per MHT Cell
2	Weekly Academic Report	FE,SE,TE,BE	After every 07 days (starting from commencement of teaching)
3	Mid term test/In-semester/Online/End term Test	SE TE and BE Mid Term exam	Each Faculty Member Conduct Class Test after Completion of Unit (Minium 6 Class Test)
		FE,SE,TE,BE	As per the University Schedule
4	Assignment	FE,SE,TE,BE	Each Faculty Member Shoild provide Assignment after Completion of two Units
5	BE and ME Project Evaluation	BE & ME Students	Department Should Conduct Minimum 3 Preentation during the term
6	Students Feedback	FE,SE,TE,BE	Department should conduct minimum 2 Feedback during the term
7	Webinar/Expert Talk	SE,TE,BE	During the term
8	Industrail Visit	SE,TE,BE	During the term
9	Conclusion of Term	SE,TE,BE	15/05/2021
		ME-I	22/05/2021
		ME-II	01/10/2021
10	Oral/ Practical examination	SE,TE,BE	As per the University Schedule
		ME II	As per the University Schedule
11	Theory Exam	SE, TE, BE	As per the University Schedule
		ME II	As per the University Schedule
		FE	As per the University Schedule
12	Commencement of First Term of Academic Year 2021-22	SE,TE,BE	As per the University Schedule
		FE, ME I, II	As per the University Schedule

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Fig. 2.2.1.A.3 Academic Calendar of Department of Chemical Engineering AY 2020-2021 (Term-I and Term-II)

B. Use of various instructional methods and pedagogical initiatives

The effective implementation of curriculum is ensured by supplementing classroom teaching with expert lectures, presentations/seminars, mini projects, in-house and industry supported projects, tutorials, group assignments, tutorials, case studies, industry visits, industrial training, internships, hands-in-sessions, e- learning, NPTEL lectures, MOODLE, knowledge wall, technical quiz, assignments, internal-tests etc. As shown Figure No 2.2.1.B.

Training needs of faculty are identified by the head of the department. Faculty is encouraged toattend shortterm training programs (STTPs), faculty development programs (FDPs), Seminars, Workshops and Industry Training etc. to bridge the need

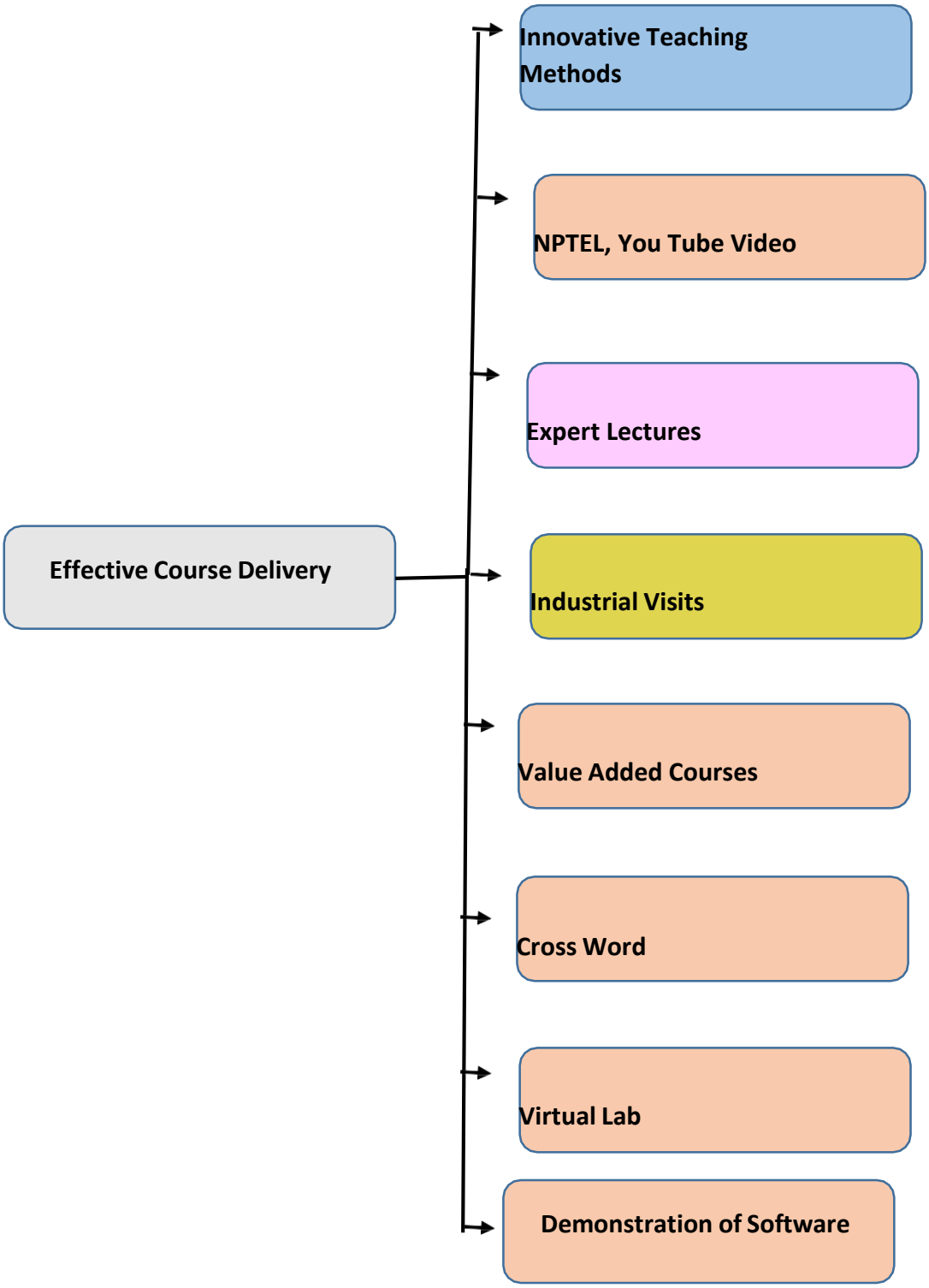


Fig. 2.2.1.B.1. Use of various instructional methods and pedagogical initiatives foreffective course deliveries

ONLINE TEACHING

Lockdown due to COVID 19 has not stopped teaching Learning process atDepartment. Systematic efforts have been put for initiating and implementation ofteaching with online mode.

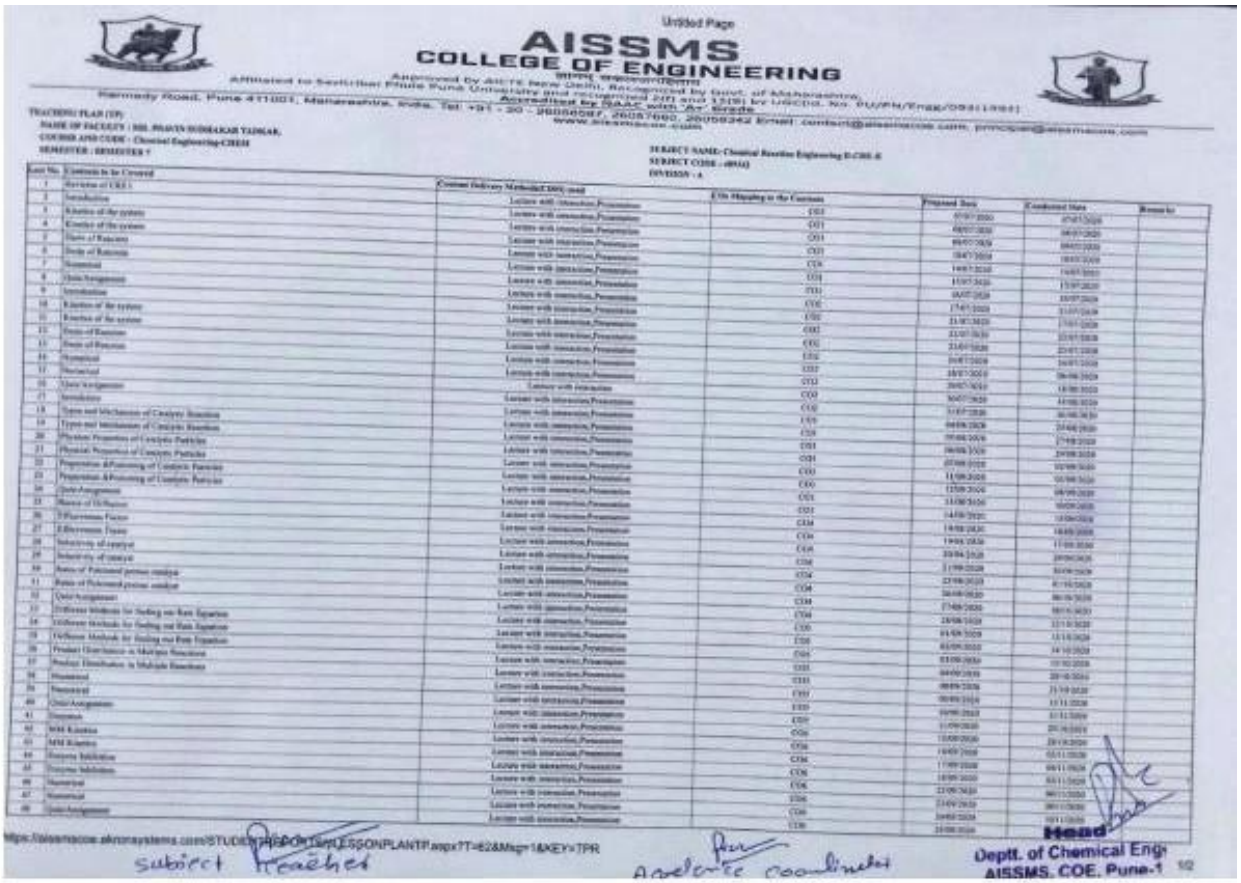
During initial part of the lockdown, ZOOM platform has been used to conduct different webinars, FDP and different teaching learning activities. Other options like Google classroom, what's app, telegram have alsobeen used.

For academic year 2020-21, institute has been using Microsoft Team platform foronline teaching. For effectiveimplementation of teaching learning through MS teams

1. Awareness sessions for the use of MS teams have been conducted at institute level by delegates from Microsoft and at department level by trainers identifiedby departments.
2. Review through survey has been taken regarding availability of internet and other facilities with students.
3. For individual faculty and student, MS team login credentials have been generated.
4. Individual faculty has created team and channel for their assigned subject (Both theory and practical's).
5. Timetable prepared for conducting theory and practical has been prepared matching with curriculum requirement and scheduled on MS team accordingly.
6. For every class, daily four theory classes of 60 minutes each and one practical(60 minutes each) and tutorials have been scheduled and conducted regularly.
7. Unit wise tests and assignments are also conducted through MS team platform.Assessment of tests and assignments also has been carried out through MS teams.
8. Study material like subject notes, PPTs, e books, previous question papers have been shared by faculty on MS team.

9. Recorded videos on MS teams are also shared with students to compensate theacademic loss of students because of power failure and failure in net connectivity.
10. Regarding conduction of practical, faculty have instructed to record videos andshare with students. Virtual Labs also have been identified for different domains and subjects.
11. Mentoring meetings also have been conducted by every faculty on MS teams,as per schedule decided by department.
12. Training sessions on virtual labs also have been conducted by institute for institute faculty and university faculty as well. In fact, that initiative was verywell appreciated by university authorities and faculty from other institutes.
13. For monitoring of conduction of academics, every week Google form questioning all the details regarding conduction of classes is circulated to all faculty.
14. At the same time, weekly meeting of department faculty with HoD is conducted, through online mode and offline also.

Overall, every effort has been put by Department for smooth conduction of academics during this lockdown period.


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Fig. 2.2.1.B.2 Course Teaching Plan of AY 2020-2021

C. Methodologies to support weak students and encourage bright students 4

Process to identify weak learners

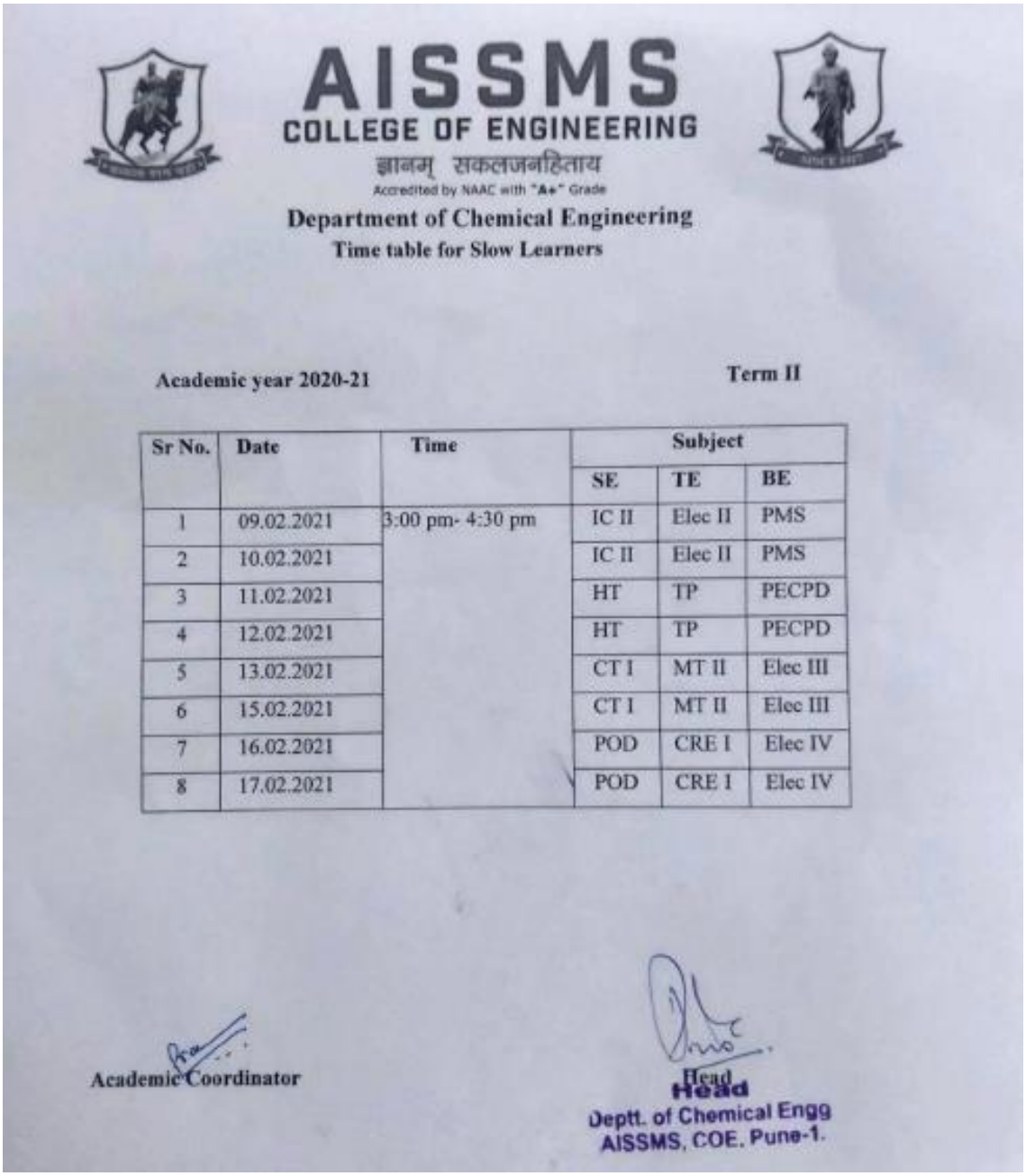
The students are trailed during their academic journey in the college and special efforts are put together to bring weak learners (students with certain limitations) to come at par with the average/above average group. Students with good background and skills are guided to higher levels of achievements and encouraged towardschallenging goals.

Faculty members assess the student learning level as advanced learner and slow learner, basedon penultimate result. *All clear apex ten students are regarded as advance learners, students having backlogs and SGPA below seven are regarded as weak learners.* Based on this evaluation, special activities are undertaken.

Activities for Weak learners:

- Question bank
- Personal Attention in teaching
- Remedial classes
- Guidance for Seminar/Project presentation
- Assignments and Solving university question papers

Following figure shows the time table for weak learner (Slow Learner) activity of AY 2020- 2021 Term-II:



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Department of Chemical Engineering

Time table for Slow Learners

Academic year 2020-21 Term II

Sr No.	Date	Time	Subject		
			SE	TE	BE
1	09.02.2021	3:00 pm- 4:30 pm	IC II	Elec II	PMS
2	10.02.2021		IC II	Elec II	PMS
3	11.02.2021		HT	TP	PECPD
4	12.02.2021		HT	TP	PECPD
5	13.02.2021		CT I	MT II	Elec III
6	15.02.2021		CT I	MT II	Elec III
7	16.02.2021		POD	CRE I	Elec IV
8	17.02.2021		POD	CRE I	Elec IV

Academic Coordinator

Head
Deptt. of Chemical Engg
AISSMS, COE. Pune-1.

Fig. 2.2.1.C.1 Time Table for Weak Learners

A. Encouragement to Active Learners

In order to promote advanced teaching and learning methodologies to give motivation to learn, higher retentionof knowledge through better understanding, increasing depth of knowledge and developing positive attitude to the subject taught following activities to be planned.

a) Active learning: We adopt active learning by involving students in the learning

process more directly through following activities;

- Activities on technical content of syllabus like brain storming, quiz, debate, group discussions, role play, games, model making, mini project, presentations
- Use of Virtual-LAB
- Challenging students to take up open ended problems requiring critical/creativethinking through active participation in state and national and international level competitions such as AVISHKAR, etc.,
- Use of team based learning and participative learning to do some short term projects.
- Brief demonstration, case studies etc.

b) Collaborative Learning: We implement collaborative learning by formingstudent teams working together to solve a problem, complete a task, or designa product. Team works are done in activities like group projects, joint problemsolving, debates etc.

c) Inquiry-based Learning: We make our classrooms as open systems wherestudents are encouraged to search and make use of resources beyond the classroom for investigation of open questions/problems, developing their critical thinking and increasing understanding levels by performing review ofresearch papers, Surveys etc.

d) Cooperative Learning: Focusing on cooperative learning methodologies by distributing the tasks to small group. Students work together to maximize their own and each other's learning in IEI and AICHE, IICHE student chapterstudy circle and while performing various activities using think-pair-share, round table.

e) Problem based Learning: We assign students different tasks, assignments,portfolios, activities in which students engage in complex, challenging problems and collaboratively work toward their resolution by using inter- disciplinary knowledge to solve problems.

f) Experiential learning: We are adding field based experiences, Internship, practicum, cooperativeeducation, service learning and class based experientiallearning by conducting activities like role plays, games, case studies, simulation, virtual lab, presentations and various types of group work.

g) Project based learning: The mandatory BE project is converted to a learning platform by using various tools of project management, solving real time challenges and giving the satisfaction of achieving the goal at the end of completing the project.

h) Student Chapter: To encourage the students to participate in different activities of various chapters. Chapters like AIChE, IIChE, IEI includes different activities suchas workshop, webinars and quiz competitions, conferences, expert talk etc.

Activities to be carried out for advanced learners in Chemical Engineering Department:

- **a.** Encouragement to complete NPTEL certification courses
- **b.** Implementation of research papers
- **c.** Participation in Seminars and Conferences
- **d.** Motivational guest talks
- **e.** Paper publication and presentation
- **f.** Workshop and seminar on current trends
- **g.** Motivation and Guidance for higher studies (GRE, GATE,competitive exams)
- **h.** Industry visits and Industry sponsored/research project
- **i.** Patent filing process

Following table shows list of active learners

Table 2.2.1.C.1 List of Advanced Learners

Sr No	Name of Student	Title of the Course	Conducted By	Year
1.	Dhanjay Kumar Singh	GATE Qualified	**IIT**	**2022**
2.	Vaibhav Shirshat	GATE Qualified	**IIT**	**2022**
3.	Pranav Pawar	GATE Qualified	**IIT**	**2022**
4.	Dikshita Mehta	GATE Qualified	**IIT**	**2022**
5.	Pranav Pawar	Aspen Plus Simulation Software –A Basic Course for Beginners	**NPTEL**	**2021**
6.	Pranav Pawar	Heat Transfer	**NPTEL**	**2021**
7	Mihir Parab	IUCEE Soft Skills Course	IUCEE	**2021-22**
8	Darshan Desadla	IUCEE AI for All	IUCEE	**2021-22**
9	Nupoor Upadhye	Good Performance: IUCEE EWB India Leadership Course 2020	IUCEE	**2021-22**

10	Nupoor Upadhye	Introduction to Entrepreneurship Course	IUCEE	**2021-22**
11	Abhishek Kumbharde	Introduction to Entrepreneurship Course	IUCEE	**2021-22**
12	Murtuza Charbiwala	IUCEE Soft Skills Course	IUCEE	**2021-22**
13	Mohasin Shaikh	IUCEE Soft Skills Course	IUCEE	**2021-22**
14	Govind Tak	Chemical Reaction Engineering I	**NPTEL**	**2019**
15	Sameer Erande	Phase Equilibrium Thermodynamics	**NPTEL**	**2019**
16	Pranav Patil	Phase Equilibrium Thermodynamics	**NPTEL**	**2019**
17	Mahima Phade	Phase Equilibrium Thermodynamics	**NPTEL**	**2019**
18	Aditya Umashankar	Phase Equilibrium Thermodynamics	**NPTEL**	**2019**
19	Rutuja Divekar	Phase Equilibrium Thermodynamics	**NPTEL**	**2019**
20	Minal Borkar	Phase Equilibrium Thermodynamics	**NPTEL**	**2019**
21	Yashoda Patil	Phase Equilibrium Thermodynamics	**NPTEL**	**2019**
22	Hrishikesh Kale	Phase Equilibrium Thermodynamics	**NPTEL**	**2019**
23	Satyam Patil	Phase Equilibrium Thermodynamics	**NPTEL**	**2019**
24	Pratik Chaure	Phase Equilibrium Thermodynamics	**NPTEL**	**2019**

D. Quality of classroom teaching (Observation in a Class) **3**

Each Classrooms equipped with black board and audio visual aids with internet to create an better ambience for effective teaching learning environment. Each lecture is scheduled for onehour.
During the lecture, faculties take efforts to keep students engaged by effective teaching methodologies like during the lecture faculties' emphasis on collaborative learning methodology.
Also there is a dedicated classroom having attached a Smart Board to enhance effective delivery of teaching learning process.



Fig. 2.2.1.D.1. Class Room Teaching

E. Conduct of experiments (Observations in Lab) **3**

a. The laboratories under the program are having display boards having course objectives, outcome, list ofexperiments carried course wise, safety measures to be taken and laboratory timetable.

b. Lab manuals are provided to the students where a student can refer required details while the performingan experiment.

c. Dedicated Instructional area is provided where the students are briefed before proceeding with thedemonstration and performance

d. A batch of 4-5 students is generally limited on the performing setup to carry out the experiment.

e. In addition, Virtual Lab experiments are also conducted by the students.

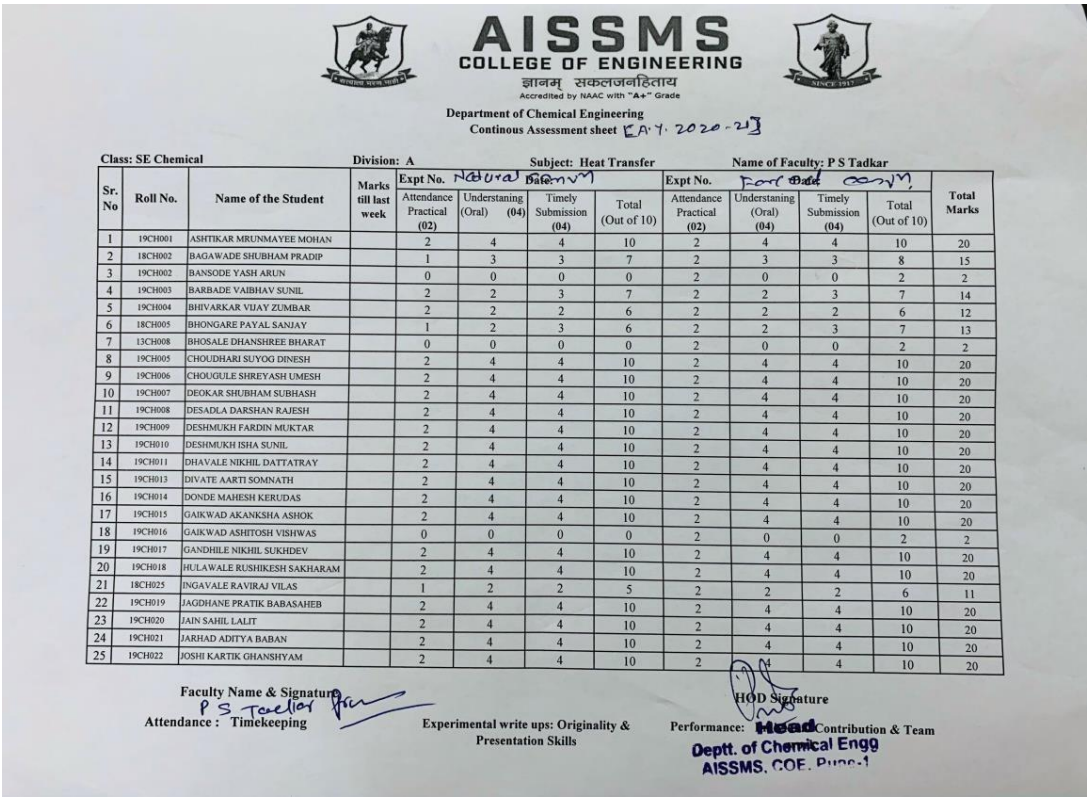


Fig. 2.2.1.D.2. Class Room Teaching

F. Continuous Assessment in the laboratory

Continuous Assessment (CAS) in the laboratory is maintained for each and every Practical subject. The students are briefed about the CAS. Assessment is carried on the basis of attendance, understanding and timelysubmission. Class attendance and practical attendance both are monitored and students having regular attendance able to secure maximum mark. Understanding includes the behaviour and question answering during

practical session. Students are encouraged to submit the first practical writeup before the next practical. Following image shows assessment sheet of practical of AY 2020-2021 for subject Heat Transfer.



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Department of Chemical Engineering
Continous Assessment sheet F.Y. 2020-21

Class: SE Chemical **Division: A** **Subject: Heat Transfer** **Name of Faculty: P S Tadkar**

Sr. No	Roll No.	Name of the Student	Marks till last week	Expt No. Natural Convection Date:				Expt No. Forced Convection Date:				Total Marks
				Attendance Practical (02)	Understaning (Oral) (04)	Timely Submission (04)	Total (Out of 10)	Attendance Practical (02)	Understaning (Oral) (04)	Timely Submission (04)	Total (Out of 10)	
1	19CH001	ASHTIKAR MRUNMAYEE MOHAN		2	4	4	10	2	4	4	10	20
2	18CH002	BAGAWADE SHUBHAM PRADIP		1	3	3	7	2	3	3	8	15
3	19CH002	BANSODE YASH ARUN		0	0	0	0	2	0	0	2	2
4	19CH003	BARBADE VAIBHAV SUNIL		2	2	3	7	2	2	3	7	14
5	19CH004	BHIVARKAR VIJAY ZUMBAR		2	2	2	6	2	2	2	6	12
6	18CH005	BHONGARE PAYAL SANJAY		1	2	3	6	2	2	3	7	13
7	13CH008	BHOSALE DHANSHREE BHARAT		0	0	0	0	2	0	0	2	2
8	19CH005	CHOUDHARI SUYOG DINESH		2	4	4	10	2	4	4	10	20
9	19CH006	CHOUGULE SHREYASH UMESH		2	4	4	10	2	4	4	10	20
10	19CH007	DEOKAR SHUBHAM SUBHASH		2	4	4	10	2	4	4	10	20
11	19CH008	DESADLA DARSHAN RAJESH		2	4	4	10	2	4	4	10	20
12	19CH009	DESHMUKH FARDIN MUKTAR		2	4	4	10	2	4	4	10	20
13	19CH010	DESHMUKH ISHA SUNIL		2	4	4	10	2	4	4	10	20
14	19CH011	DHAVALE NIKHIL DATTATRAY		2	4	4	10	2	4	4	10	20
15	19CH013	DIVATE AARTI SOMNATH		2	4	4	10	2	4	4	10	20
16	19CH014	DONDE MAHESH KERUDAS		2	4	4	10	2	4	4	10	20
17	19CH015	GAIKWAD AKANKSHA ASHOK		2	4	4	10	2	4	4	10	20
18	19CH016	GAIKWAD ASHITOSH VISHWAS		0	0	0	0	2	0	0	2	2
19	19CH017	GANDHILE NIKHIL SUKHDEV		2	4	4	10	2	4	4	10	20
20	19CH018	HULAWALE RUSHIKESH SAKHARAM		2	4	4	10	2	4	4	10	20
21	18CH025	INGAVALE RAVIRAJ VILAS		1	2	2	5	2	2	2	6	11
22	19CH019	JAGDHANE PRATIK BABASAHEB		2	4	4	10	2	4	4	10	20
23	19CH020	JAIN SAHIL LALIT		2	4	4	10	2	4	4	10	20
24	19CH021	JARHAD ADITYA BABAN		2	4	4	10	2	4	4	10	20
25	19CH022	JOSHI KARTIK GHANSHYAM		2	4	4	10	2	4	4	10	20

Faculty Name & Signature P S Tadkar
Attendance : Timekeeping
Experimental write ups: Originality & Presentation Skills
HOD Signature
Performance: Contribution & Team
Head
Deptt. of Chemical Engg
AISSMS, COE, Pune-1

Fig. 2.2.1.F.1. CAS Sheet for Lab. Assignments

G. Student Feedback of teaching learning process and action taken

Feedback Process

Students' feedback about teaching a course is taken twice in semester through ERP system. First feedback is to taken after six weeks of teaching. Corrective action is to take after this feedback. Second feedback is takenat the end of the semester. Following performance parameters are set for feedback.

Table 2.2.1.G.1 Parameters of Feedback form

SN	Performance Parameter
1	Completion of Syllabus
2	Content Beyond the Syllabus
3	Effectiveness of Teacher in term of Technical Content, Communication Skilland Technical Aids
4	Pace on which Content Covered
5	Motivation and Inspiration for students to Learn
6	Support for the Development of Students Skill Practical Demonstration
7	Clarity of Expectations of the Students
8	Feedback provided on student Progress
9	Support for the Development of Students Skill Practical Demonstration through V-Lab, Video Demonstration, YOU tube Video

END TERM FEEDBACK 2020 21,SEM 1

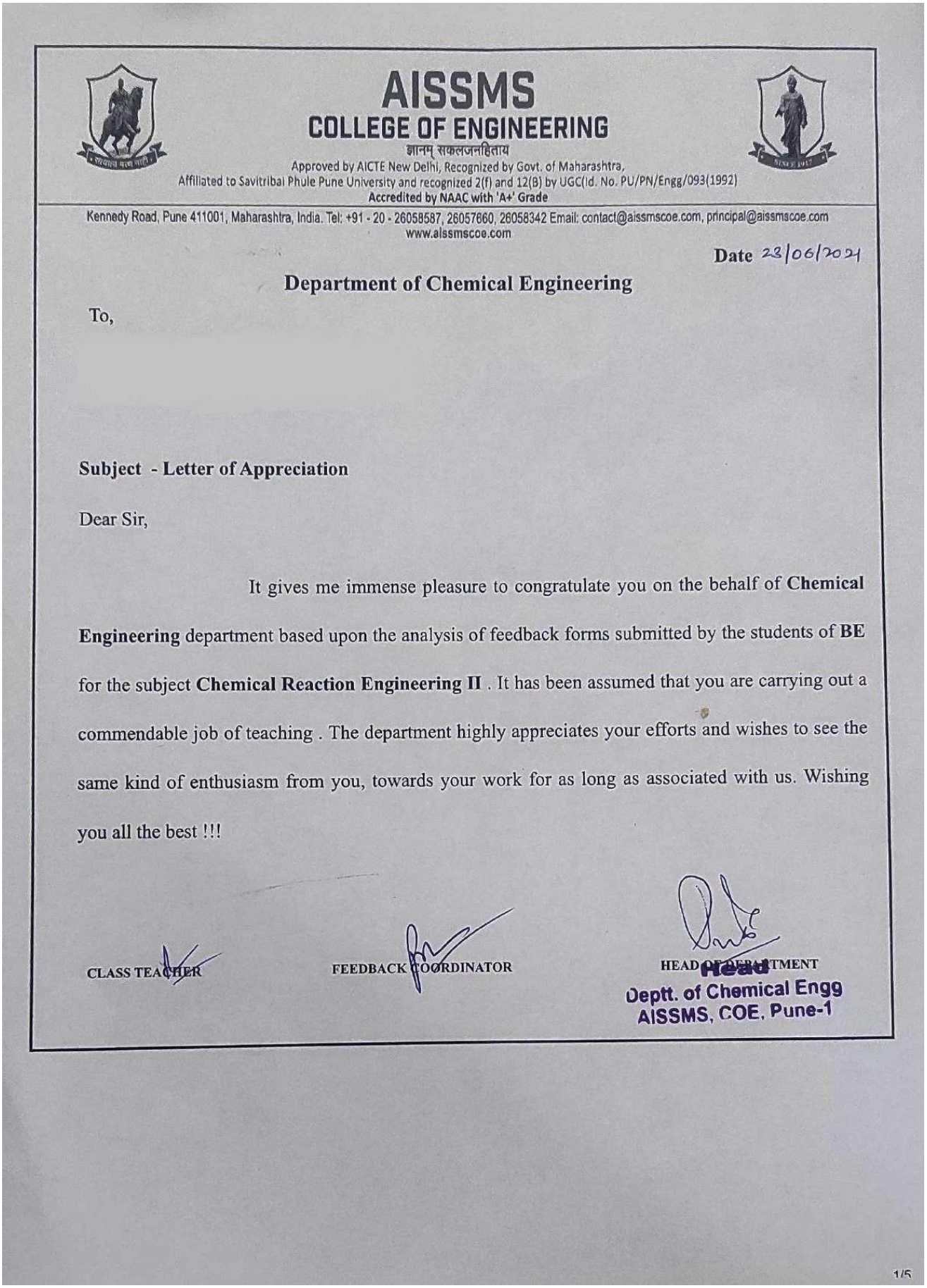
TEACHER - **DEPARTMENT** - CHEMICAL ENGINEERING **TOTAL STUDENTS -**

ACADEMIC YEAR - 2020-2021 **SUBJECT** - CHEMICAL REACTION ENGINEERING II (THEORETICAL) **SEMESTER 7 (A)**

DATE - 03/12/2020 **TERM -**

SR NO	QUESTION	EXCELLENT	VERY GOOD	GOOD	SATISFACTORY	NOT SATISFACTORY	TOTAL MARKS	OUT OF	PERCENTAGE
1	HAS THE TEACHER COVERED ENTIRE SYLLABUS AS PRESCRIBED BY UNIVERSITY, COLLEGE, BOARD	25	10	4	1	0	179	200	90%
2	HAS THE TEACHER COVERED RELEVANT TOPICS BEYOND SYLLABUS	23	12	3	2	0	176	200	88%
3	PACE ON WHICH CONTENTS WERE COVERED	24	10	5	1	0	177	200	88%
4	MOTIVATION AND INSPIRATION FOR STUDENTS TO LEARN	23	10	4	3	0	173	200	86%
5	CLARITY OF EXPECTATIONS OF STUDENTS	24	8	6	2	0	174	200	87%
6	FEEDBACK PROVIDED ON STUDENTS PROGRESS	23	9	6	2	0	173	200	86%
7	EFFECTIVENESS OF TEACHER IN TERMS OF TECHNICAL E-COURSE CONTENT, COMMUNICATION SKILLS AND TEACHING AIDS	25	6	7	2	0	174	200	87%
8	SUPPORT FOR THE DEVELOPMENT OF STUDENTS SKILL PRACTICAL DEMONSTRATION THROUGH V-LAB, VIDEO DEMONSTRATION, YOU TUBE VIDEO	21	14	4	1	0	175	200	88%
9	SUPPORT FROM TEACHER DURING PANDEMIC FOR ADDRESSING STUDENTS ISSUE	25	5	7	3	0	172	200	86%
	TOTAL	213	84	46	17	0	1573	1800	87%
	TOTAL(%)	59%	23%	13%	5%	0%	PERFORMACE INDEX - 87		

Fig. 2.2.1.G.1 End Term feedback of course AY 2020-2021 (Term-I)



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www.aissmscoe.com

Date 23/06/2021

Department of Chemical Engineering

To,

Subject - Letter of Appreciation

Dear Sir,

It gives me immense pleasure to congratulate you on the behalf of **Chemical Engineering** department based upon the analysis of feedback forms submitted by the students of **BE** for the subject **Chemical Reaction Engineering II** . It has been assumed that you are carrying out a commendable job of teaching . The department highly appreciates your efforts and wishes to see the same kind of enthusiasm from you, towards your work for as long as associated with us. Wishing you all the best !!!

CLASS TEACHER **FEEDBACK COORDINATOR** **HEAD OF DEPARTMENT**

Head
Deptt. of Chemical Engg
AISSMS, COE, Pune-1

1/5

Fig. 2.2.1.G.1 Letter of Appreciation

2.2.2 Quality of Internal Semester Question Papers, Assignments and Evaluation

(Mention the initiatives, implementation details and analysis of learning levelsrelated to quality of semester question papers, assignments and evaluation)

A. Process for internal semester question paper setting and evaluation and effective processImplementation (5)

B. Process to ensure questions from outcomes/learning levels perspective (5)

C. Evidence of COs coverage in class test / mid-term tests (5)

D. Quality of Assignment and its relevance to COs (5)

A. Process to ensure quality of Question Papers

- Guidelines are set for unit test by the Institute level academic coordinator.
- In HOD meeting, the policy of verification of course plan is decided.
- Course plan with CO-PO-PSO mapping is prepared by faculty members by using Bloom's taxonomy.
- Tests schedules are planned in Department academic calendar.
- Test papers are based on different cognitive levels of Bloom's taxonomy.
- Faculty sets question papers in align with the course outcomes.
- Six class tests are conducted course wise, each test is conducted after completion of the unit
- Question papers are verified by Departmental committee/ academic coordinator.
- Model answer sheets are prepared by faculty members are assessment is done accordingto that.
- Assessed answer sheets are shown to students

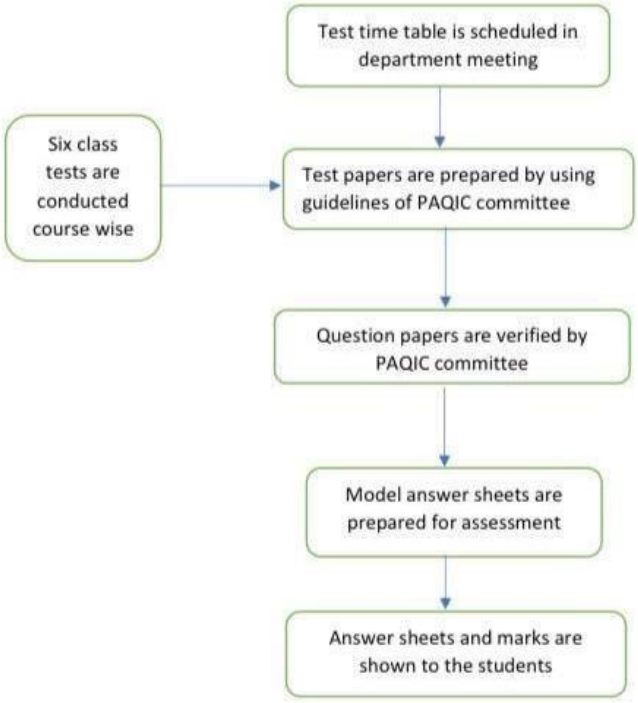
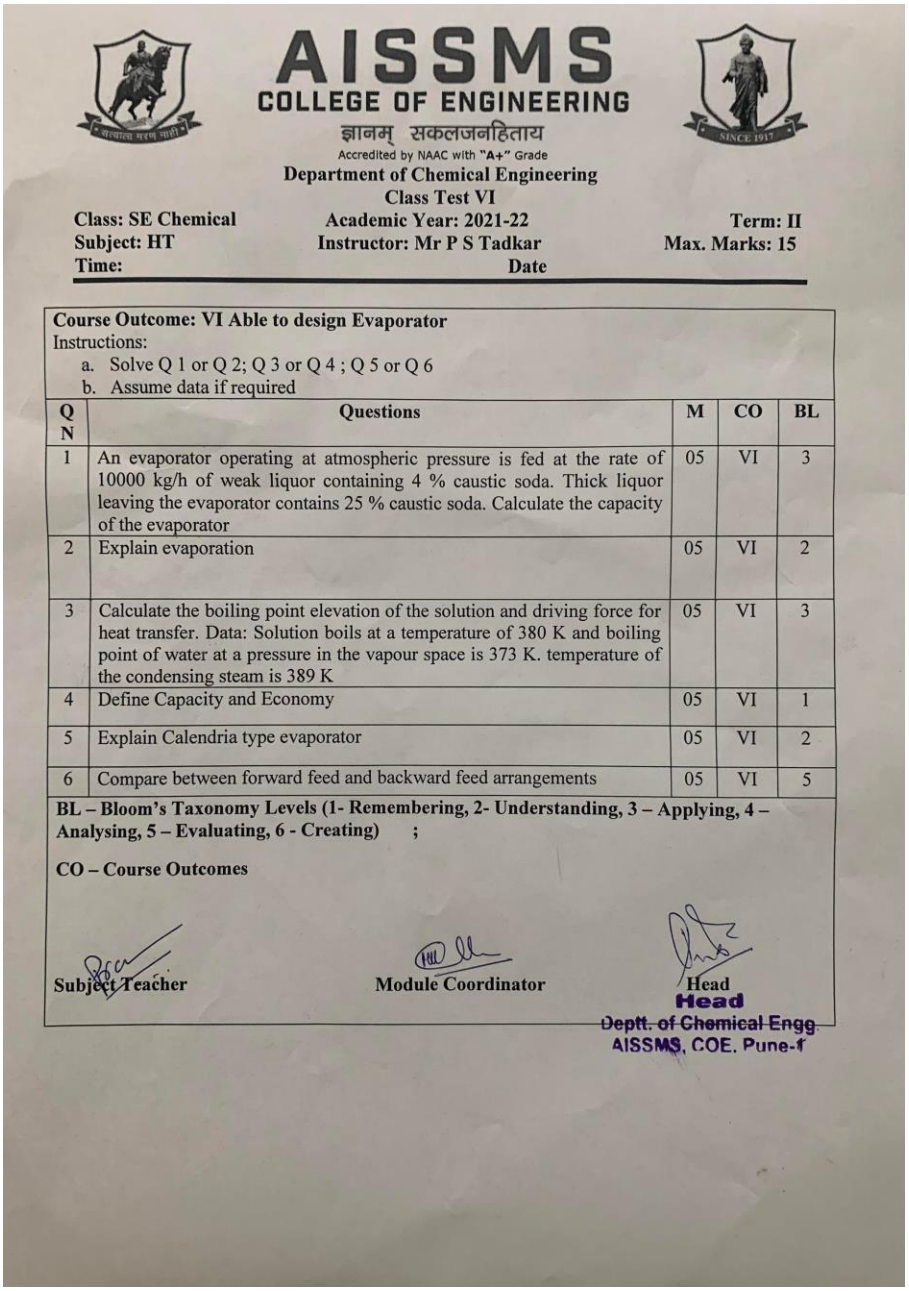


Fig. 2.2.2.A.1. Flowchart of preparation quality question paper



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Department of Chemical Engineering
Class Test VI

Class: SE Chemical | Academic Year: 2021-22 | Term: II
Subject: HT | Instructor: Mr P S Tadkar | Max. Marks: 15
Time: | Date

Course Outcome: VI Able to design Evaporator
Instructions:
a. Solve Q 1 or Q 2; Q 3 or Q 4 ; Q 5 or Q 6
b. Assume data if required

QN	Questions	M	CO	BL
1	An evaporator operating at atmospheric pressure is fed at the rate of 10000 kg/h of weak liquor containing 4 % caustic soda. Thick liquor leaving the evaporator contains 25 % caustic soda. Calculate the capacity of the evaporator	05	VI	3
2	Explain evaporation	05	VI	2
3	Calculate the boiling point elevation of the solution and driving force for heat transfer. Data: Solution boils at a temperature of 380 K and boiling point of water at a pressure in the vapour space is 373 K. temperature of the condensing steam is 389 K	05	VI	3
4	Define Capacity and Economy	05	VI	1
5	Explain Calendria type evaporator	05	VI	2
6	Compare between forward feed and backward feed arrangements	05	VI	5

BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating) ;

CO – Course Outcomes

Subject Teacher | Module Coordinator | Head

Head
Deptt. of Chemical Engg.
AISSMS, COE. Pune-1

Fig. 2.2.2.A.2. Test Question Paper of Chemical Engineering AY 2021-2022

B. Process to ensure questions from outcomes/learning levels perspective

For each course tests and assignments are taken to ensure the outcomes of the course. The class test papers and assignments are set to cover unit wise COs. Thetests and assignments are designed to assist the evaluation of learning levels suchas analytical skills, design, logical reasoning and applications. The questions in the test and assignments are reviewed by module coordinators/PAC/ HOD

C. Evidence of COs coverage in class test / mid-term tests

- After completion of each unit, test is conducted.
- The tests are designed to evaluate the learning levels such as analytical skills, design, logical reasoning andapplications.
- The assessment is done by the faculty, result is shared with the students.

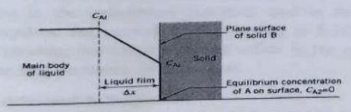
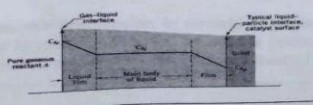
D.Quality of Assignment and its relevance to COs 5

- After completion of particular module, assignment based on the content covered is prepared by courseteacher.
- Assignments are issued to students in group of 10 students with specific due date
- Assignments are solved by the students and evaluated by course teacher and returned back to student.

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Assignment 1

Academic Year/Term : 2020-21/I **Class: BE Chemical**
Subject: CRE II **Instructor: Pravin S Tadkar**
DOA: 13/08/2020 **DOS: 23/08/2020**
Name of Student: **Sr No:** **Roll Number**

Unit I

QN	Sr No	Questions	BL	CO
1	1-7	Dilute A diffuses through a stagnant liquid film onto a plane surface consisting of B, reacts there to produce R which diffuses back into the mainstream. Develop the overall rate expression for the L/S reaction: $A(l) + B(s) \rightarrow R(l)$ which takes place on this flat surface 	6	1
2	8-14	In slurry reactors, pure reactant gas is bubbled through liquid containing suspended catalyst particles. Let us view these kinetics in terms of the film theory, as shown in Figure. Thus, to reach the surface of the solid, the reactant which enters the liquid must diffuse through the liquid film into the main body of liquid, and then through the film surrounding the catalyst particle. At the surface of the particle, reactant yields product according to first-order kinetics. Derive an expression for the rate of reaction in terms of these resistances. 	6	1

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3	15-21	Gaseous reactant A diffuses through a gas film and reacts on the surface of a solid according to a reversible first-order rate $-r''_A = k''(C_{As} - C_{Ae})$ where C_{Ae}, is the concentration of A in equilibrium with the solid surface. Develop an expression for the rate of reaction of A accounting for both the mass transfer and reaction steps.	6	1
4	22-28	A feed consisting 30% of 50-µm-radius particles ,40% of 100-µm-radius particles and 30% of 200-µm-radius particles is to be reacted in a fluidized-bed steady-state flow reactor constructed from a vertical 2-m long 20-cm ID pipe. The fluidizing gas is the gas-phase reactant, and at the planned operating conditions the time required for complete conversion is 5,10, and 20 min for the three sizes of feed. Calculate the conversion of solids in the reactor for a feed rate of 1 kg solids/min if the bed contains 10 kg solids. Additional Information: The solids are hard and unchanged in size and weight during reaction. A cyclone separator is used to separate and return to the bed any solids that may be entrained by the gas. The change in gas-phase composition in the bed is small,	3	1
5	29-35	Solids of unchanging size, R = 0.3 mm, are reacted with gas in a steady flow bench scale fluidized reactor with the following result. $F_A = 10$ gmlsec, $W = 1000$ gm, $X_A = 0.75$ Also, the conversion is strongly temperature-sensitive suggesting that the reaction step is rate-controlling. Design a commercial sized fluidized bed reactor (find W) to treat 4 metric tonslhr of solid feed of size R = 0.3 mm to 98% conversion	6	1

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6	36-43	A stream of particles of one size are 80% converted (SCM/ash diffusion control, uniform gas environment) on passing through a reactor. If the reactor is made twice the size but with the same gas environment, same feed rate, and same flow pattern of solids, what would be the conversion of solids? The solids are in plug flow	5	1
7	44-51	A stream of particles of one size are 80% converted (SCM/ash diffusion control, uniform gas environment) on passing through a reactor. If the reactor is made twice the size but with the same gas environment, same feed rate, and same flow pattern of solids, what would be the conversion of solids? The solids are in mixed flow	5	1
8	52-59	Particles of uniform size are 60% converted on the average (shrinking core model with reaction controlling) when flowing through a single fluidized bed. If the reactor is made twice as large but contains the same amount of solids and with the same gas environment what would be the conversion of solids?	5	1
9	60-67	A fluidised bed reactor is fed with 1.5 kg/min feed consisting of 25 % 50 μm radius particles, 40 % 100 μm radius particles and 35 % 200 μm radius particles. The bed contains 15 kg of solids. The fluidising gas is the gas phase reactant. T (100 μm) = 10 min. Ash diffusion step controls rate. The solids are hard and remain unchanged in size during reaction. The solids are entrained by the fluidising gas. The change in gas phase composition is negligible. The elutriation velocity constant is given by K = (500 μm^2/min /R^2) where r is particle radius in μm. Find the conversion of solids in the reactor	3	1
10	68-78	A fluidised bed reactor is fed with 2 kg/min feed consisting of 35 % 25 μm radius particles, 35 % 50 μm radius particles and 30 % 100 μm radius particles. The bed contains 16 kg of solids. The fluidising gas is the gas phase reactant. The time required for complete conversion of these three particle sizes of feed is 2.5, 5 and 10 min. The solids are hard and remain unchanged in size during reaction. The	3	1

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Name of Student: | **Sr No:** | **Roll Number**

		solids are entrained by the fluidising gas. The change in gas phase composition is negligible. The elutriation velocity constant is given by $K = (250\ \mu m^2/min\ /R^2)$ where r is particle radius in μm. Find the conversion of solids in the reactor.		

Unit II

Q N	Sr No	Questions	BL	CO
1	1-7	The concentration of undesirable impurity in air (at 1 bar = 10^5 Pa) is to be reduced from 0.1% (or 100 Pa) to 0.02% (or 20 Pa) by absorption in pure water. Calculate the height of tower required for countercurrent operations. Data $k_{Ag}a$ = 0.32 mol/(hr.m^3.pa); $k_{Al}a$ = 0.1 (1/hr) H_A = 12.5 Pa.m^3/mol; C_T = 5600 mol/m^3 F_g/A_{cs} = 1 X 10^5 mol/(m^2.hr); F_l/A_{cs} = 7 X 10^5 mol/(m^2.hr)	3	2
2	8-14	The concentration of undesirable impurity in air (at 1 bar = 10^5 Pa) is to be reduced from 0.1% (or 100 Pa) to 0.02% (or 20 Pa) by absorption in water which contains reactant B. Material *B* reacts with A extremely rapidly. Calculate the height of tower required for countercurrent operations. $A(g \rightarrow l) + B(l) \rightarrow$ product (l), $\quad k = \infty$ Assume that the diffusivities of A and B in water are the same, thus $k_{Al} = k_{Bl} = k_l$ Data $k_{Ag}a$ = 0.32 mol/(hr.m^3.pa); $k_{Al}a$ = 0.1 (1/hr) H_A = 12.5 Pa.m^3/mol; C_T = 5600 mol/m^3 F_g/A_{cs} = 1 X 10^5 mol/(m^2.hr); F_l/A_{cs} = 7 X 10^5 mol/(m^2.hr) C_{Bl} = 800 mol/ m^3	3	2
3	15-21	The concentration of undesirable impurity in air (at 1 bar = 10^5 Pa) is to be reduced from 0.1% (or 100 Pa) to 0.02% (or 20 Pa) by absorption in water which contains reactant B. Material *B* reacts with A extremely rapidly. Calculate the height of	3	2

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Name of Student: | **Sr No:** | **Roll Number**

		tower required for countercurrent operations. $A(g \rightarrow l) + B(l) \rightarrow$ product (l), $k = \infty$ Assume that the diffusivities of A and B in water are the same, thus $k_{AI} = k_{BI} = k_l$ Data $k_{Ag}a$ = 0.32 mol/(hr.m^3.pa); $k_{Al}a$ = 0.1 (1/hr); H_A = 12.5 Pa.m^3/mol; C_T = 5600 mol/m^3; F_g/A_{cs} = 1 X 10^5 mol/(m^2.hr); F_l/A_{cs} = 7 X 10^5 mol/(m^2.hr); C_{BI} = 128 mol/ m^3		
4	22-28	The concentration of undesirable impurity in air (at 1 bar = 10^5 Pa) is to be reduced from 0.1% (or 100 Pa) to 0.02% (or 20 Pa) by absorption in water which contains reactant B. Material *B* reacts with A extremely rapidly. Calculate the height of tower required for countercurrent operations. $A(g \rightarrow l) + B(l) \rightarrow$ product (l), $k = \infty$ Assume that the diffusivities of A and B in water are the same, thus $k_{AI} = k_{BI} = k_l$ Data $k_{Ag}a$ = 0.32 mol/(hr.m^3.pa); $k_{Al}a$ = 0.1 (1/hr); H_A = 12.5 Pa.m^3/mol; C_T = 5600 mol/m^3; F_g/A_{cs} = 1 X 10^5 mol/(m^2.hr); F_l/A_{cs} = 7 X 10^5 mol/(m^2.hr); C_{BI} = 32 mol/ m^3	3	2
5	29-35	The concentration of undesirable impurity in air (at 1 bar = 10^5 Pa) is to be reduced from 0.1% (or 100 Pa) to 0.02% (or 20 Pa) by absorption in water which contains reactant B. Material *B* reacts with A extremely rapidly. Calculate the height of tower required for countercurrent operations. $A(g \rightarrow l) + B(l) \rightarrow$ product (l), $k = \infty$ Assume that the diffusivities of A and B in water are the same, thus $k_{AI} = k_{BI} = k_l$ Data $k_{Ag}a$ = 0.32 mol/(hr.m^3.pa); $k_{Al}a$ = 0.1 (1/hr); H_A = 12.5 Pa.m^3/mol; C_T = 5600 mol/m^3; F_g/A_{cs} = 1 X 10^5 mol/(m^2.hr); F_l/A_{cs} = 7 X 10^5 mol/(m^2.hr)	3	2

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Name of Student: **Sr No:** **Roll Number**

		C_{Bl}	3.2mol/ m^3				
6	36-43	We plan to remove about 90% of the A present in a gas stream by absorption in water which contains reactant B. Chemicals A and B react in the liquid as follows: $A(g \rightarrow l) + B(l) \rightarrow R(l), \quad -r_A = kC_AC_B$ B has a negligible vapor pressure, hence does not go into the gas phase. We plan to do this absorption in a packed bed column. What volume of contactor is needed? Data				3	2
		$k_{Ag}a$	0.36 mol/(hr.m^3.pa)	$k_{Al}a$	72 (1/hr)		
		Π	10^5 pa	C_U	55,556 mol of H_2O/m^3liquid, at all C_B		
		F_g	90,000 mol/hr	F_l	900,000 mol/.hr		
		C_{Bin}	55.56 mol/ m^3	D_e	3.6 X 10^{-6} m^2/hr		
		P_{Ain}	1000 pa	P_{Aout}	100 pa		
		a	100 m^2/m^3	$f_l = V_l/V$	0.08		
		H_A	10^3 Pa.m^3/mol	k	2.6 X 10^3 m^3/(mol.hr)		
7	44-51	We plan to remove about 90% of the A present in a gas stream by absorption in water which contains reactant B. Chemicals A and B react in the liquid as follows: $A(g \rightarrow l) + B(l) \rightarrow R(l), \quad -r_A = kC_AC_B$ B has a negligible vapor pressure, hence does not go into the gas phase. We plan to do this absorption in a packed bed column. What volume of contactor is needed? Data				3	2
		$k_{Ag}a$	0.36 mol/(hr.m^3.pa)	$k_{Al}a$	72 (1/hr)		
		Π	10^5 pa	C_U	55,556 mol of H_2O/m^3liquid, at all C_B		
		F_g	90,000 mol/hr	F_l	900,000 mol/.hr		
		C_{Bin}	55.56 mol/ m^3	D_e	3.6 X 10^{-6} m^2/hr		
		P_{Ain}	1000 pa	P_{Aout}	100 pa		
		a	100 m^2/m^3	$f_l = V_l/V$	0.08		
		H_A	10^5 Pa.m^3/mol	k	2.6 X 10^7 m^3/(mol.hr)		
8	52-	We plan to remove about 90% of the A present in a gas stream by absorption in water which contains reactant B. Chemicals A and B react in the liquid as follows:					2

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Name of Student: | **Sr No:** | **Roll Number**

	59	$A(g \rightarrow l) + B(l) \rightarrow R(l), \quad -r_A = kC_AC_B$ B has a negligible vapor pressure, hence does not go into the gas phase. We plan to do this absorption in a packed bed column. What volume of contactor is needed? Data			
9	60-67	We plan to remove about 90% of the A present in a gas stream by absorption in water which contains reactant B. Chemicals A and B react in the liquid as follows: $A(g \rightarrow l) + B(l) \rightarrow R(l), \quad -r_A = kC_AC_B$ B has a negligible vapor pressure, hence does not go into the gas phase. We plan to do this absorption in a packed bed column. What volume of contactor is needed? Data			3	2

$k_{Ag}a$	0.36 mol/(hr.m^3.pa)	$k_{Al}a$	72 (1/hr)
Π	10^5 pa	C_U	55,556 mol of H_2O/m^{3}liquid, at all C_B
F_g	90,000 mol/hr	F_l	900,000 mol/.hr
C_{Bin}	55.56 mol/ m^3	D_e	3.6 X 10^{-6} m^2/hr
P_{Ain}	1000 pa	P_{Aout}	100 pa
a	100 m^2/m^3	$f_l = V_l/V$	0.08
H_A	10^3 Pa.m^3/mol	k	2.6 X 10^5 m^3/(mol.hr)

$k_{Ag}a$	0.36 mol/(hr.m^3.pa)	$k_{Al}a$	72 (1/hr)
Π	10^5 pa	C_U	55,556 mol of H_2O/m^{3}liquid, at all C_B
F_g	90,000 mol/hr	F_l	900,000 mol/.hr
C_{Bin}	55.56 mol/ m^3	D_e	3.6 X 10^{-6} m^2/hr
P_{Ain}	1000 pa	P_{Aout}	100 pa
a	100 m^2/m^3	$f_l = V_l/V$	0.08
H_A	10^5 Pa.m^3/mol	k	∞

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10	68-78	We plan to remove about 90% of the A present in a gas stream by absorption in water which contains reactant B. Chemicals A and B react in the liquid as follows: $A(g \rightarrow l) + B(l) \rightarrow R(l), \quad -r_A = kC_AC_B$ B has a negligible vapor pressure, hence does not go into the gas phase. We plan to do this absorption in a packed bed column. What volume of contactor is needed?			3	2

Data

$k_{Ag}a$	0.36 mol/(hr.m^3.pa)	$k_{Al}a$	72 (1/hr)
Π	10^5 pa	C_U	55,556 mol of H_2O/m^{3}liquid, at all C_B
F_g	90,000 mol/hr	F_l	900,000 mol/.hr
C_{Bin}	55.56 mol/ m^3	D_e	3.6 X 10^{-6} m^2/hr
P_{Ain}	1000 pa	P_{Aout}	100 pa
A	100 m^2/m^3	$f_l = V_l/V$	0.08
H_A	18 Pa.m^3/mol	k	0 m^3/(mol.hr)

BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

CO – Course Outcomes

Subject Teacher **Module Coordinator** **Head**

Head
Deptt. of Chemical Engg
AISSMS, COE, Pune-1

Fig. 2.2.2.D.1. Assignment of CRE-2 AY 2020-2021

2.2.3 Quality of student projects:

A. Identification of projects and allocation methodology to Faculty Members (3)

B. Types and relevance of the projects and their contribution towards attainment of POsand PSOs (5)

C. Process for monitoring and evaluation (5)

D. Process to assess individual and team performance (5)

E. Quality of completed projects/working prototypes (5)

F. Evidences of paper Published/ Awards Received by projects etc. (2)

A. Identification of projects and allocation methodology 3

1. A merit list of students is prepared based on their TE term-I exam.
2. Preference is given to Students according to ranking, to choose a Guide.
3. The project topics of previous three years are not repeated.
4. Students are guided to refer at least ten paper of reputed journal (ACS, Springer and Elsevier etc) to prepare synopsis.
5. Comparative studyof these papers in the tabular form should be submitted with synopsis.
6. Details about Proposal and probable contribution are expected in the synopsis.
7. Students refer the synopsis format provided to you by Project coordinator.
8. After reviewing the Projects, the final confirmation from faculty, project coordinator and HODis granted.
9. The project is allocated to project guides as per his expertise to the area.
10. If project guide does not approve the project then from step 1 again followed till approval. Then project work is initiated.

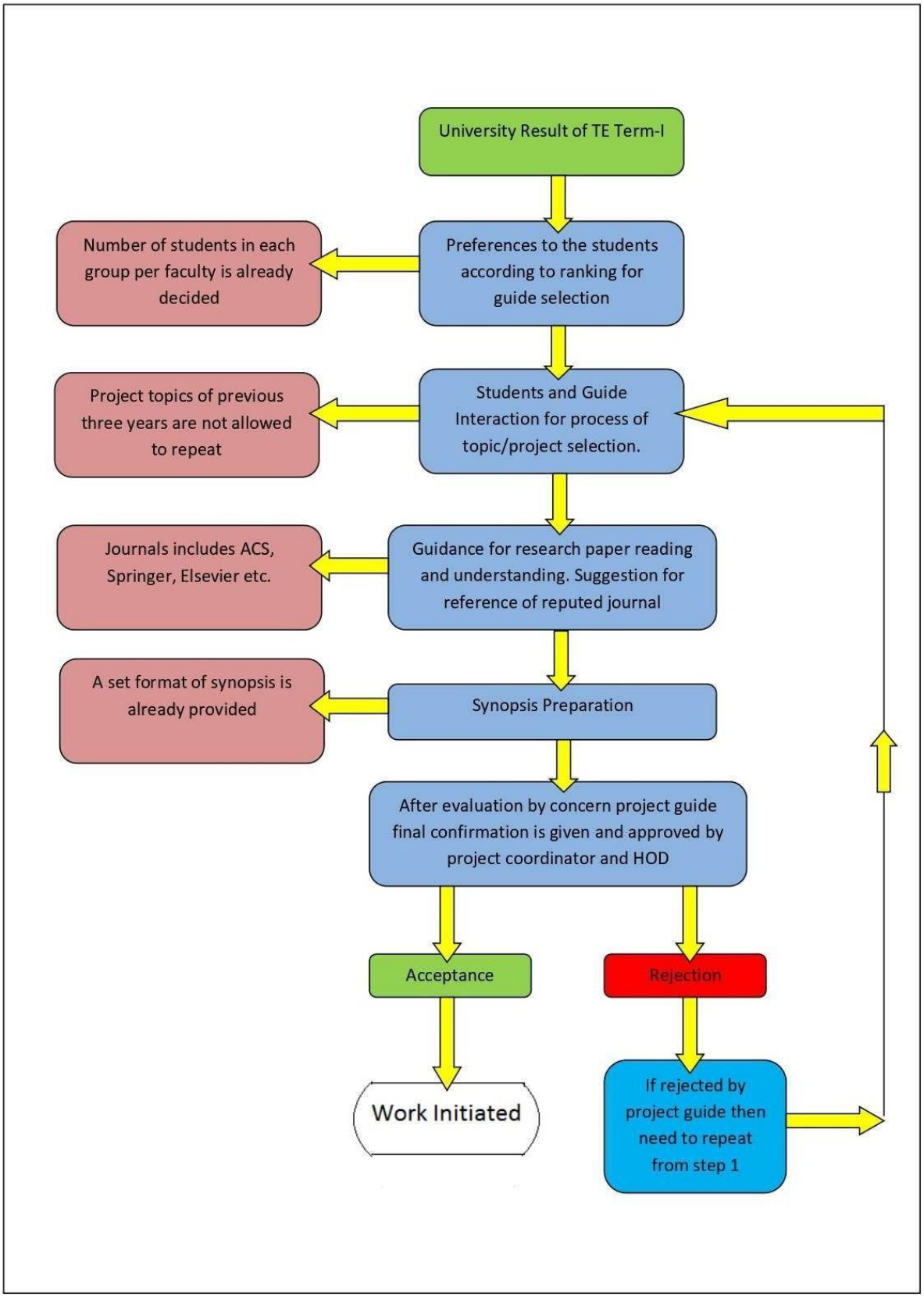


Fig. 2.2.3.A.1 Project Allocation Methodology

B. Types and relevance of the projects and their contribution towards attainment of Pos and PSOs

Objectives:

- To apply the knowledge for solving realistic problem.
- To develop problem solving ability.
- To organize report on a substantial piece of team work over a period of several.
- To evaluate alternative approaches and justify the use of selected tools and methods.
- To reflect upon the experience gained and lessons learned.
- To consider relevant social, ethical and legal issues.
- To find information for yourself from appropriate sources such as manuals, books, research journals andfrom other sources, and in turn increase analytical skills.
- To Work in TEAM and learn professionalism.

Project Phase -I

a) Course Outcomes: On completion of the project, student will be able to:

CO1	Undertake literature survey
CO2	Select suitable process from various synthesis methods
CO3	Analyze thermodynamic feasibility
CO4	Calculate Material Balances
CO5	Calculate Energy Balances
CO6	Investigate the process and effect of parameters thereon experimentally or theoretically

b) CO-PO-PSO Mapping

CO/ PO	**PO**												**PSO**	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
CO1	2	3	2	2				2	2	3	1	2	2	
CO2	2	3	3					2	2	3	1	1	2	
CO3	3	3	3		3			2	2	3	1	1	2	1
CO4	3	3	3	3	3		3	2	2	3	1	1	2	1
CO5	2	3	3	3				2	2	3	1	1	2	1
CO6						3		2	2	3	1	2	2	

Project Phase –II

a) Course Outcomes:

On completion of the project, student will be able to–.

CO1	Investigation of Process Parameters/Design of Equipment
CO2	Optimize the design/Process Parameters
CO3	Analyze costing of the Plant.
CO4	Recommend Site Layout.
CO5	Draw conclusions of the study.
CO6	Prepare Comprehensive Report

b) CO-PO-PSO Mapping

CO/PO	**PO**												**PSO**	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
CO1	2							2	2	3	1	1	2	
CO2	2							2	2	3	1	1	2	
CO3	3	3	3					2	2	3	3	1	3	1
CO4				3	3			2	2	3	1	1	2	1
CO5							3	2	2	3	1	1	2	1
CO6						3		2	2	3	3	2	2	

Table 2.2.3.B.5 List of Projects with respective Domains

SR NO	Project title	Domain	Relevant Pos and PSOs
1	Computer Aided Design of Gas Absorber of a PlantTreating Waste Plastic	Research	PO4, PO5,PO6, PO7, PO8,PO9, PO10,PO11, PO12
2	Synthesis of Levulinic Acid from waste Cellulose	Research	PO4, PO5,PO6, PO7, PO8,PO9, PO10,PO11, PO12
3	Kinetics studies of reaction between maleic acid anhydride and 1-butanol	Review	PO4, PO5,PO6, PO7, PO8,PO9, PO10,PO11, PO12
4	Extraction of Neem and novel applications	Research	POs-1 to 12 and PSO 1 to 2
5	Extraction of natural dyes from plants	Research	POs-1 to 12 and PSO 1 to 2
6	Antibacterial coatings for fabrics	Research	POs-1 to 12 and PSO 1 to 2
7	Propylene Oxide by Hydroperoxide process	Design	POs-1 to 12 and PSO 1 to 2
8	Butadiene from Ethanol	Design	POs-1 to 12 and PSO 1 to 2
9	n-Propanol by Oxo/hydrogenation process	Design	POs-1 to 12 and PSO 1 to 2
10	Vinyl Chloride via Acetylene	Design	POs-1 to 12 and PSO 1 to 2
11	Manufacture of Di-Methyl Carbonate	Process	PO4, PO5,PO6, PO7, PO8,PO9, PO10,PO11, PO12
12	Manufacture of Alkyl dimetyl benzyl ammonium chloride	Process	PO4, PO5,PO6, PO7, PO8,PO9, PO10,PO11, PO12
13	Syn gas from Rice Husk using rice fluidized bed gasifier	Design	PO4, PO5,PO6, PO7, PO8,PO9, PO10,PO11, PO12
14	Plant Design for the production of anhydrous magnesium chloride	Design	PO4, PO5,PO6, PO7, PO8,PO9, PO10,PO11, PO12

	from its hexahydrate through volatile non-aquesous liquid		
15	Plant Design for the production of Sodium hexametaphosphate	Design	PO4, PO5,PO6, PO7, PO8,PO9, PO10,PO11, PO12
16	Plant Design for the production of Silica Gel from paddyhusks	Design	PO4, PO5,PO6, PO7, PO8,PO9, PO10,PO11, PO12
17	Formalin Production from Methanol and air by using metal oxide catalyst	Design	POs-1 to 12 and PSO 1 to 2
18	Plant Design for production of trichloroethylene by vapour phase dehydrochlorination of tetrachloroethane	Design	POs-1 to 12 and PSO 1 to 2
19	Plant Design for Production of Vinyl Chloride by oxychlorination (dehydrochlorination) of Ethylene	Design	POs-1 to 12 and PSO 1 to 2
20	Industry based project on Manufacturing of Additive	Design	POs-1 to 12 and PSO 1 to 2
21	Plant Design for Production of Vinyl polymer by continuous polymerization process	Design	POs-1 to 12 and PSO 1 to 2
22	Manufacturing of butanol from butyraldehyde	Design	POs-1 to 12 and PSO 1 to 2
23	Manufacturing of urea from ammonia carbamate	Design	POs-1 to 12 and PSO 1 to 2
24	Manufacturing of butyl acetate from acetic acid	Design	POs-1 to 12 and PSO 1 to 2
25	Manufacturing of Soda Ash	Design	POs-1 to 12 and PSO 1 to 2

26	Manufacturing of Phosphoric Acid	Design	POs-1 to 12 and PSO 1 to 2
27	Manufacturing of Ammonia	Design	POs-1 to 12 and PSO 1 to 2
28	Experimental investigation of CO2 absorption in a packed bed tower	Research	PO1, PO2, PO3, PO4, PO7, PO8, PO9, PO10, PO12, PSO1
29	Manufacturing of PU Paint	Research	PO1, PO2, PO3, PO4, PO8, PO9, PO10, PO11, PO12, PSO1
30	Design of plant for fuel alcohol production by pervaporation	Design	POs-1 to 12 and PSO 1 to 2
31	Design of solar energy generation system	Design	POs-1 to 12 and PSO 1 to 2
32	Production of ethanol from whey	Design	POs-1 to 12 and PSO 1 to 2
33	Production of ethanol from sugar cane juice using yeast	Design	POs-1 to 12 and PSO 1 to 2
34	Ethanol from wood	Design	POs-1 to 12 and PSO 1 to 2
35	Phenol from Toluene Oxidation	Design	POs-1 to 12 and PSO 1 to 2
36	Low Temperature isomerisation of n-Paraffin	Design	POs-1 to 12 and PSO 1 to 2
37	Hydrogen peroxide production	Design	POs-1 to 12 and PSO 1 to 2

C. Process for monitoring and evaluation

1. Project slot of 2 hours is assigned to students and faculty.
2. During project slot students meet the project guide and discuss project status.
3. Attendance of project group is maintained by faculty members.
4. Project slot meeting register is maintained by project coordinator.
5. As per projects member's efforts, attendance, depth of project topic remarks are made in continuous assessment sheet.
6. Project reviews are conducted twice in a semester by team of faculty members.
7. Suggestions are made and documented in project evaluation sheet by faculty members.
8. Project coordinator taking care of compliance of suggestions by discussing with Project group.
9. As per project review reports internal evaluation done.
10. Final evaluation done at the end of the semester by external examiner accordingly marks are assigned to project group members
11. Same Process repeated in second semester too.

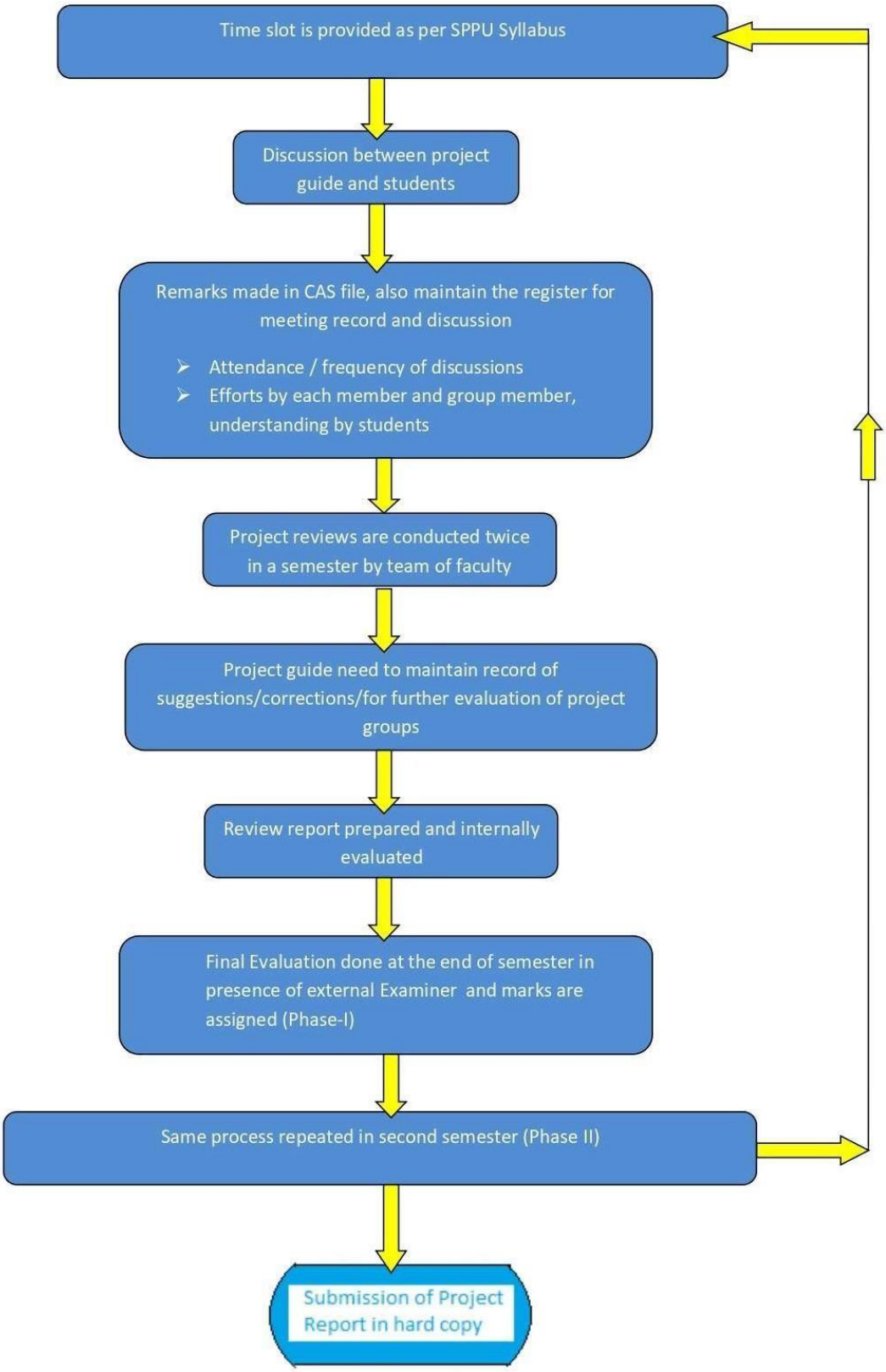


Fig. 2.2.3.C.1. Process Flow Chart of Monitoring and Evaluation of Project

D. Project/seminar Assessment Rubric

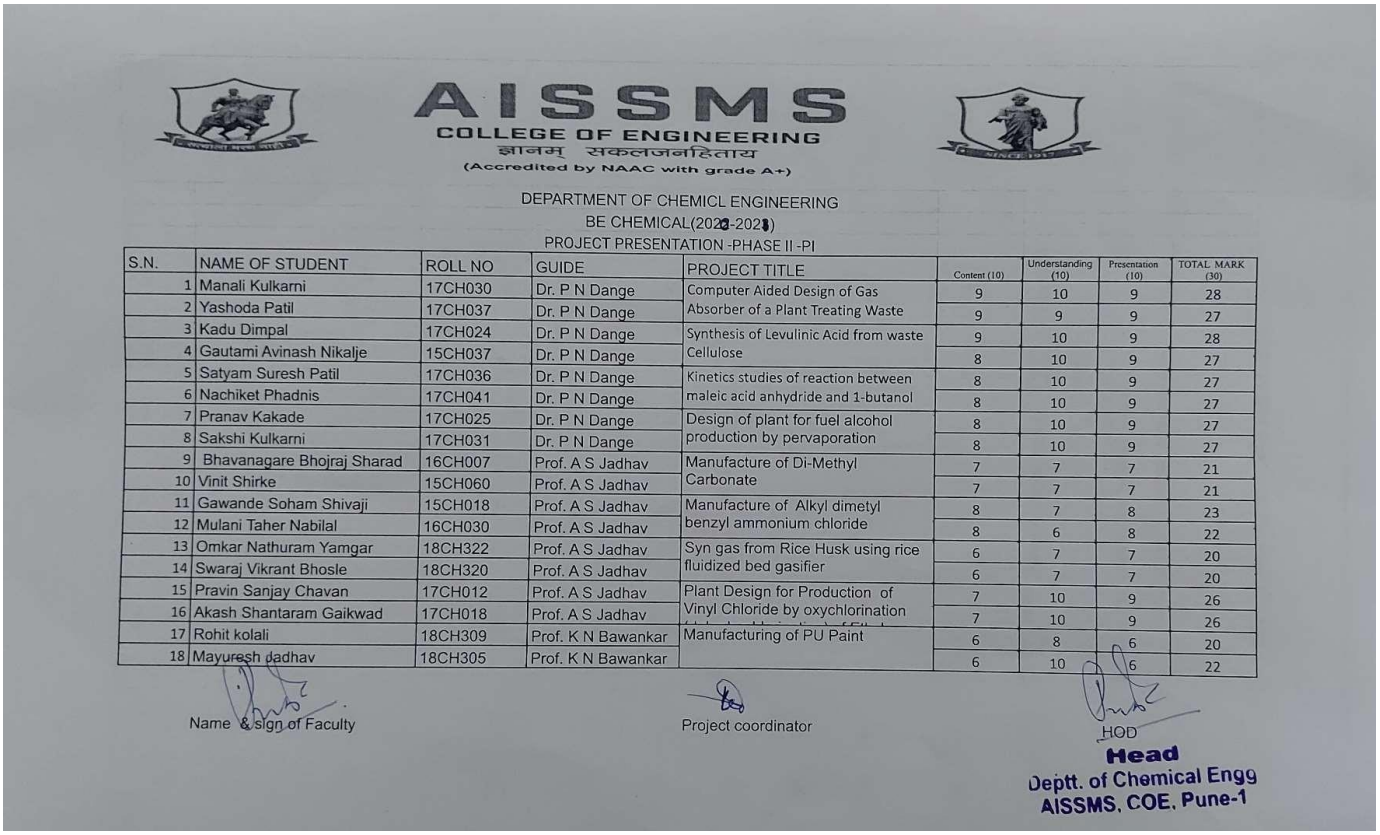
Table 2.2.3.D.1 Project/seminar Assessment Rubric

Criteria	**Level of achievement**			
	Excellent-Score 8 to 10	**Good-Score 5 to 7**	**Satisfactory-Score 4 to 6**	**Poor-Score 0 to 3**
Content (10)	Goes over and above all the required elements stated in the directions & instructions	Includes all of the required elements as stated in the directions/instructions	Missing one or more of the required elements as stated in the directions/instructions	Several required elements are missing from the project
Understanding *(10)*	Exceptionally clever and unique in showing deep understanding	Thoughtfully and uniquely presented; clever at times in showing understanding of the material	A few original touches enhance the project to show some understanding of the material	Shows little creativity, originality and/or effort in understanding the material
Presentation *(10)*	Exceptionally attractive and particularly neat in design and layout. Presented Timely.	Attractive and neat indesign andlayout. Presented with somedelay	Acceptably attractive but may be messy at times and/or show lack of organization. Presented with more delay	Distractingly messy or very poorly designed. Does not show pride in work. Presented very late
Overall Project Report Effectiveness and Completion *Score: /10*	Project Report is engagingly organized and presents material that is captivating. Submitted Timely	Project Report is somewhat organized, complete and holds the attention. Submitted with some delay	Project Report is disorganized and incomplete at times and is somewhat able to hold the attention. Submitted with more delay	Project Report is incomplete and not easy to follow. Submitted late
Attendance Score: /10	=(%attendance/100) x10			
Total score out of(50)				

E. Process to assess individual and team Performance

Project slot of 2 hours is assigned to students and faculty.

2. During project slot students meet the project guide and discuss project status
3. Attendance of project group is maintained by faculty members.
4. Project slot Meeting register is maintained byproject coordinator.
5. As per projects member's efforts, attendance, depth of project topic remarks are made in Continuous Assessment Sheet.



AISSMS
COLLEGE OF ENGINEERING
ज्ञानम् सकलजनहिताय
(Accredited by NAAC with grade A+)

DEPARTMENT OF CHEMICL ENGINEERING
BE CHEMICAL(2020-2021)
PROJECT PRESENTATION -PHASE II -PI

S.N.	NAME OF STUDENT	ROLL NO	GUIDE	PROJECT TITLE	Content (10)	Understanding (10)	Presentation (10)	TOTAL MARK (30)
1	Manali Kulkarni	17CH030	Dr. P N Dange	Computer Aided Design of Gas Absorber of a Plant Treating Waste	9	10	9	28
2	Yashoda Patil	17CH037	Dr. P N Dange		9	9	9	27
3	Kadu Dimpal	17CH024	Dr. P N Dange	Synthesis of Levulinic Acid from waste Cellulose	9	10	9	28
4	Gautami Avinash Nikalje	15CH037	Dr. P N Dange		8	10	9	27
5	Satyam Suresh Patil	17CH036	Dr. P N Dange	Kinetics studies of reaction between maleic acid anhydride and 1-butanol	8	10	9	27
6	Nachiket Phadnis	17CH041	Dr. P N Dange		8	10	9	27
7	Pranav Kakade	17CH025	Dr. P N Dange	Design of plant for fuel alcohol production by pervaporation	8	10	9	27
8	Sakshi Kulkarni	17CH031	Dr. P N Dange		8	10	9	27
9	Bhavanagare Bhojraj Sharad	16CH007	Prof. A S Jadhav	Manufacture of Di-Methyl Carbonate	7	7	7	21
10	Vinit Shirke	15CH060	Prof. A S Jadhav		7	7	7	21
11	Gawande Soham Shivaji	15CH018	Prof. A S Jadhav	Manufacture of Alkyl dimetyl benzyl ammonium chloride	8	7	8	23
12	Mulani Taher Nabilal	16CH030	Prof. A S Jadhav		8	6	8	22
13	Omkar Nathuram Yamgar	18CH322	Prof. A S Jadhav	Syn gas from Rice Husk using rice fluidized bed gasifier	6	7	7	20
14	Swaraj Vikrant Bhosle	18CH320	Prof. A S Jadhav		6	7	7	20
15	Pravin Sanjay Chavan	17CH012	Prof. A S Jadhav	Plant Design for Production of Vinyl Chloride by oxychlorination	7	10	9	26
16	Akash Shantaram Gaikwad	17CH018	Prof. A S Jadhav		7	10	9	26
17	Rohit kolali	18CH309	Prof. K N Bawankar	Manufacturing of PU Paint	6	8	6	20
18	Mayuresh Jadhav	18CH305	Prof. K N Bawankar		6	10	6	22

Name & sign of Faculty

Project coordinator

HOD
Head
Deptt. of Chemical Engg
AISSMS, COE, Pune-1

Fig. 2.2.3.E.1 Project Assessment Sheet

F. Quality of completed projects/working prototypes

Table 2.2.3.F.1 Quality of Project Prototypes

Sr.No	Name of the project	Relevance ofthe projects with POs and PSOs
1	Synthesis and Characterization of Nanoparticles	POs: 1 to 12 and PSOs:1 to 2
2	Synthesis and Charecterization of Graphine Oxide	POs: 1 to 12 and PSOs : 1 to 2
3	Synthesis of Anti Fouling Material for Naval Applications	POs: 1 to 12 and PSOs : 1 to 2
4	Preparation of Actiated carbon from corncob and its application in elctroplating industry	POs: 1 to 12 and PSOs : 1 to 2
5	Extraction of Litium Carbonate and metal compound(s) from spent mobile batteries	POs: 1 to 12 and PSOs : 1 to 2
6	Extraction of anticorrosive material from Henna leaves	POs: 1 to 12 and PSOs : 1 to 2
7	Treatment of an effluent by using Photocatlytic Reactor	POs: 1 to 12 and PSOs : 1 to 2
8	Extraction of calcium Chloride from Eggshell	POs: 1 to 12 and PSOs : 1 to 2
9	Epoxide from Oil	POs: 1 to 12 and PSOs : 1 to 2
10	Clean up using Make in India Technology: An innotiative towards Swachha Bharat Abhiyan	POs: 1 to 12 and PSOs : 1 to 2

Quality of project observed by these parameters:-

1. Working of project in analyzed by project guide and external examiner.
2. User friendly features observed.
3. Uses of project for the society is observed.
4. Testing details of project is analyzed.
5. Students participate in inter college project competition
6. Students published papers based on their work.
7. Examiners feedback are taken at the time of internal evaluation of continuous assessment.
8. Feedback from external examiner at the time of University exam are taken and used for improving quality of Project.

G. Evidences of papers published /Awards received by projects, etc. (2)

Authors	**Paper Details (Paper title, Publication year, Volume no.,issue no., Page no.s, Doi, ISSN)**	**Indexing**
Hari Prakash Veluswamy, Nupoor Upadhye	Review of Gas Hydrate Research in India: Status and FutureDireactions	ACS Publication
Madhura Kulkarni and Dr. P. N. Dange	'Design and Mathematical Modeling of Cyclone SeparatorUsing Openfoam', IJRAR, 6 (2) (2019) 129.	UGC Listed Journal
Pravin S. Tadkar• Palas K. Borkar • Sayali N. Gholap•	Treatment of Methylene Blue Dye Using Immersed Lamp Photocatalytic Reactor: 5 L Scale Study	J. Inst. Eng. India Ser. E
Asmita S Kulkarni and PN Dange	Quantitative Risk Analysis of Alkylation Technologies to Quantify Benefits of Ionic Liquid Alkylation	IJAR

2.2.4. Initiatives related to industry interaction **20**

A. Industry supported laboratories (5)

B. Industry involvement in the program design and partial delivery of any regular courses for students (5)

C. Impact analysis of industry institute interaction and actions taken thereof (5)

D. Industry supported laboratories (5)

1. VESBE, Hennef, Germany, have donated a SCADA based Waste Water Treatment Plant. Objective of this system is providing the skills of water treatment.



Fig. 2.2.4.A.1 SCADA based Waste Water Treatment Demo Prototype (EDS)

Department of Chemical Engineering received a gift, a lab set up (Prototype) for biodiesel production NaproScientific Pune, which is partnered by notable alumni Mr Vivek Gadre from the batch of 2014 Chemical Engineering. The LaboratoryScale Biodiesel ManufacturingUnit is manufactured and supplied to many clientsby Napro Scientific Pune. It is a robust equipment which produces biodiesel from vegetable oil. The capacity of the equipment is approximately 2 litres. This machine is user friendly and very easy to operate, and thus proves most useful for demonstrating the biodiesel manufacturing process to students in laboratory environment. It will be beneficial to the students for demonstrations, practical's and research work. **The commercial price of the equipment is Rs. 2.5 lakh**. It is donated to AISSMS College of Engineering by Mr Vivek Gadre as a token of affection towards his alma mater.

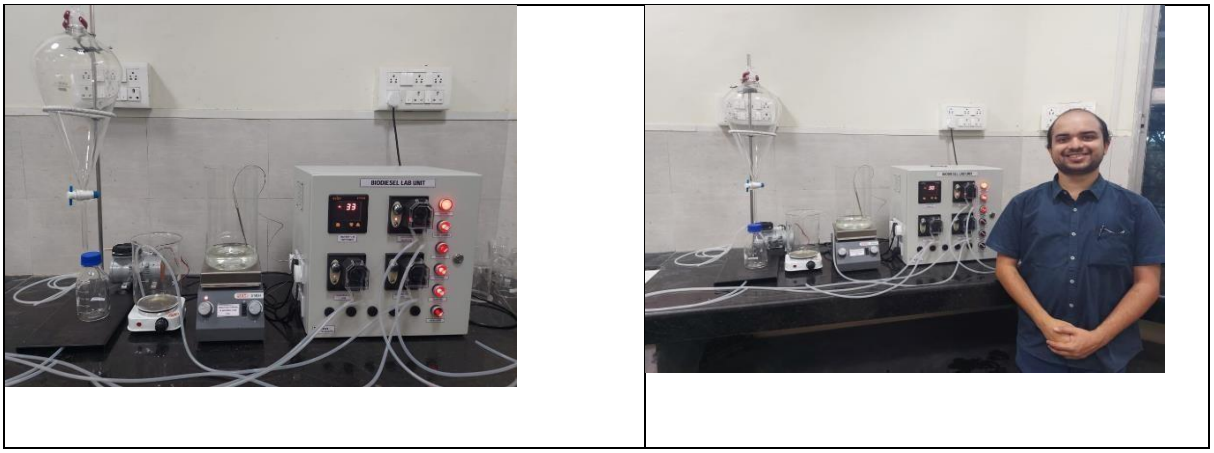


Fig. 2.2.4.A.2 Laboratory Set Up for Biodiesel Production Donated by Napro Scientific Pune

2. Centre of excellence in the field of robotics and automation is established in college on 12 April 2019 byAutomation Anywhere Pvt. Ltd. The main motive of this engagement is to providing Industrial Exposure to the Students and faculties in order to sustain and enhance interaction with Industries. Faculties and students' undergone basic and advance level training under center of excellence.



Fig. 2.2.4.A.3. Inauguration of BOT Lab.

Impact of Centre of Excellence:

- 210 students got basic training
- Advanced 5 day Faculty Training at Bangalore
- Two day A-lister training for Students at Bangalore
- Advanced Certification completed

B. Industry involvement in the program design and partial delivery of any regular courses forstudents

1. Syllabus revision involves Industry experts from different domain.
2. At institute level DAB committee is established to enhance and support the Program Objectives and outcome. DAB covers representation from Industry..
3. Industry Institute meet is organized annually.
4. MoUs are signed with Industries.
5. Besides regular Industrial Expert lectures and visits are organized.

To strengthen interaction with industries and to keep our students are updated with the latest trends inchemical engineering, the Department has entered into an MoU with the following companies. Industryinteractions help the students to acquire the practical knowledge. So in order to improve the technical abilities various industrial activities are carried out. Department of Chemical Engineering organizes Industry Institute Interaction Meet every year.

List of MoUs and beneficiary activities under MoUs

Table 2.2.4.B.1 List of MOUs and Beneficiary Activities

Sr. No.	Name of the institution/industry/ corporatehouse	Year of signing MoU	Duration	List the actual activities under each MoU year wise	Number of students/teachers participated under MoUs
1	Bureau of Indian Standards, Pune branch office	2021-22	Two Years	III	Teacher and Students
2	Apptrain Systems, Vadodara	2021-22	Two Years	III	Teacher and Students
3	Chemtrol Industries, Vadodara	2021-22	Two Years	III	Teacher and Students

4	Sarbi Petroleum and Chemicals PVT LTD	2021-22	Two Years	**Project**	01 Teacher and 06 Students
5	TKT Engineeringconsultant	2021-22	Two Years	**Project and Course**	01 Teacher and 09 Students
6	Synergy ProcessSystems, Pune	2019-20	Two years	Same as described Sr. No.8	(02) Teachers (02) UG Students
7	Marcuras Water Treatment India Pvt. Ltd., Pune	2019-20	Two years	Same as described Sr. No.8	(03)Teachers (02) UG Students.
8	Synergy ProcessSystems, Pune	2018-19	One year	**Activities during (2002-19):-** Placements: **(14)** Expert lectures: (03) Research Project in collaboration: (01) proposal submitted to BCUD) Active Participation in I^3Meet-2016 UG Project: 02 Internship : 01	(02) Teachers (02) UG Students

9	Shubhjyot Consulting Engineers, Pune	2018-19	One year	**Activities during (2014-19) :-** Resource Person in Seminars & Conferences, Placements: 02 Expert lectures: 03	(03) Teachers (02) UG students
10	Marcuras Water Treatment India Pvt. Ltd., Pune	2018-19	One year	**Activities during (2006-19) :** Placement : **(09)** Resource Personin Seminar-2012-13, Expert lecture: 01 in 2006-07 Industrial Visit: 01 Participation in Indo-German Conference, UG Project (2018-19) UG Project: 01 Participation as a Chief Guest in I^3 Meet-2016	(03)Teachers (02) UG Students.
11	Azeocryst Organics Pvt. Ltd., New Mumbai	2018-19	One year	**Activities:-** Industrial Visits : (03) Consultancy and donation of demo models, participated in I^3 Meet-2020	(02)) Teachers (02) UG Students

Student's Industrial Visits

Table 2.2.4.B.2 Industrial Visits

S. N.	Name of the Industry	Class	Date of Visit
	Academic Year 2022-23		
1	Mapro Foods Pvt. Ltd. Wai	BE	12/10/2022
2	BIS Pune	SE, TE, BE	14/10/2022
3	Golden Fish Farm, Wai, Satara	BE	10/12/2022
4	Hydroteck Engineering, MIDC Chinchwad	SE, TE, BE	05/02/2023
5	MAHATech 2023	SE, TE, BE	11/02/2023
6	Mapro Foods Pvt. Ltd. Wai	SE	15/03/2023
7	Katraj Cooperative Dairy Ltd., Katraj, Pune	SE	02/05/2023
	Academic Year 2021-22		
1	Mojj Engineering Systems Ltd., MIDC Bhosari, Pune	BE	18/05/2022
2	Darshan Chemicals, Unit 3, MIDC Ambernath	BE	09/05/2022
3	PCMC Water Treatment Plant, Near AppuGhar, Nigdi, PCMC	SE	17/05/2022
4	Mapro Foods Pvt. Ltd. Wai	SE, BE	11/04/2022
5	Clean Science And Technology Ltd., Kurkumbh	TE	20/04/2022
6	Katraj Cooperative Dairy Ltd., Katraj, Pune	SE	18/05/2022
	Academic Year 2020-21		
1	Sudarshan Chemical Pune (Online)	TE	28/07/2020
	Academic Year 2019-20		
S.N.	**Name of Industry**	**Class**	**Date of Visit**
1	Katraj Cooperative Dairy Ltd., Katraj, Pune	TE	20/07/2019
2	PCMC's Water Treatment Plant , Nigadi, Dist. Pune	SE	09/09/2019
3	Xtreme Engineering Equipment Pvt.Ltd., Narhe Pune	SE	27/09/2019
4	Ross Boilers India, Burhani Industrial Estate, Kondhwa Bk., Pune	BE (Group 1)	05/10/2019

5	Ross Boilers India, Burhani Industrial Estate, Kondhwa Bk., Pune	BE (Group 2)	12/10/2019
6	Bombay Steel Equipment Pvt. Ltd., Burhani Industrial Estate, Kondhwa Bk., Pune	BE (Group 3)	05/10/2019
7	PMC's Wastewater Treatment Plant, Erandwane, Pune	BE(Group 2)	14/10/2019
8	Vyankateshwara Sugar Factory Ltd., Jategaon, Tal.Shirur,	TE	18/10/2019
9	BILT Graphic Paper Product Ltd., Unit Bhigwan,	BE(Groups1& 3)	06/03/2020
10	Om Heat Treat Industry, MIDC Bhosari, Pune	SE	07/03/2020

Guest lectures by various industry Experts

Table 2.2.4.B.3 Guest Lectures by Experts from Industry

Sr. No.	**Title of Expert lecture/Webinar**	**Date Month Year**	**Resource Person with Designation**
1	Opportunities for Higher Studies	07/08/2022	Mr Ritesh Meshram
2	Entrepreneurship, Business Opportunities For Graduate Engineers	17/08/2022	Mr Mayur Pangrekar ISB
3	Post Graduate Study Opportunities Abroad	23/08/2022	Mr Rajarshi Banerjee Business Development Manager Jamboree Pune
4	Why Study in UK	22/09/2022	Mr Sumit Acharya SI-UK India
5	A Gateway to Research	10/11/2022	Dr. Nikita Wanjari Relationship Manager, Balani Infotech Pvt Ltd

6	Design of Process & Control Structures in Pharmaceutical Industries	10/11/2022	Mr. Vinod V. Kenekar Process Technologist, Glatt Systems Pvt. Ltd., Nyati Unitree, Yerwada, Pune
7	Business Opportunities in Finance	11/11/ 2022	Mr Lokesh D. Bora
8	Become a Successful Chemical Engineer	24/11/ 2022	Mr. Sameer Sathe, Corporate Trainer, Apptrain Systems, Vadodara (Gujarat)
9	Engineering materials	17/12/2022	Mr.Girish Bhunje, Head, Senior General Manager, SunPharma Ltd.
10	Fluid Mechanics & Flow Chemistry	08/01/2023	Mr Chetan A Shende
11	Post Graduate Study Opportunities Abroad	06/02/2023	Mr Rajarshi Banerjee Business Development Manager Jamboree Pune
12	Safety Aspects in Chemical Industry	21/02/2023	Mr M R Joshi
13	Heterogeneous Catalysis	25/03/3023	Tofuni Akinsanya Tufts University
14	Industrial Hygiene	03/05/2023	Mr Pravin Totala
2021-22			
Sr. No.	**Title of Expert lecture/Webinar**	**Date Month Year**	**Resource Person with Designation**
1	Gas Chromatography	23/10/2021	Shrikant Takale Analytical Associate Thermax Ltd. Pune

2	Multidisciplinary Career Oppoutunities For Engineers	10/08/2021	Narendra Gadre Director Napro Scientific
3	Environmental Sustainability	27/11/2021	Girish Bhunje Process Engineer Sunpharma Ltd
4	Research, Innovation and IPR in Chemical Engineering	10/12/2021	Prashant Gunjal Manager, R&D Reliance Industries Ltd.
5	Process Development & Control Systems in Pharmaceutical Industry	27/11/2021	Vinod Kenekar, Process Engineer ACG Pharma Technologies Pvt. Ltd.
6	Six Sigma	12/08/2021	Yogesh Khaladkar Plant Manager H. B . Fuller India Adhesives, Pvt .Ltd.
7	Chemical Processes	29/11/2021	Kalyani Dhore Process Engineer Reva Process Technologies, Pune
8	Roles of Chemical Engineer in Industry	16/12/2021	Sachin Jadhao Director ChemEngg Reseach Pvt Ltd
9	Equipment Layout	02-09-2021	Pravin Jedhe Sr. Process Engineer Patpert Tecknow Systems Pvt. Ltd., Pune
10	Design of Distillation Coloumn and Introduction of ASPEN Software	17/09/2021	Pooja Malpani Consultant Aaharya Technologies, Pune

11	Plate Heat Exchanger	08/10/2021	Rahul Patil Consultant Dubai based Chemical Industry
12	Application of Chemical Engineering in Process Development	16/01/2022	Vipul Patil Scientist NCL
13	Role of Economics in Selection of Technology	16/03/2022	Mr. Nikunj Prataprai Tanna Organisation: Honeywell UOP Sustainable Technology Solutions
14	Process Instrumentation & Control	01/05/2022	Mr. Girish Bhunje Organisation: SunPharma Ltd. Ahmednagar
15	Energy Conservation In Oil and Gas Industries	21/4/2022	Dr. Santosh Madhav Walke (National University of Science and Technology. Muscat, Oman)
16	Energy management and energy efficiency in industrial utilities	8/4/2022	Mr. Kailash Tarde Individual and Associate Consultant - Dynamic Energy Engineers, Pune
17	Role of economics in selection of Technology	16/03/2022	Mr. Nikunj Tanna, Principal Sales Engineer-Honeywell UOP Sustainable Technology Solutions

18	Introduction to Energy Integration".	01/05/2022	Dr Parikshit Shahane, Senior Chemical Engineer, Ecolab, Pune
AY 2020-2021			
Sr. No.	**Title of the Expert lecture/Webinar**	**Date Month Year**	**Resource Person with Designation**
1.	Safety devices for Process Equipment	20/06/2021	Avishek Mukherjee Principal Process Engg Wood PLC, England
2.	Intellectual Property	5/06/2021	Jaspreet Singh CEO IP QUAD,Gurgaon
3.	Modelling & Simulation CFD Simulation	4/6/2021	Satish Jadhav AGM L& T Power , Vadodara
4.	Design of Vessels in Pharmaceutical Industries	02/06/2021	Piyush Kshirsagar Executive-VQA Spectrum Pharma Tech, Mumbai
5.	Food Quality Assurance	30/05/2021	Kanan Patel Management and Food Systems Auditor,Australia

6.	Importance of PIC	29/05/2021	Sachin Jagtap Process Engineer Worley Parsons India, Mumbai
7.	Process Engineering Costing and Plant Design	26/05/2021	Mr Kedar Choudhary MD, Reva Process Technology
8.	Piping and Design	06/11/2020	Chetan Shende Sr Research Scientist DRILS Hyderabad
9.	Material and Energy Balance	05/11/2020	Mr Vipul Patil Project Scientist NCL Pune
10.	Importance of Engineering Materials in Petroleum Industry	03/11/2020	Mr. Sachin Jagtap, Design Engineer, Worley Parsons India, Mumbai
11	Plant startup and shut down	26/10/2020	Ms Pooja Malpani Principal Lead Engineer Synergy Process Systems,Pune
12	Opportunities after BE in Chemical Engineering	10/10/2020	Uttam Meshram L&T Technology Services

13	Gas Chromatography	19/09/2020	Mr Shrikant Takale Analytical Associate, Thermax Pune
14	Business Opportunities for Chemical Engineers	18/09/2020	Mr Nitish Dixit Director Consultant, Private Label Perfumes
15	Fluid and Reaction Engineering	24/08/2020	Chetan Shende Sr Research Scientist DRILS Hyderabad
16	Q & A Session for Job and Business Opportunity for Chemical Engineers	22/08/2020	Mr Kedar Choudhary MD, Reva Process Technology
17	Interview Preparation	07/11/2020	Ms Neetu Bhowate, Chief Manager–Vendor Management, Hindustan Unilever Ltd. Mumbai.
18	Scope of Piping Engineering in Oil and Gas Sector	30/05/2021	Mr Atul Singla, Principal Piping Engineer, Petrofac Ltd. Gurgaon.
AY 2019-2020			
Sr. No.	**Title of Expert lecture/Webinar**	**Date** **Month** **Year**	**Resource Person with Designation**

1.	Multipurpose Distillation, Blending of ethanol	15/10/2019	Mr. Anil M Raut Sr. Manager
2.	Soft Skills Training Program	20th - 30th January 2020	Institute of Holistic Healing Pvt. Ltd., Pune
3	Basic Chemical Engineering and Opportunities to Chemical Engineers	28/06/2019	Mr. Aniruddha Kulkarni, Ph D Student University of Florida
4	Energy Conservation, Global Warming and New Emerging Technologies	12/07/2019	Mr. Sudhir Shah, PCRA
5	Simulation of Chemical Reaction	30/09/2019	Mr. Babasaheb Londe, ProSIM, Process Engineer
6	Distillation Column Design and Control	03/10/2019	Ms. Pooja Malpani, Synergy Process Systems, Pune
7	Waste Water Treatment	07/10/2019	Dr. P N Patil Gharada, Manager (R& D) Chemicals Ltd.
8	Polymer Industries and Control	10/10/2019	Mr. Mahendra Shinde, Proprietor, MS Plasto, Pune
9	Industrial Distillation Column Design	15/10/2019	Mr. Anil Raut, Sr. Manager, Praj Industries Ltd., Pune
10	Physical Chemistry, Colligative properties	01/10/2019	Dr. S M Hande, Professor, H V Desai College, Pune

11	Technical Selling: A career option for Engineers	07/01/2020	Mr. Sameer Sathe, Corporate Trainer, App Train Systems, Vadodara, Gujarat
12	Chemical Process Design	26/02/2020	Mr. Rajesh Joshi, Application Engineer, Honeywell , Pune
13	Importance of Process Control	13/03/2020	Mr. Sachin Jagtap, Principal Process Engineer, Worley Parsons India, Mumbai
14	PFD & Process Design Aspect	16/05/2020	Mr. Rohit Raskar, Sr. Engineer- Process Design, Praj Industries Ltd., Pune,
15	Piping Design and Solar Design	14/06/2020	Ms. Sonali Waghmare, Free Lancer Consultant, Malaysia
16	Advanced Tools Utilization In Plant Design Engineering	07/07/2020	Mr. Ananat Vavare, Director, Ayunshul Technologies Pvt. Ltd., Pune

AY 2018-2019

Sr. No.	**Title of Expert lecture/Webinar**	**Date Month Year**	**Resource Person with Designation**
1	Waste Water Treatment	10-04-2019	Madhav Deshpande Rtd. G M- Earth Water Ltd.,Baner, Pune
2	Heat Exchanger Design	03-04-2019	Uday Bhatkhande Manager Process Thyssen Krupp, Pune
3	Process Engg. Costing and Plant Design	27/03/2019	Dr. R. Khante Director Shubhjyot Consulting Engineers Pvt.Ltd., Pune
4	Process Intensification	18/03/2019	Gaurav Bahudar iAssistan Professor Manipal University

5	Safety in Chemical Process Industry	01-03-2019	Keadr Chaudhari Manager Reva Process Technology
6	Opportunities for Chemical Engineers in Process Industry	26/02/2019	Ajinkyaraj VaradeMarketing Head Chemsys Process Engineering Pvt Ltd. Pune
7	Career Counselling and Opportunities in Petrochemical Engineering	05-02-2019	Rajesh Joshi Process Engineer Chemdist mass transfer Solutions Pune
8	Equip Program-Simulation based	03-10-2018	Shyam Singh Project EngineerEquinox Software & Consultancy Pvt.Ltd.Pune
9	Use of Social Media for Placement	17/09/2018	Swapnil Patwardhan Project Engineer AP Moller Maersk Ltd.,Mumbai
10	Membrane Separation in Effluent Treatment - Recovery Perspective	07-09-2018	Yoesh Chendake Associate Professor BharatI Vidyapeeth
11	Pump Selection and Sizing	01-09-18	Anil Raut Sr. Manager - Process Praj Industries Ltd., Mumbai
12	Fluid Flow and Fluid moving Machinery in Petroleum Refining	31/08/2018	Chandrakant Mohikar Corporate Management Consultant Energy Infra Education
13	Chemical Process Engg. Design-An Industrial Approach	28/08/18	Rohit Raska rDesign Enginee rSynergy Process Systems, Pune
14	From Gates Degree to Industry	22/08/18	Suraj Midge Managing Director Pinnacle Engineers

2.2.5 Initiatives related to industry internship/summer training **15**

a) Industrial training/tours for students 3

b) Industrial /internship /summer training of more than two weeks and post training Assessment 4

c) Impact analysis of industrial training 4

d) Student feedback on initiative 4

A. Industrial training/tours for students

Industrial tours provide the opportunity to understand the concept practically through experience of real working of the plants/machinery/equipment. AISSMS College of engineering encourages industrial tours/visits as a value-added learning method for engineering students.

Table 2.2.5.A.1 provides the details of industrial visit:

Sr. No.	Name of the Industry	Class	Date of Visit
	Academic Year 2022-23		
1	Mapro Foods Pvt. Ltd. Wai	BE	12/10/2022
2	BIS Pune	SE, TE, BE	14/10/2022
3	Golden Fish Farm, Wai, Satara	BE	10/12/2022
4	Hydroteck Engineering, MIDC Chinchwad	SE, TE, BE	05/02/2023
5	MAHATech 2023	SE, TE, BE	11/02/2023
6	Mapro Foods Pvt. Ltd. Wai	SE	15/03/2023
7	Katraj Cooperative Dairy Ltd., Katraj, Pune	SE	02/05/2023
	Academic Year 2021-22		
1	Mojj Engineering Systems Ltd., MIDC Bhosari, Pune	BE	18/05/2022
2	Darshan Chemicals, Unit 3, MIDC Ambernath	BE	09/05/2022
3	PCMC Water Treatment Plant, Near AppuGhar, Nigdi, PCMC	SE	17/05/2022
4	Mapro Foods Pvt. Ltd. Wai	SE, BE	11/04/2022
5	Clean Science And Technology Ltd., Kurkumbh	TE	20/04/2022
6	Katraj Cooperative Dairy Ltd., Katraj, Pune	SE	18/05/2022
	Academic Year 2020-21		

1	Sudarshan Chemical Pune (Online)	TE	28/07/2020
	Academic Year 2019-20		
S. N.	**Name of Industry**	**Class**	**Date of Visit**
1	Katraj Cooperative Dairy Ltd., Katraj, Pune	TE	20/07/2019
2	PCMC's Water Treatment Plant , Nigadi, Dist. Pune	SE	09/09/2019
3	Xtreme Engineering Equipment Pvt.Ltd., Narhe Pune	SE	27/09/2019
4	Ross Boilers India, Burhani Industrial Estate, Kondhwa Bk., Pune	BE (Group 1)	05/10/2019
5	Ross Boilers India, Burhani Industrial Estate, Kondhwa Bk., Pune	BE (Group 2)	12/10/2019
6	Bombay Steel Equipment Pvt. Ltd., Burhani Industrial Estate, Kondhwa Bk., Pune	BE (Group 3)	05/10/2019
7	PMC's Wastewater Treatment Plant, Erandwane, Pune	BE(Group 2)	14/10/2019
8	Vyankateshwara Sugar Factory Ltd., Jategaon, Tal.Shirur,	TE	18/10/2019
9	BILT Graphic Paper Product Ltd., Unit Bhigwan,	BE(Groups1& 3)	06/03/2020
10	Om Heat Treat Industry, MIDC Bhosari, Pune	SE	07/03/2020

B. Industrial /Internship/ Summer Training more than two weeks and post training Assessment

The students are encouraged to take up internship programs during their semester break. Faculty members give their guidelines, suggestions and scope and contact details of an internship. They also help the students by interacting with the industrial experts, provide the students recommendation letters and other necessary supports. The alumni Coordinator constantly interacts withalumni those who are working in the industries and request them to provide necessary guidelines and supports for their junior's internship. Table No 2.2.5.B.1 shows the details of industrial training. Also Figure No 2.2.5.B.1 and Figure No 2.2.5.B.2 shows the certificate of the student and Post Training Assessment

Table No 2.2.5.B.1 details of industrial training

AY 2022-23					
Sr.No.	**Name of the Student**	**Name of the Industry**	**Training duration**		
			From (DD/MM/YYYY)	**To (DD/MM/YYYY)**	**Duration (Days)**
1	Anarse Pravin Santosh	Harmony Organics Pvt Ltd	20/12/2022	31/01/2023	42 Days
2	Bhandari Ashish Prakash	LMGPD Sahkari Sakhar Karkhana Ltd	21/12/2022	25/01/2023	35 Days
3	Bhangale Gaurav Satish	Clemence Cosmetiques, Surat	01/12/2022	31/12/2022	31 Days
4	Bhokate Rutuja Sudam	Vimali Soap Industries, Bhor Pune	17/12/2022	17/01/2023	30 Days
5	Bondre Avadhoot Suresh	Vimali Soap Industries, Bhor Pune	17/12/2022	17/01/2023	30 Days
6	Chaudhari Yash Sanjay	Shree Satpuda Tapi Parisar Sahkari Sakhar Karkhana Ltd	01/12/2022	31/12/2022	31 Days
7	Diggikar Dhiraj Digambar	Vimali Soap Industries, Bhor Pune	17/12/2022	17/01/2023	30 Days
8	Divekar Karan Shantaram	Nath Bio-Chemical Industries Pvt Ltd	21/12/2022	25/01/2023	35 Days
9	Duggad Shubham Sanjay	Marcuras Water Treament (Ind) Pvt Ltd Pune	12/12/2022	12/01/2023	31 Days
10	Gaikwad Sankalp Sunil	Shri Someshwar Sahkari Sakhar Karkhana Ltd, Pune	15/12/2022	25/01/2023	41 Days

11	Gangurde Sneha Sanjay	RCFL Raigarh	01/02/2023	10/03/2023	38 Days
12	Ghodke Vikas Rajendra	Harmony Organics Pvt Ltd	20/12/2022	31/01/2023	42 Days
13	Girvale Vishal Anil	Vimali Soap Industries, Bhor Pune	17/12/2022	17/01/2023	30 Days
14	Godase Shreyas Sirama	Crescon Industries Pvt Ltd	20/02/2023	21/03/2023	30 Days
15	Gosavi Vaibhavi Dhanaji	Samrat Pharmaceutticals Jalgaon Maharashtra	01/12/2022	31/12/2022	31Days
16	Ingle Chetan Diliprao	Makspeed Technologies Pvt Ltd Pune	19/12/2022	25/01/2023	37 Days
17	Jagdale Tushar Dnyandev	Vimali Soap Industries, Bhor Pune	17/12/2022	17/01/2023	30 Days
18	Jagtap Sahil Sambhaji	Tejal Chemicals Navi Mumbai	21/01/2023	20/02/2023	30 days
19	Jain Yash Sanjay	Arihant Industries, Ghoti, Nashik Maharashtra	15/01/2023	15/02/2023	30 Days
20	Kadu Manisha Raju	RCFL Raigarh	01/02/2023	10/03/2023	38 Days
21	Kajarekar Abhishek Avinash	Sudarshan Chemical Industries Ltd	23/01/2023	22/02/2023	
22	Kakade Sagar Sachin	Vimali Soap Industries, Bhor Pune	17/12/2022	17/01/2023	30 Days
23	Kathale Abhay Vijay	Ross Boilers Pune	15/12/2022	25/01/2023	41days
24	Khaladkar Yash Bharat	Vimali Soap Industries, Bhor Pune	17/12/2022	17/01/2023	30 Days
25	Khatod Jayesh Satyajit	Innovative Water Technologies Pvt Ltd, Belagavi, Karnataka	03/01/2023	03/02/2023	30 Days
26	Kodoli Vishakha Arun	Shri Hiranyakeshi Sahkari Sakhare Karkhane, Sankeshwar	15/12/2022	25/01/2023	41 Days
27	Kulkarni Mayur Gunwant	Innovative Water Technologies Pvt Ltd, Belagavi, Karnataka	03/01/2023	03/02/2023	30 Days
28	Kurdhane Nikita Madan	Reva Process Tecnologies Pune	26/12/2022	25/01/2023	31 Days
29	Ladkat Yash Jitendra	Marcuras Water Treament (Ind) Pvt Ltd Pune	12/12/2022	12/01/2023	31 Days
30	Lole Vedant Deepak	Harmony Organics Pvt Ltd	20/12/2022	31/01/2023	42 Days

31	Londhe Tejas Chandrakant	Innovative Water Technologies Pvt Ltd, Belagavi, Karnataka	03/01/2023	03/02/2023	30 Days
32	Modhave Sushant Sharad	Autoshine Coaters, Pune	10/12/2022	10/01/2023	31 Days
33	Mohammad Adil Mahfooz	Skytec Water Treatment Services Pune	06/12/2022	05/01/2023	30 Days
34	Mohd Afif Abuzar Mohd Nadeem	Skytec Water Treatment Services Pune	06/12/2022	05/01/2023	30 Days
35	Mote Dnyanraj Sandip	Sun Pharmaceutical Industries Ltd, Ahmednagar	10/12/2022	10/01/2023	31 Days
36	Naik Tanvi Nitin	Cipla Ltd Goa	25/01/2023	18/02/2023	25 days
37	Nale Pratik Vijaysinha	Ross Boilers Pune	15/12/2022	25/01/2023	41days
38	Nikam Dnyaneshwar Gulabrao	Nath Bio-Chemical Industries Pvt Ltd	21/12/2022	25/01/2023	35 Days
39	Om Ravindra Avhad	Greencrop International Pvt Ltd Pune	24/12/2022	25/01/2023	32 Days
40	Palshetkar Anushka Santosh	Elica Engineering Corporation, Pune	01/02/2023	04/03/2023	32 Days
41	Patil Aniket Jivan	Nath Bio-Chemical Industries Pvt Ltd	21/12/2022	25/01/2023	35 Days
42	Patil Avadhut Anil	Harmony Organics Pvt Ltd	20/12/2022	31/01/2023	42 Days
43	Patole Abhijeet Vitthal	Greencrop International Pvt Ltd Pune	24/12/2022	25/01/2023	32 Days
44	Potsure Omkar Santosh	Hikal Ltd, Mahad	16/12/2022	31/12/2022	16 Days
45	Ranaware Shardul Satyavan	Aqua Blue Sales and Services, Pune	12/12/2022	12/01/2023	31 Days
46	Rasale Sandesh Sanjay	Makspeed Technologies Pvt Ltd Pune	19/12/2022	25/01/2023	37 Days
47	Rokade Sanket Namdev	Marcuras Water Treament (Ind) Pvt Ltd Pune	12/12/2022	12/01/2023	31 Days
48	Rupanawar Prasad Krishnaji	Aqua Blue Sales and Services, Pune	12/12/2022	12/01/2023	31 Days
49	Sable Sanket Sampat	Makspeed Technologies Pvt Ltd Pune	19/12/2022	25/01/2023	37 Days

50	Salunke Sangram Sunil	Trimurti Pharma Ltd	15/12/2022	15/01/2023	31 Days
51	Salunkhe Shubham Rajesh	Vimali Soap Industries, Bhor Pune	17/12/2022	17/01/2023	30 Days
52	Sayyed Huda Farooq	Samrat Pharmaceutticals Jalgaon Maharashtra	01/12/2022	31/01/2023	31 Days
53	Shaikh Junaid Hamid	Skytec Water Treatment Services Pune	06/12/2022	05/01/2023	30 Days
54	Shaikh Mohammed Omar	Makspeed Technologies Pvt Ltd Pune	19/12/2022	25/01/2023	37 Days
55	Shidore Anjali Babuppa	Reva Process Technologies Pune	26/12/2022	25/01/2023	31 Days
56	Shinde Aditya Bhimraj	Laxmi Organic Industries Ltd, Mumbai	23/01/2023	22/02/2023	31 days
57	Shinde Nishant Dilip	Shivam Resin &Paint Pvt Ltd Nashik Maharashtra	20/12/2022	26/01/2023	38 Days
58	Shipkule Nikhil Somnath	Harmony Organics Pvt Ltd	20/12/2022	31/01/2023	42 Days
59	Shitole Abhijeet Madhukar	Shivam Resin &Paint Pvt Ltd Nashik Maharashtra	20/12/2022	26/01/2023	38 Days
60	Tale Om Chandrakant	Resin & Paint Pvt Ltd Nashik Maharashtra	20/12/2022	26/01/2023	38 Days
61	Tapse Patil Krishna Pradip	Greencrop International Pvt Ltd Pune	24/12/2022	25/01/2023	32 Days
62	Udapure Anshul Nandkumar	Resin & Paint Pvt Ltd Nashik Maharashtra	20/12/2022	26/01/2023	38 Days
63	Vaishnavi Nitin Ghorpade	Thermaxx Limited Pune	22/12/2022	17/02/2023	57 Days
64	Vavhal Yash Navnath	Bhimashankar Sahakari Sakhar Karkhana Ltd Pune	31/01/2023	28/02/2023	30 Days
65	Waichal Umesh Ramchandra	Annar Foam Pvt Ltd Solapur	19/12/2022	27/01/2023	39 days

AY 2021-22

Sr.No.	**Name of the Student**	**Name of the Industry**	**Training duration**		
			From (DD/MM/YYYY)	**To (DD/MM/YYYY)**	**Duration (Days)**
1	KarishmaKuwar	Terra Green Technologies Pvt.Ltd.	15/09/2021	30/10/2021	40
2	KamleshRamesh Lakade	Govind Milk AndMilk Products Pvt.Ltd.	22/10/2021	22/11/2021	31
3	Pravin Sathe	Udemy-AspenPlus V11	16/11/2021	30/11/2021	14

4	Sumit Shukadeve	Jai BiotechIndustries	01/01/2021	31/01/2021	31
5	Ashwini Anil Pote	Iiche Online Internship Program-2021	15/07/2021	30/08/2021	14
6	Dhas ShubhamSadanand	Vaidyanath Sahakari Sakhar Karkhana Ltd	09/08/2021	09/09/2021	30
7	Kaushal Kumar Gulati	Sunreeja Oil AndGas Pvt. Ltd.	18/06/2021	17/07/2021	30
8	Gauri Patole	Iiche Online Internship Program-2021	15/07/2021	30/08/2021	45
9	Mrudula Jadhav	Iiche Online Internship Program-2021	15/07/2021	30/08/2021	45
10	Sharayu Sevkram Badhe	"Steel AuthorityOf India Ltd" Chandrapur Ferro Alloy Plant Chandrapur (Ms)	17/12/2020	16/01/2021	30
11	Suraj Raosaheb Bandal	Tropfruit Products PrivateLimited	01/02/2021	28/02/2021	28
12	Umesh Purushottam Beldar	Petroleum Engineers Association	24/06/2021	15/08/2021	52
13	Hrutuja Nivrutti Borhade	Petroleum Engineers Association	24/06/2021	15/08/2021	52
14	Murtuza Charbiwala	Terra Green Technologies Pvt. Ltd.	20/09/2021	08/11/2021	50
15	Digvijaysinha GovardhanChavan	Tropfruit Products Private Limited	01/02/2021	28/02/2021	28
16	Mahesh Chavan	Terra-Green Technology Pvt. Ltd.	20/09/2021	8/11/2021	45
17	Madhav Dandekar	Sudarshan Chemical Industries Ltd.	16/08/2021	16/09/0221	30
18	Shraddha PandurangDarshale	Iiche Online Internship Program-2021	10/06/2021	20/07/2021	40
19	NiranjanDeochake	Iiche Online Internship Program-2021	15/07/2021	23/08/2021	48
20	Sakshi Deshmane	Terra Green Technologies Pvt.Ltd	20/09/2021	09/11/2021	49
21	Dhananjay Kumar Singh	Iiche Online Internship Program-2021	15/07/2021	30/08/2021	45
22	Nitin Dhardubey	Kisan Veer SataraSahkari Sakhar Karkana Ltd	22/12/2020	07/01/2021	17
23	BhushanDolas	Tropfruit Products Pvt. Ltd.	01/02/2021	28/02/2021	28
24	PratikshaPravin Ghadle	Petroleum Engineers Association	24/06/2021	15/08/2021	45
25	Viraj Gandhi	Attaquant Enterprises Pvt.Ltd.	14/06/2021	13/12/2021	180
26	Priyanka Samir Garade	Emcure PharmaceuticalLtd	27/09/2021	13/10/2021	16
27	Saif Hannure	Shri BhawanimataPolymers	30/09/2021	15/10/2021	15
28	Abhishek Vijay Ingale	Terra Green Technologies Pvt. Ltd	20/09/2021	08/11/2021	50
29	Vrukodar Sunil Jadhav	Terra Green Technologies Pvt. Ltd	24/07/2021	10/09/2021	49
30	Ashish AlankarKakade	Sudarshan Chemical Industries Ltd.	16/08/2021	16/09/2021	30

31	Bhumika Sagar Kakade	Iiche Online Internship Program-2021	10/06/2021	20/07/2021	40
32	Tejas Kanade	Iiche Online Internship Program-2021	08/05/2021	15/06/2021	40
33	RiteshkumarRajendr aKolhapure	Iiche Online Internship Program-2021	08/05/2021	16/06/2021	38
34	Abhishek Kumbharde	Zydus Cadila Ltd.	01/07/2021	01/08/2021	30
35	DikshitaKamlesh Mehta	Privi SpecialtyChemicals Ltd.	17/11/2021	16/12/2021	30
36	Devendra Amar More	Iiche Online Internship Program-2021	12/05/2021	15/07/2021	34
37	Shivani RajendraNinal	Iiche Online Internship Program-2021	10/06/2021	20/07/2021	40
38	Dhairya Patel	Jai BhavaniNitrates	01/09/2021	01/10/2021	31
39	Abhijeet Maruti Patil	Petroleum Engineers Association	24/06/2021	15/08/2021	45
40	Patil GauravKishor	Rk Industry	03/12/2021	04/01/2022	31
41	Ketan SureshPatil	Wockhardt PharmaceuticalLtd	15/07/2021	04/08/2021	20
42	Rushikesh Patil	Shree Satpuda Tapi Parisar Sahakari SakarKarkhana	01/12/2021	20/12/2021	20
43	Sarthak Patil	Tropfruit Products Pvt.Ltd.	01/02/2021	28/02/2021	28
44	Pranav RupchandPawar	Iiche Online Internship Program-2021	12/05/2021	15/07/2021	64
45	Siddhi VikasPedamkar	Privi Speciality Chemicals Limited	17/11/2021	16/12/2021	30
46	Krunal Raut	Terra Green Technologies Pvt.Ltd	20/09/2021	08/11/2021	49
47	Mohasin RajmohamadShaikh	Attaquant PvtLtd	16/08/2021	16/11/2021	90
48	Vaibhav Sanjay Shirsath	Iiche Online Internship Program-2021	15/05/2021	26/06/2021	42
49	Shlok Phulkar	Aksh Manufacturers	01/09/2021	30/09/2021	30
50	Nupoor Upadhye	Indian InstituteOf Technology, Roorkee	01/06/2021	31/07/2021	61
51	Vishal RaosahebWalunj	Tropfruit Products Pvt.Ltd	01/02/2021	28/02/2021	28
52	RushikeshWankhede	Petroleum Engineers Association	24/06/2021	15/08/2021	45
53	Kaushal	Lucent Polysystems PvtLtd	01/08/2021	30/08/2021	30
54	Mohamed FaizRiyazMomin	Terra Green Technologies Pvt.Ltd	15/09/2021	30/10/2021	45
55	Patel Deep Bharatbhai	Udemy-Gas Absorption And Stripping In Chemical Engineering	21/11/2021	05/12/2021	15
56	Paresh Rajendra Chaudhari	Rudra Aquachilled	1/10/2021	30/10/2021	30
57	Khushi Ramesh Dode	Kranti Paints	13/08/2021	28/08/2021	15
58	Kunal DeepakFarate	Alkyl Amines Chemicals Ltd	09/08/2021	08/09/2021	31
59	Pratiksha More	Serum Institute of India	16/08/2021	30/8/2021	15

60	Ujvala SatishPardeshi	Kranti Paints	13/08/2021	28/08/2021	15
61	Pratik BhaskarChavan	Petroleum Engineers Association	24/06/2021	15/08/2021	45
62	Sayyad Salman Sayyadjilani	Shree Samarth OilRefinery Ghatsawali Beed	08/09/2021	07/10/2021	30
63	Chaitanya Shelar	Globe Construction Chemical Pvt Ltd	15/08/2021	30/08/2021	15
64	Shivraj Taur	Aarambh Paints	15/07/2021	15/08/2021	30
65	Akash YuvrajTele	Petroleum Engineers Association	21/06/2021	15/08/2021	45
66	Waghmare Akash Shivaji	Petroleum Engineers Association	24/06/2021	15/08/2021	45
67	Vishwajeet Bharat Yadav	Iiche Online Internship Program-2021	13/06/2021	12/06/2021	30
AY 2020-21					
.No .	**Name of the Student**	**Name of the Industry**	**Training duration**		
			From (DD/MM/ YYYY)	**To (DD/MM/YY YY)**	**Duration (Days)**
01	Adesh VikasDhaware	Shree Sun Industries	28/12/2020	27/01/2021	30
02	Bhosale SwarajVikrant	Shree Sun Industries	28/12/2020	27/01/2021	30
03	Chaudhari ReshamRavindra	Shree Sun Industries	28/12/2020	27/01/2021	30
04	Tejaswini PravinIndalkar	Shree Sun Industries	28/12/2020	27/01/2021	30
05	Aditya Umashankar	Sahakar Maharshi Shankarrao Mohite - PatilIndustries Ltd. Akluj, Dist - Solapur	04/01/2021	03/02/2021	30
06	Mahima Anup Phade	Sahakar Maharshi Shankarrao Mohite - PatilIndustries Ltd. Akluj, Dist - Solapur	04/01/2021	03/02/2021	30
07	Tejas Hire	Sahakar Maharshi Shankarrao Mohite - PatilIndustries Ltd. Akluj, Dist - Solapur	04/01/2021	03/02/2021	30
08	Thorat PranjalMahesh	Sahakar Maharshi Shankarrao Mohite - PatilIndustries Ltd. Akluj, Dist - Solapur	04/01/2021	03/02/2021	30
09	Ahire Aniket Prabhakar	Rama Krishi Rasayab	28/12/2020	27/01/2021	30
10	Nikalje Gautami Avinash	Rama Krishi Rasayab	28/12/2020	27/01/2021	30
11	Sonali R.	Rama Krishi Rasayab	28/12/2020	27/01/2021	30
12	Bagade AshutoshPremdas	A A Energy Ltd , Desaiganj (Wadsa)	11/1/2021	10/2/2021	30
13	Borkar MinalBhojraj	A A Energy Ltd , Desaiganj (Wadsa)	11/1/2021	10/2/2021	30
14	Chaure PratikTulshiram	A A Energy Ltd , Desaiganj (Wadsa)	11/1/2021	10/2/2021	30
15	Bhagat SanchitaMahesh	Manas agro industries and infrastructure pvt.ltd.	04/01/2021	03/02/2021	30

16	Bhavanagare BhojrajSharad	Haldiram Industrial Pvt.Ltd.	11/1/2021	10/2/2021	30
17	Gawande SohamShivaji	Haldiram Industrial Pvt.Ltd.	11/1/2021	10/2/2021	30
18	Bhosale PradnyaVilas	OC Specialities Pvt.Ltd	04/01/2021	03/02/2021	30
19	Bhosale SakshiNandaraj	Jubilant Life Sciences pvt.ltd.	28/12/2020	27/01/2021	30
20	Gore Suchita Chandrakant	Jubilant Life Sciences pvt.ltd.	28/12/2020	27/01/2021	30
21	Chattar NileshIshwar	Nandlal Dairy Farm	11/1/2021	10/2/2021	30
22	Chavan PravinSanjay	Nandlal Dairy Farm	04/01/2021	03/02/2021	30
23	Erande Sameer Dnyaneshwar	Nandlal Dairy Farm	04/01/2021	03/02/2021	30
24	Chavan Rohit Vikas	Siddharth Interchem Pvt. Ltd.	28/12/2020	27/01/2021	30
25	Dahankar Sudhanshu Raju	Siddharth Interchem Pvt. Ltd.	28/12/2020	27/01/2021	30
26	Savaliya Ravi Manubhai	Siddharth Interchem Pvt. Ltd.	28/12/2020	27/01/2021	30
27	Divekar RutujaShivaji	Fleetguard Filters Pvt. Ltd.	11/1/2021	10/2/2021	30
28	Dombale SagarBabaso	Magnetia Chemicals	04/01/2021	03/02/2021	30
29	Gaikwad AkashShantaram	Chemdist Membrane systems Pvt.ltd	11/01/2021	10/2/2021	30
30	Ghorpade AryaRamesh	Chemdist Membrane systems Pvt.ltd	04/01/2021	03/02/2021	30
31	Gunjote SagarSagoji	Dr. Babasaheb Ambedkar Sahakari Sakhar Karkhana, Keshegaon.	04/01/2021	03/02/2021	30
32	Jadhav Mayuresh Sharad	K. N Industry	28/12/2020	27/01/2021	30
33	Jagdale Shrikesh Sunil	Jai Biotech Industries	11/1/2021	10/2/2021	30
34	Jagtap PratikDeepak	Jai Biotech Industries	11/1/2021	10/2/2021	30
35	Palash Manoj Batra	Jai Biotech Industries	11/1/2021	10/2/2021	30
36	Patil PranavMadhav	Jai Biotech Industries	11/1/2021	10/2/2021	30
37	Thole Sanket Rajesh	Jai Biotech Industries	11/1/2021	10/2/2021	30
38	Joshi SamruddhiVitthal	Vinati organics limited	04/01/2021	03/02/2021	30
39	Kadu Dimpal	Solar Industries India Limited, Chakdoh	04/01/2021	03/02/2021	30
40	Kale Hrishikesh Chandrakant	National Cooling System	28/12/2020	27/01/2021	30
41	Sharma RohitDindayal	National Cooling System	28/12/2020	27/01/2021	30
42	Patil MrunmayiBhaskar	National Cooling System	28/12/2020	27/01/2021	30
43	Khaladkar PrasadDnyandeo	National Cooling System	28/12/2020	27/01/2021	30

44	Sumit VasantRathod	National Cooling System	28/12/2020	27/01/2021	30
45	Kalgude Kalpesh Ravindra	Sanika chemicals Pvt limited, Mahad	11/1/2021	10/2/2021	30
46	Kesav Omkar Vishnu	Sanika chemicals Pvt limited, Mahad	04/01/2021	03/02/2021	30
47	Kolali RohitGangadhar	Cygnet Surface Coating	28/12/2020	27/01/2021	30
48	Patre Rohit Vilas	Cygnet Surface Coating	28/12/2020	27/01/2021	30
49	Kshirsagar SanketSatish	Cygnet Surface Coating	28/12/2020	27/01/2021	30
50	Kulkarni ManaliMahesh	MakSpeed Technologies Pvt Ltd	04/01/2021	03/02/2021	30
51	Pranav AnantKakade	MakSpeed Technologies Pvt Ltd	04/01/2021	03/02/2021	30
52	Patil Satyam Suresh	MakSpeed Technologies Pvt Ltd	04/01/2021	03/02/2021	30
53	Patil Yashoda Sadanand	MakSpeed Technologies Pvt Ltd	04/01/2021	03/02/2021	30
54	Kulkarni SakshiMahesh	Rumara Engineering,NaviMumbai.	04/01/2021	03/02/2021	30
55	Kushare ShubhamTanaji	Good drop wine cellars	11/01/2021	10/02/2021	30
56	Mhetre Archana Vijaykumar	Rena Sahkari Sakhar karkhana Ltd, Dilipnagar nivada	28/12/2020	27/01/2021	30
57	Mirajkar AnurajSagar	Mauli Chemicals	04/01/2021	03/02/2021	30
58	Mulani TaherNabilal	Roman Industries	28/12/2020	27/01/2021	30
59	Muli Sameeran Bhagwan	Laxmimata Milk and Milk Products.Pvt.ltd	11/01/2021	10/02/2021	30
60	Netke Ritesh Abasaheb	Samarth Sahakari Sakhar Karkhana Pvt. LtdAnkushnagar	11/01/2021	10/02/2021	30
61	Patil Hemant Sanjay	Aarti Drugs Limited	04/01/2021	03/02/2021	30
62	Pawar Rushikesh Hanmant	Tuff coat polymer PVT LTD	28/12/2020	27/01/2021	30
63	Pawar VinayakDnyandeo	Tuff coat polymer PVT LTD	28/12/2020	27/01/2021	30
64	Phadnis NachiketAnant	RCF Chembur	04/01/2021	03/02/2021	30
65	Sansare Aadesh Ashok	V.V Tawale Engineers & Contractors	11/01/2021	10/02/2021	30
66	Sapkal Saurabh Ashok	Jayshree Aromatics Pvt. Ltd	28/12/2020	27/01/2021	30
67	Shedge Krushna Balasaheb	Lavender Laboratories Pvt. Ltd.	04/01/2021	03/02/2021	30
68	Thorbole Umesh Rameshwar	Lavender Laboratories Pvt. Ltd.	04/01/2021	03/02/2021	30
69	Shedge RohitAnandrao	Aquapharm Chemicals Pvt Ltd Mahad	11/01/2021	10/02/2021	30
70	Shelar AbhilashaAbhijit	Delta finochem Pvt Ltd, nashik	28/12/2020	27/01/2021	30

71	Shelke Rajan Bhaurao	Dr. Baburao Bapuji Tanpure SahakariSakhar Karkhana Ltd, Rahuri Fact.	28/12/2020	27/01/2021	30
72	Shruti Manoj Pawar	DEMI specialty chemicals & co	04/01/2021	03/02/2021	30
73	Suryawanshi MukeshDnyanoba	DEMI specialty chemicals & co	11/1/2021	10/2/2021	30
74	Vaibhav SanjayGaigole	DEMI specialty chemicals & co	04/01/2021	03/02/2021	30
75	Vinit Vivek Shirke	Colorband Dyestuffs	04/01/2021	03/02/2021	30
76	Yamgar OmkarNathuram	National Fertilizers	11/01/2021	10/02/2021	30
77	Shlok Phulkar	S.R.G Enterprises,Camp,Pune	23/12/2020	07/01/2021	15
78	Krunal Raut	NationalChemical Laboratory,Pune	1-01-2021	20/02/2021	51
79	Vaibhav Shirsath	Sevenpeaks Winery Pvt.Ltd, Nashik	13/12/2020	27/12/2020	15
80	Khushi Dode	RivaRichMineraWater,,Plant,Katraj, Pune	26/12/2020	8/01/2021	14
81	Sarthak Patil	Lambros Global Engineering Pvt.Ltd,Pune	02/02/2021	23/02/2021	15
82	Siddhi Pedamkar	ShriSantTukaramSakharKarkhana Limited, Ltd Pune	14/12/2020	30/12/2020	15
83	Vishal R Walunj	Shree Kranti Sugar Factory and Power Pvt.Ltd,Ahmednagar	01/02/2021	15/02/2021	15
84	Ketan Patil	Raaj Print and Packaging	14/12/2021	05/01/2021	20
85	Pranav Pawar	Kisanveersatara SahakariSakhari Karkana, Bhuinj	15/12/2020	31/12/2020	15
86	Rushikesh Wankhede	Yashada Industry	16/12/2020	30/12/2020	15
87	Nupoor Upadhye	CSIR-National Chemical Laboratory, Pashan.	1/1/2021	28/2/2021	59
88	MohasinS haikh	Kisanveersatara Sahkari karkhana, Bhuinj	15/11/2020	20/12/2020	36
89	Gaurav Patil	Raaj Print and Paper	14/12/2020	05/01/2021	20
90	Kaushal Shep	Tata motor, Chikli, Pune	15/12/2020	15/02/2021	60

2019-20

Sr.No.	**Name of the Student**	**Name of the Industry**	**Training duration**		
			From (DD/MM/YYYY)	**To (DD/MM/YYYY)**	**Duration (Days)**
1	Pranav Rupchand Pawar	Azimuthal EnerlabServices,Nashik	05/06/2019	21/06/2019	17
2	Siddhi Vikas Pedamkar	Azimuthal EnerlabServices,Nashik	05/06/2019	21/06/2019	17
3	Vaibhav Sanjay Shirsat	Azimuthal EnerlabServices,Nashik	05/06/2019	21/06/2019	17
4	Nupoor Ajay Upadhye	Azimuthal EnerlabServices,Nashik	05/06/2019	21/06/2019	17
5	Sanket Thole	Wabag	03/06/2019	15/06/2019	12

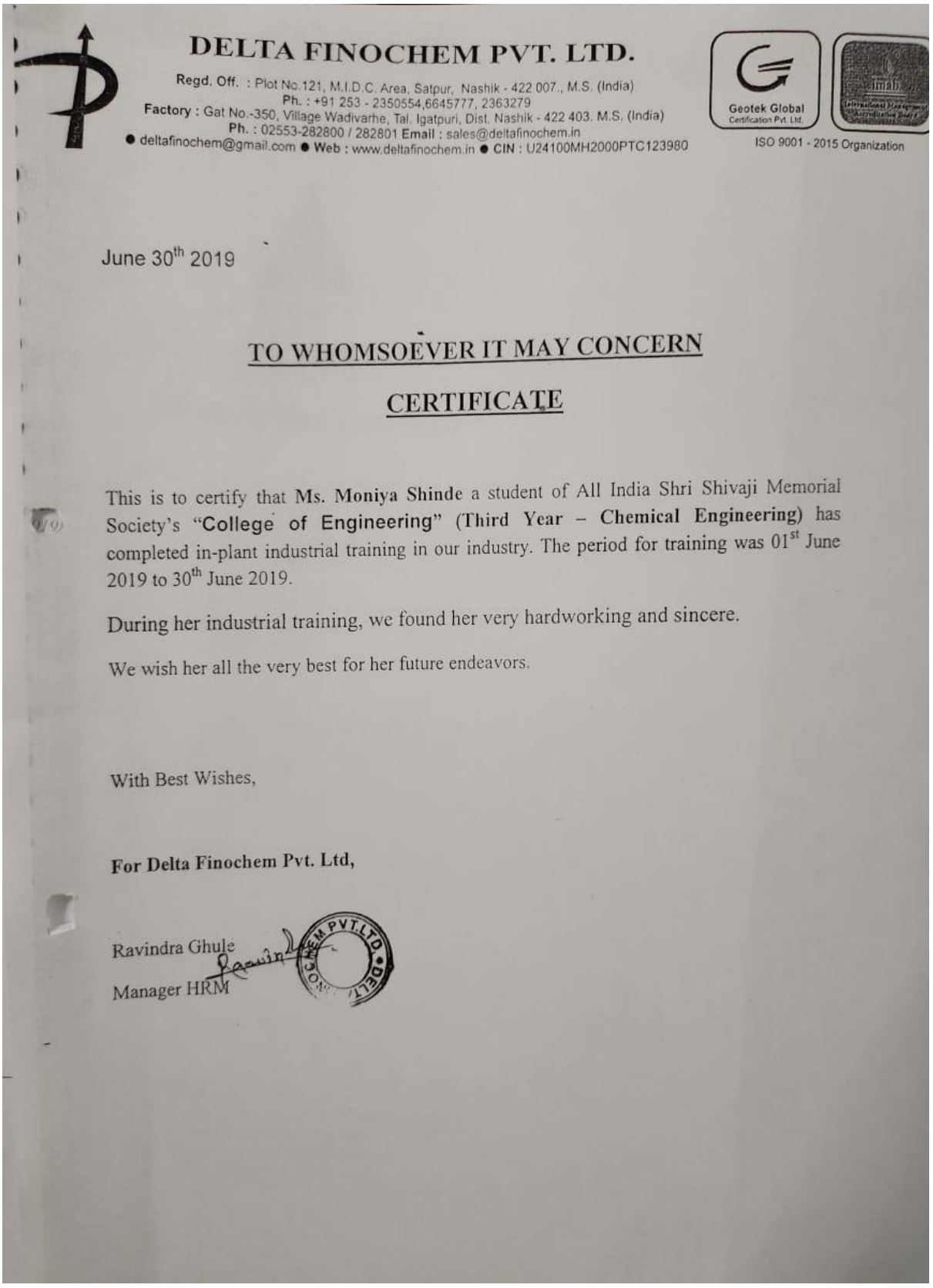
6	Rohit Sharma	Wabag	03/06/2019	15/06/2019	12
7	Archana Mhetre	Wabag	03/06/2019	15/06/2019	12
8	Shruti Pawar	Wabag	03/06/2019	15/06/2019	12
9	Ritesh Netke	Asha Resins Pvt. Ltd	08/06/2019	15/06/2019	7
10	Sameer Frande	Asha Resins Pvt. Ltd	08/06/2019	15/06/2019	7
11	Akash Gaikwad	Asha Resins Pvt. Ltd	08/06/2019	15/06/2019	7
12	Hrushikesh Kale	Asha Resins Pvt. Ltd	08/06/2019	15/06/2019	7
13	Ashwini Pote	Asha Resins Pvt. Ltd	08/06/2019	15/06/2019	7
14	Aniket Ahire	Jubilant Life Sciences	01/06/2019	15/06/2019	15
15	Sakshi Bhosale	Jubilant Life Sciences	01/06/2019	15/06/2019	15
16	Suchita Gore	Jubilant Life Sciences	01/06/2019	15/06/2019	15
17	Dimple Kadu	Jubilant Life Sciences	01/06/2019	15/06/2019	15
18	Mrunmayi Patil	Dimand Chemicals	03/06/2019	15/06/2019	12
19	Sumit Rathod	Dimand Chemicals	03/06/2019	15/06/2019	12
21	Prasad Khaladkar	Dimand Chemicals	03/06/2019	15/06/2019	12
21	Mayuresh Jadhav	Maxheal Pharmecutical	02/06/2019	16/06/2019	14
22	Nilesh Chattar	Delta Phenochem Nashik	03/06/2019	15/06/2019	12
23	Pradnya Bhosale	Sidheshwar Suger Factory	11/6/2019	19/6/2019	08
24	Sanket S Kshirsagar	Pidilite Industries Ltd Mahad	03/06/2019	15/06/2019	12
25	Rohit A Shedge	Pidilite Industries Ltd Mahad	03/06/2019	15/06/2019	12
26	Kalpesh R Kalgude	Pidilite Industries Ltd Mahad	03/06/2019	15/06/2019	12
27	Samruddhi V Joshi	Pidilite Industries Ltd Mahad	03/06/2019	15/06/2019	12
28	Sanchita Bhagat	Inventy's Research Company Pvt. Ltd.	03/06/2019	15/06/2019	12
29	Tejaswini Indalkar	Emcure Pharmacutical	06/06/2019	15/06/2019	9
30	Rutuja Develkar	Emcure Pharmacutical	06/06/2019	15/06/2019	9
31	Anuraj Sagar	Mauli Chemicals	03/06/2019	15/06/2019	12
32	Mukesh Suryawanshi	Mapro	08/06/2019	15/06/2019	7
33	Pratik Jagtap	NCL, Pune	01/06/2019	15/06/2019	15
34	Pranav Patil	NCL, Pune	01/06/2019	15/06/2019	15

35	Sonali R	Serum Institute of India	04/06/2018	09/06/2018	5
36	Gautami Nikalje	Serum Institute of India	04/06/2018	09/06/2018	5
37	Sagar Dombale	Magnetia Chemicals	12/06/2019	18/06/2019	6
38	Rohit Chavan	RAN Chemical Nagpur	01/06/2019	30/06/2019	30
39	Soham Gawande	RAN Chemical Nagpur	01/06/2019	30/06/2019	30
40	Pranav Kakade	Shree Drugs Syntex	08/06/2019	24/06/2019	16
41	Nachiket Phadnis	Shree Drugs Syntex	08/06/2019	24/06/2019	16
42	Satyam Patil	Shree Drugs Syntex	08/06/2019	24/06/2019	16
43	Manali Kulkarni	Shree Drugs Syntex	08/06/2019	24/06/2019	16
44	Yasoda Patil	Shree Drugs Syntex	08/06/2019	24/06/2019	16
45	Hemant S Patil	Aarti Drugs Limited	08/06/2019	24/06/2019	16
46	Ashutosh Bagade	Varad Industries	01/06/2019	30/06/2019	30
47	Resham Chaudhari	Varad Industries	01/06/2019	30/06/2019	30
48	Swaraj Bhosale	Varad Industries	01/06/2019	30/06/2019	30
49	Mahima Phade	Mapro	01/06/2019	30/06/2019	30
50	Tejas Hire	Mapro	01/06/2019	30/06/2019	30
51	Pranjal Thorat	Mapro	01/06/2019	30/06/2019	30
52	Minal Borkar	Mapro	01/06/2019	30/06/2019	30
53	Krushna Shedge	Mapro	01/06/2019	30/06/2019	30
54	Pravin Chavan	Madhusagar Honey Centre	03/06/2019	17/06/2019	14

55	Pratik Chaure	Madhusagar Honey Centre	03/06/2019	17/06/2019	14
56	Aditya Umashankar	Madhusagar Honey Centre	03/06/2019	17/06/2019	14
57	Umesh Thorbole	Madhusagar Honey Centre	03/06/2019	17/06/2019	14
58	Omkar Vishnu k	Varad Industries	01/06/2019	30/06/2019	30
59	Mukesh Suryawanshi	Mapro	01/06/2019	30/06/2019	30
60	Palash Batara	Jay Biotics	03/06/2019	14/06/2019	14
61	Rushikesh Pawar	Jay Biotics	03/06/2019	14/06/2019	14
62	Sorabh Sapkal	Jay Biotics	03/06/2019	14/06/2019	14
63	Shrikesh Jagdale	Jay Biotics	03/06/2019	14/06/2019	14
64	Kaushal Gulati	Bhilai Steel Plant	03/06/2019	15/06/2019	14
65	Sakshi Kukarni	PratapTex Chem Pvt Ltd	01/06/2019	15/06/2019	15
66	Vinit Shirke	Surin Automotivr	08/06/2019	15/06/2019	7
67	Adesh Sansare	Surin Automotivr	08/06/2019	15/06/2019	7
68	Adesh Dhaware	Sula Wines	08/06/2019	15/06/2019	7
69	Omkar Yamgar	United Industries Sangli	18/06/2019	28/06/2019	10
70	Rohit Patre	United Industries Sangli	18/06/2019	28/06/2019	10
71	Rohit kolali	United Industries Sangli	18/06/2019	28/06/2019	10
72	Ravi Savaliya	Siddarth Interchem	01/06/2019	15/06/2019	15
73	Sudhanshu Dahankar	Siddarth Interchem	01/06/2019	15/06/2019	15
74	Shubham Kushare	Wintage Wines	01/06/2019	15/06/2019	15
75	Tahir Mulani	Wintage Wines	01/06/2019	15/06/2019	15
76	Vaibhav Gaigole	Varad Industries	01/06/2019	30/06/2019	30
77	Vinayal Pawar	Delta Phenochem Nashik	11/06/2019	19/06/2019	8
78	Sameeran Muli	Delta Phenochem Nashik	11/06/2019	19/06/2019	8
79	Sagar Gunjote	Delta PhenochemNashik	11/06/2019	19/06/2019	8
80	Tak Govind Venaram	ICT , Mumbai	30/05/2019	30/06/2019	31
81	Dangi Krishna Subhash	ICT , Mumbai	30/05/2019	30/06/2019	31
82	Kivale Prateek Shamsunder	ICT , Mumbai	30/05/2019	30/06/2019	31
83	Gandhi Samyak Ishwarlal	RCF Mumbai (ABC Plant)	01/06/2019	14/06/2019	15

84	Nagare Rahul Sanjay	RCF Mumbai (ABC Plant)	01/06/2019	14/06/2019	15
85	Hulawale Pankaj	RCF Mumbai (ABC Plant)	01/06/2019	14/06/2019	15
86	Nandgaonkar Bhavana D.	RCF Mumbai (ABC Plant)	01/06/2019	14/06/2019	15
87	Kotecha Aditya Akshay	RCF Mumbai (Urea Plant)	17/06/2019	28/06/2019	11
88	Mithbhakre Prathmesh Anil	RCF Mumbai (Urea Plant)	17/06/2019	28/06/2019	11
89	PAL ASHISH GOPAL	RCF Mumbai (Urea Plant)	17/06/2019	28/06/2019	11
90	Patil Vaibhav Jitendra	RCF Mumbai (Urea Plant)	17/06/2019	28/06/2019	11
91	Wakankar Ameya Subodh	Goldstab Organics Pvt Ltd.,	03/06/2019	27/06/2019	24
92	Chanchlani Chirag Manoj	Goldstab Organics Pvt Ltd.,	03/06/2019	27/06/2019	24
93	Nair Vivek Sreekumar	Emmvsolutions Pvt Ltd	01/06/2019	14/06/2019	15
94	Dhole Darshan Rajesh	Aonomy Specialty Polymers P Ltd.	03/06/2019	21/06/2019	18
95	Sathe Abhishek Devanand	Aonomy Specialty Polymers P Ltd	03/06/2019	21/06/2019	18
96	Bidawe Sharad Prakash	Aonomy Specialty Polymers P Ltd	03/06/2019	21/06/2019	18
97	Kolte Vaibhav Bhausaheb	Aonomy Specialty Polymers P Ltd	03/06/2019	21/06/2019	18
98	Baviskar Gaurav Subhash	Delta Finochem Pvt. Ltd.	01/06/2019	30/06/2019	30
99	Shelar Abhilasha	Delta Finochem Pvt. Ltd	01/06/2019	30/06/2019	30
100	Balapure Divyani Banduji	Delta Finochem Pvt. Ltd	01/06/2019	30/06/2019	30
101	Ghuge Ayodhya Sampat	Delta Finochem Pvt. Ltd.	01/06/2019	30/06/2019	30
102	Vyas Shraddha Anandrao	Delta Finochem Pvt. Ltd.	01/06/2019	30/06/2019	30
103	Shinde Moniya Anil	Delta Finochem Pvt. Ltd	01/06/2019	30/06/2019	30
104	Ghatol Suyasha Shirish	Ordnance Factory Nagpur	01/06/2019	20/06/2019	200
105	Chitodkar Sayali Sunil	BVG Life Science Ltd.	10/06/2019	27/06/2019	17
106	Khaladkar Kamlesh	Solvay Specialty Chemicals Pvt Ltd.,	03/06/2019	10/06/2019	7
107	Pandey Pratik Gyanprakash	Solvay Specialty Chemicals Pvt Ltd.,	03/06/2019	10/06/2019	7
108	Rajpurohit Nilesh	Solvay Specialty Chemicals Pvt Ltd.,	03/06/2019	10/06/2019	7
109	Gonde Sakshi Dilip	Haldiram Foods international Pvt Ltd.,	05/06/2019	24/06/2019	20
110	Kadao Pooja Deepak	Haldiram Foods international Pvt Ltd.,	05/06/2019	24/06/2019	20
111	Gupta Adarsh Gauri Shankar	Haldiram Foods international Pvt Ltd.,	05/06/2019	24/06/2019	20

112	Dongre Prateek Vinod	Haldiram Foods international Pvt Ltd.,	05/06/2019	24/06/2019	20
113	Pujara Priyal Nikhil	Loreal India Pvt Ltd., Pune	03/06/2019	30/06/2019	28
114	Kale Sanket Suresh	Elantas Beck Pune	01/06/2019	21/06/2019	21
115	Patil Rohan Dadasaheb	Elantas Beck Pune	01/06/2019	21/06/2019	21
116	Ghare Sanjay Macchindra	Neowise Life Science Pvt Ltd.,. Kurkhumbh	03/06/2019	28/06/2019	25
117	Ghare Sanjay Macchindra	Neowise Life Science Pvt Ltd.,. Kurkhumbh	03/06/2019	28/06/2019	25
118	Ghare Sanjay Macchindra	Neowise Life Science Pvt Ltd.,. Kurkhumbh	03/06/2019	28/06/2019	25
119	Khalade Omkar Anil	Neowise Life Science Pvt Ltd.,. Kurkhumbh	03/06/2019	28/06/2019	25
120	Dinesh Dhokare	Neowise Life Science Pvt Ltd.,. Kurkhumbh	03/06/2019	28/06/2019	25
121	Vahadne Sejal Vinod	Neowise Life Science Pvt Ltd.,. Kurkhumbh	03/06/2019	28/06/2019	25
122	Shedage Swapnilsudam	Neowise Life Science Pvt Ltd.,. Kurkhumbh	03/06/2019	28/06/2019	25
123	Wathore Rupesh Uttam	Sudarshan Chemicals,Roha	28/06/2019	22/06/2019	25
124	Dambe Chinmay Umesh	Sudarshan Chemicals,Roha	28/06/2019	22/06/2019	25
125	Wagh Harshal Rajendra	Aarti Industries Ltd	03/06/2019	20/06/2019	18
126	Shukla Akhilkumar	Aarti Industries Ltd	03/06/2019	20/06/2019	18
127	Kulal Prajakta Jakoji	Arlex Chem P Ltd., Pune	15/06/2019	30/06/2019	16
128	Sakshi Jain	Serum Institute of India Pvt. Ltd.	12/06/2019	26/06/2019	14
129	Varprasad Allur	Serum Institute of India Pvt. Ltd.	12/06/2019	26/06/2019	14
130	Nikhil Ingle	Akshay Chemicals Akola	01/06/2019	30/06/2019	30
131	Mayur Shirke	Akshay Chemicals Akola	01/06/2019	30/06/2019	30
132	Rushikesh Munde	Akshay Chemicals Akola	01/06/2019	30/06/2019	30
133	Abhinav Kumar	Dr. Millipore Tech.Pvt. Ltd.	01/06/2019	30/06/2019	30
134	Abhishek Alsundekar	Mahabaleshwar Madhotpadak Co.Op.	01/06/2019	16/06/2019	16
135	Rutuja Gadilkar	Mahabaleshwar Madhotpadak Co.Op.	01/06/2019	16/06/2019	16
136	Ajinkya Bade	Mahabaleshwar Madhotpadak Co.Op.	01/06/2019	16/06/2019	16
137	Aditya Patil	Mahabaleshwar Madhotpadak Co.Op.	01/06/2019	16/06/2019	16
138	Rakshita Bhimjiyani	Raymond UCO Denim Pvt. Ltd.	28/06/2019	15/06/2019	18



DELTA FINOCHEM PVT. LTD.

Regd. Off. : Plot No.121, M.I.D.C. Area, Satpur, Nashik - 422 007., M.S. (India)
Ph. : +91 253 - 2350554,6645777, 2363279
Factory : Gat No.-350, Village Wadivarhe, Tal. Igatpuri, Dist. Nashik - 422 403. M.S. (India)
Ph. : 02553-282800 / 282801 Email : sales@deltafinochem.in
● deltafinochem@gmail.com ● Web : www.deltafinochem.in ● CIN : U24100MH2000PTC123980

Geotek Global Certification Pvt. Ltd.

ISO 9001 - 2015 Organization

June 30th 2019

TO WHOMSOEVER IT MAY CONCERN

CERTIFICATE

This is to certify that **Ms. Moniya Shinde** a student of All India Shri Shivaji Memorial Society's "**College of Engineering**" **(Third Year – Chemical Engineering)** has completed in-plant industrial training in our industry. The period for training was 01st June 2019 to 30th June 2019.

During her industrial training, we found her very hardworking and sincere.

We wish her all the very best for her future endeavors.

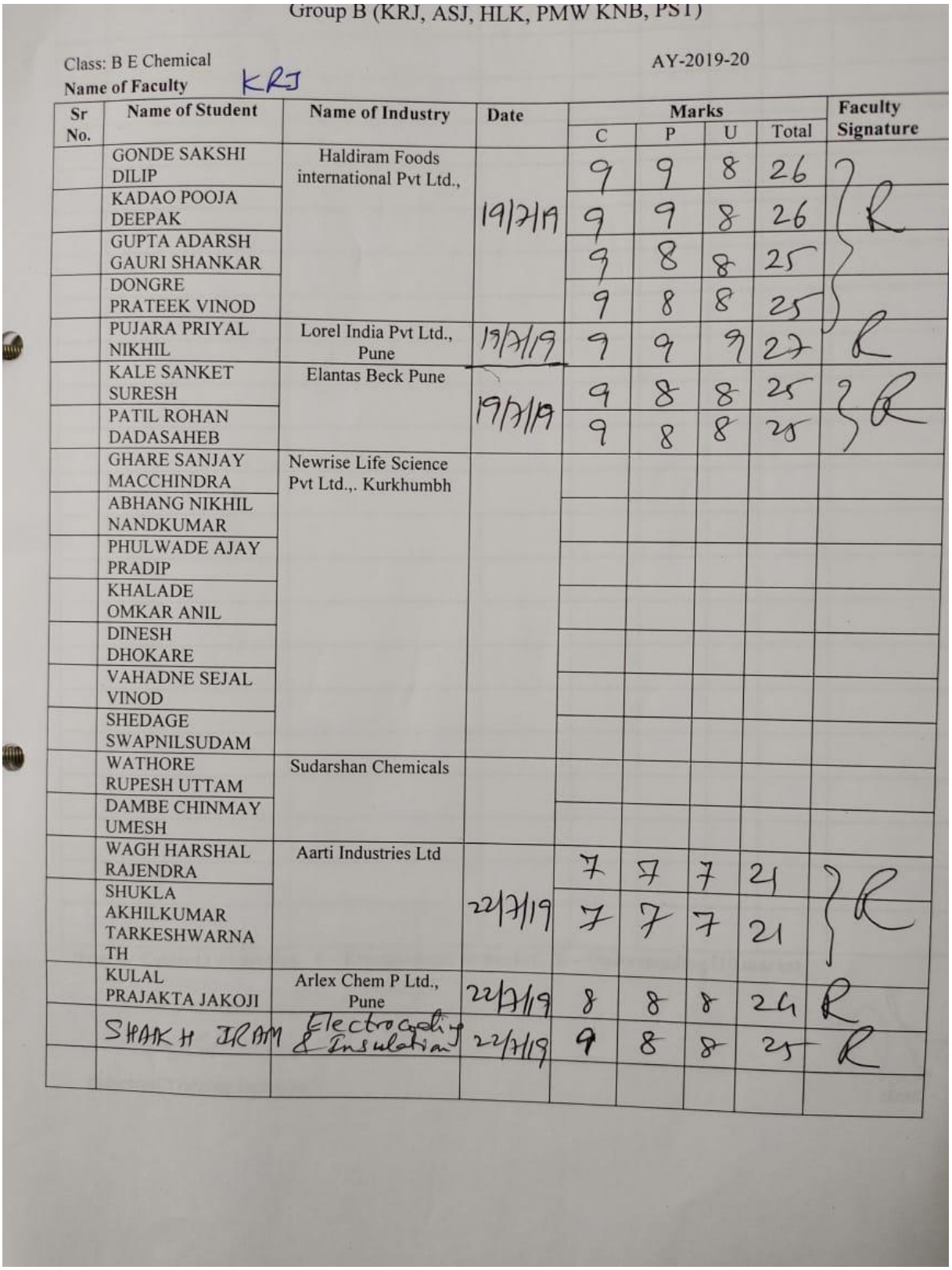
With Best Wishes,

For Delta Finochem Pvt. Ltd,

Ravindra Ghule
Manager HRM

DELTA FINOCHEM PVT. LTD.

Fig. 2.2.5.B.1. Internship Certificate of the Students



Group B (KRJ, ASJ, HLK, PMW KNB, PST)

Class: B E Chemical AY-2019-20

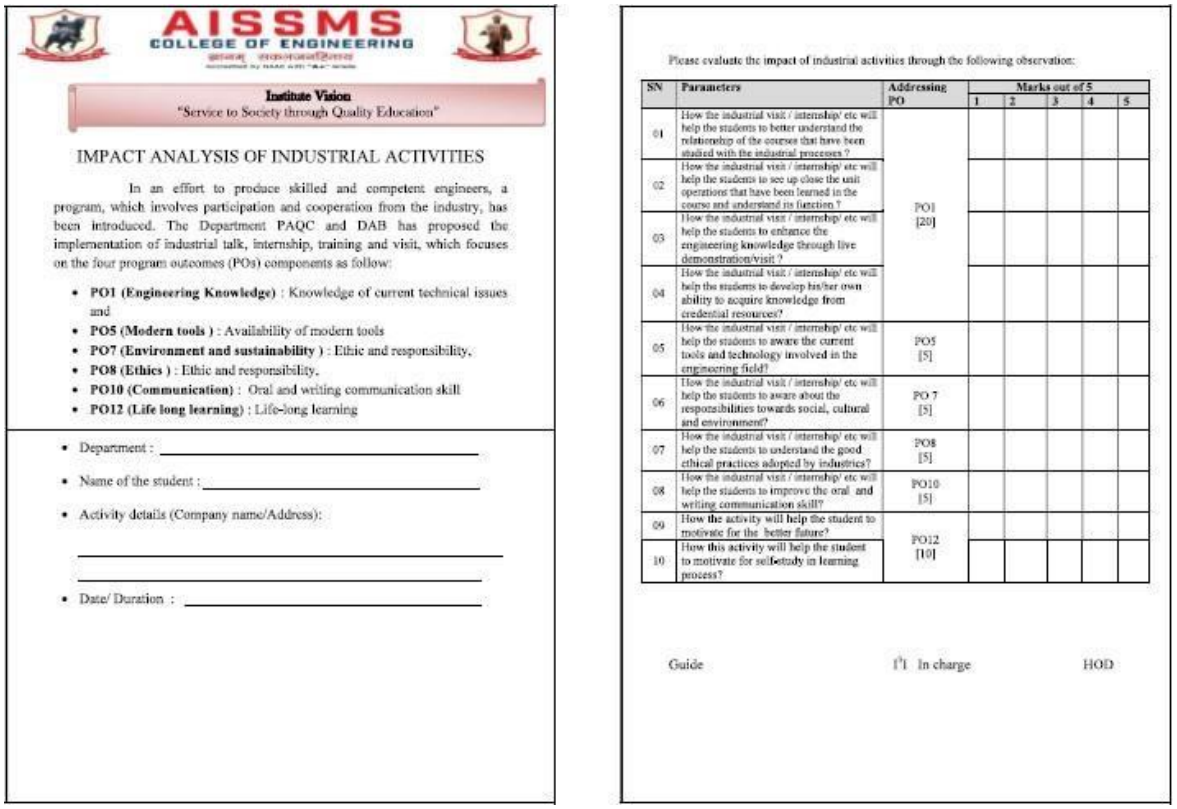
Name of Faculty KRJ

Sr No.	Name of Student	Name of Industry	Date	Marks				Faculty Signature
				C	P	U	Total	
	GONDE SAKSHI DILIP	Haldiram Foods international Pvt Ltd.,	19/7/19	9	9	8	26	R
	KADAO POOJA DEEPAK			9	9	8	26	
	GUPTA ADARSH GAURI SHANKAR			9	8	8	25	
	DONGRE PRATEEK VINOD			9	8	8	25	
	PUJARA PRIYAL NIKHIL	Lorel India Pvt Ltd., Pune	19/7/19	9	9	9	27	R
	KALE SANKET SURESH	Elantas Beck Pune	19/7/19	9	8	8	25	R
	PATIL ROHAN DADASAHEB			9	8	8	25	
	GHARE SANJAY MACCHINDRA	Newrise Life Science Pvt Ltd.,. Kurkhumbh						
	ABHANG NIKHIL NANDKUMAR							
	PHULWADE AJAY PRADIP							
	KHALADE OMKAR ANIL							
	DINESH DHOKARE							
	VAHADNE SEJAL VINOD							
	SHEDAGE SWAPNILSUDAM							
	WATHORE RUPESH UTTAM	Sudarshan Chemicals						
	DAMBE CHINMAY UMESH							
	WAGH HARSHAL RAJENDRA	Aarti Industries Ltd	22/7/19	7	7	7	21	R
	SHUKLA AKHILKUMAR TARKESHWARNATH			7	7	7	21	
	KULAL PRAJAKTA JAKOJI	Arlex Chem P Ltd., Pune	22/7/19	8	8	8	24	R
	SHAIKH IRAM	Electrocoating & Insulation	22/7/19	9	8	8	25	R

Fig. 2.2.5.B.2. Post Training Assessment of students

C. Impact analysis of industry institution interaction and actions taken thereof

Department always encourages students learn new things through expert lecture/ Industrial Visit/ Industrial Training. After completing such type of activity department analyse the students through the impact analysis. The format of the Impact analysis is as shown Figure No2.2.5.C.1



AISSMS
COLLEGE OF ENGINEERING

Institute Vision
"Service to Society through Quality Education"

IMPACT ANALYSIS OF INDUSTRIAL ACTIVITIES

In an effort to produce skilled and competent engineers, a program, which involves participation and cooperation from the industry, has been introduced. The Department PAQC and DAB has proposed the implementation of industrial talk, internship, training and visit, which focuses on the four program outcomes (POs) components as follow:

- **PO1 (Engineering Knowledge)** : Knowledge of current technical issues and
- **PO5 (Modern tools)** : Availability of modern tools
- **PO7 (Environment and sustainability)** : Ethic and responsibility.
- **PO8 (Ethics)** : Ethic and responsibility.
- **PO10 (Communication)** : Oral and writing communication skill
- **PO12 (Life long learning)** : Life-long learning

- Department : _____
- Name of the student : _____
- Activity details (Company name/Address):

_____
_____

- Date/ Duration : _____

Please evaluate the impact of industrial activities through the following observation:

SN	Parameters	Addressing PO	Marks out of 5				
			1	2	3	4	5
01	How the industrial visit / internship/ etc will help the students to better understand the relationship of the courses that have been studied with the industrial processes ?	PO1 [20]					
02	How the industrial visit / internship/ etc will help the students to see up close the unit operations that have been learned in the course and understand its function ?						
03	How the industrial visit / internship/ etc will help the students to enhance the engineering knowledge through live demonstration/visit ?						
04	How the industrial visit / internship/ etc will help the students to develop his/her own ability to acquire knowledge from credential resources?						
05	How the industrial visit / internship/ etc will help the students to aware the current tools and technology involved in the engineering field?	PO5 [5]					
06	How the industrial visit / internship/ etc will help the students to aware about the responsibilities towards social, cultural and environment?	PO 7 [5]					
07	How the industrial visit / internship/ etc will help the students to understand the good ethical practices adopted by industries?	PO8 [5]					
08	How the industrial visit / internship/ etc will help the students to improve the oral and writing communication skill?	PO10 [5]					
09	How the activity will help the student to motivate for the better future?	PO12 [10]					
10	How this activity will help the student to motivate for self-study in learning process?						

Guide I/C In charge HOD

Fig. 2.2.5.C.1. Format of the Impact analysis

	B	C	D	E	F	G	H
	Has the student demonstr	Has the student shown av	Did the student follow pro	Has the student worked ir	Was the student able to e	Was the student exposed	Was the student
5	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
4	Good	Good	Good	Good	Excellent	Good	Excellent
7	Good	Good	Excellent	Good	Good	Satisfactory	Good
0	Good	Good	Excellent	Excellent	Good	Good	Good
7	Good	Good	Excellent	Good	Good	Need improvement	Excellent
9	Good	Satisfactory	Good	Good	Good	Satisfactory	Good
7	Excellent	Good	Excellent	Good	Excellent	Good	Excellent
2	Good	Excellent	Good	Excellent	Excellent	Good	Good
5	Good	Good	Need improvement	Good	Excellent	Good	Satisfactory
5	Satisfactory	Good	Good	Good	Excellent	Excellent	Excellent
0	Satisfactory	Good	Excellent	Good	Good	Satisfactory	Good

Fig. 2.2.5.C.2. Image of responses of Impact Analysis

D. Student feedback on initiative

Fig. 2.2.5.D.1 Format for the Student feedback on initiative

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DEPARTMENT OF _____ ENGINEERING

FEEDBACK ON INTERACTION OF DEPARTMENT WITH INDUSTRY

Industrial exposure to students through various activities with the support of industries and various professional bodies is one of the important aspects. In order to strengthen academics in the department with the involvement of industry, suggestions and feedback is expected from the students.

Academic Year: 20xx – 20xx Class: FE/SE/TE/BE/ME

FEEDBACK FORM

Please rate on the scale of 1 to 5 (5 is at higher side)

(5: Excellent; 4: Very Good; 3: Good; 2: Average; 1: Poor)

S N	Description	Rating	Remark
1	Awareness about industry institute interaction policy of the department		
2	Exposure to industrial aspects in teaching learning of the various courses		
3	Activities organized by the department for bridging the gap between academic and industry		
4	Availability of database of industries and industry experts		
5	Exposure to industrial aspects through industry visits, expert talks, etc.		
6	Guidelines and procedure for assessment and evaluation of industry internships , trainings, etc.		
	Total		

Suggestions to improve Industry Institute Interaction activities:

Suggested Name of industry and industry expert with contact details	
Any other suggestion	

Signature of Student : _____
Name of the Student: _____
Date : _____

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B	C	D	E	F	G	H
Awareness about industry	Exposure to industrial asp	Activities organized by the	Availability of database of	Exposure to industrial asp	Guidelines and procedure	Suggestion to improve ir
5	5	5	5	5	5	NA
4	4	3	4	5	3	NA
4	4	5	4	4	2	NA
4	4	5	5	4	3	Add more core compani
4	4	5	3	3	2	NA
4	3	3	3	3	3	Add number of visits
5	3	5	3	5	3	NA
4	5	4	5	5	3	NA
4	3	2	3	5	3	NA
2	3	3	3	5	4	NA
2	3	5	3	3	4	NA

Fig. 2.2.5.D.2. Image of feedback on initiative

CRITERION 3	COURSE OUTCOMES AND PROGRAM OUTCOMES	120

3.1 Establish the correlation between the courses and the Program Outcomes (POs) and Program Specific Outcomes (PSOs) (20)

(Program Outcomes as mentioned in Annexure I and Program Specific Outcomes as defined by the Program)

The following are the Program Specific Outcomes

Chemical Engineering graduates will be able to:

1. Identify, analyze, design and develop solutions to Chemical Engineering problems of practical importance to industry and society.
2. Demonstrate sound understanding of Chemical Engineering fundamentals to solve problems through the use of modern experimental methods, computer aided design and simulation software.

3.1.1 Course Outcomes (COs) (SAR should include course outcomes of one course from each semester of study, however, should be prepared for all courses and made available as evidence, if asked) (05)

Table 3.1.1.1: SE-Fluid Mechanics (209342) (Term-I)

On completion of the course, students will be able to -	
C242.1	APPLY basic concepts of fluid mechanics and determine properties of fluids.
C242.2	DERIVE fluid statics laws and apply it to pressure measuring devices in chemical industry.
C242.3	ANALYZE basic equations of fluid flow and their applications to determine fluid flow rate by different devices.
C242.4	FORMULATE mathematical equations for flow of fluid through different systems and determine different losses occurring in pipelines.

C242.5	DEVELOP relationships among process/system variables using dimensional analysis.
C242.6	IDENTIFY and apply different valves and pumps for transportation of fluid through pipelines.

Table 3.1.1.2. SE-Heat Transfer (209348) (Term- II)

On completion of the course, students will be able to -	
C248.1	DEMONSTRATE basic concepts of Conduction.
C248.2	DEMONSTRATE basic concepts of Convection.
C248.3	CONDUCT experiments as well as to analyze and interpret data.
C248.4	DEMONSTRATE basic concepts of radiation.
C248.5	DESIGN Heat Exchanger.
C248.6	DESIGN Evaporator.

Table 3.1.1.3. TE-Industrial Organization and Management (309343) (Term- I)

On completion of the course, students will be able to -	
C343.1	APPLY the concepts of Management Science.
C343.2	IDENTIFY managerial skills to increase productivity.
C343.3	ANALYZE and implement concepts of Quotation, Tenders and Comparative statements.
C343.4	UNDERSTAND the knowledge of international trade.
C343.5	USE the knowledge of Management laws in Industrial Organizations.
C343.6	PARAPHRASE the knowledge of stores management.

Table 3.1.1.4. TE-Mass Transfer-II (309351) (Term -II)

On completion of the course, students will be able to

C351.1	APPLY mass transfer theories and principles to distillation operation and study different types of distillation.
C351.2	SOLVE problems related to continuous distillation.
C351.3	UNDERSTAND Liq.-Liq. Extraction operation and solve problems.
C351.4	UNDERSTAND leaching operation and solve single stage and multistage leaching problems.
C351.5	UNDERSTAND basic principle and equilibria in adsorption and solve single stage, multistage adsorption problems.
C351.6	SOLVE problems of crystallization and understand membrane separation techniques.

Table 3.1.1.5. BE-Process Dynamics and Control (409341) (Term- I)

On completion of the course, students will be able to-	
C441.1	UNDERSTAND the dynamic modeling of simple processes.
C441.2	UNDERSTAND the design of single-loop feedback control system.
C441.3	APPLY the knowledge of stability analysis to feed-back systems.
C441.4	ANALYZE the stability of linear processes by frequency response.
C441.5	UNDERSTAND the design of complex control system.
C441.6	UNDERSTAND the recent digital and computer-based control system schemes.

Table 3.1.1.6. BE-Project Stage II (409353) (Term-II)

On completion of the course, students will be able to-	
C453.1	INVESTIGATE Process Parameters/Design of Equipment.
C453.2	OPTIMIZE the design/Process Parameters.
C453.3	ANALYZE costing of the Plant.
C453.4	RECOMMEND Site Layout.
C453.5	DRAW conclusions of the study.
C453.6	PREPARE Comprehensive Report.

3.1.2: CO-PO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester) (05)

Table 3.1.2.1. SE-Fluid Mechanics (209342) (Term-I)

Course Outcomes	**Program Outcomes**											
	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
C242.1	2	2	1	2					1	2		
C242.2	2	2	1	2					1	2		
C242.3	2	2	1	2					1	2		
C242.4	2	2	1	2					1	2		
C242.5	2	2	2	2					1	2		
C242.6	2	2	1	2					1	2		
Average	**2**	**2**	**1.1 7**	**2**					**1**	**2**		

Table 3.1.2.2. SE-Heat Transfer (209348) (Term- II)

Course Outcomes	**Program Outcomes**											
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
C248.1	2	3	3	3					1	2		
C248 .2	2	3	3	3					1	2		
C248 .3	2	3		3					1	2		
C248.4	2	3		3						2		
C248 .5	2	3		3					1	2		
C248 .6	2	3	3	3						2		
Average	**2**	**3**	**3**	**3**					**1**	**2**		

Table 3.1.2.3. TE-Industrial Organization and Management (309343) (Term-I)

Course Outcomes	Program Outcomes											
	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
C343.1	2	2				1		2	1	2	1	2
C343.2	2	2				1		2	1	2	1	2
C343.3	2	3				1		2	1	2	1	2
C343.4	3	3				1		2	1	2	1	2
C343.5	2	2				1		2	1	2	1	2
C343.6	2	2				1		2	1	2	1	2
Average	**2.17**	**2.33**				**1**		**2**	**1**	**2**	**1**	**2**

Table 3.1.2.4. TE-Mass Transfer-II (309351) (Term-II)

Course Outcomes	Program Outcomes											
	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
C351.1	3	3	2	2					1	2		
C351.2	3	3	2	2					1	2		
C351.3	3	3	2	2					1	2		
C351.4	3	3	2	2					1	2		
C351.5	3	3	2	2					1	2		
C351.6	3	3	2	2					1	2		
Average	3	3	2	2					1	2		

Table 3.1.2.5. BE-Process Dynamics and Control (409341) (Term-I)

Course Outcomes	Program Outcomes											
	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
C441.1	2	2	2	2	2				1	2		
C441.2	2	2	2	2	2				1	2		

C441.3	2	2	2	2	2				1	2		
C441.4	2	2	2	2	2				1	2		
C441.5	2	2								2		
C441.6	2									2		
Average	**2**	**2**	**2**	**2**	**2**				**1**	**2**		

Table 3.1.2.6. BE-Project Stage II (409353) (Term-II)

Course Outcomes	**Program Outcomes**											
	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2
C453.1	2							2	2	3	1	1
C453.2	2							2	2	3	1	1
C453.3	3	3	3					2	2	3	3	1
C453.4				3	3			2	2	3	1	1
C453.5							3	2	2	3	1	1
C453.6						3		2	2	3	3	2
Average	**2.33**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**1.67**	**1.17**

CO-PSO Matrices of courses selected in 3.1.1

Table 3.1.2.7. SE-Fluid Mechanics (209342) (Term-I)

Course Outcomes	**PSO**	
	PSO1	**PSO2**
C242.1	2	
C242.2	2	
C242.3	2	
C242.4	2	
C242.5	2	
C242.6	2	

Average	**2**	

Table 3.1.2.8. SE- Heat Transfer (209348) (Term -II)

Course Outcomes	**PSO**	
	PSO1	**PSO2**
C248.1	2	2
C248.2	2	2
C248.3	2	
C248.4	2	
C248 5	3	3
C248.6	2	2
Average	**2.17**	**2.25**

Table 3.1.2.9. TE-Industrial Organization and Management (309343) (Term-I)

Course Outcomes	**PSO**	
	PSO1	**PSO2**
C343.1	1	
C343.2	1	
C343.3	1	
C343.4	1	
C343.5	1	
C343.6	1	
Average	**1**	

Table 3.1.2.10. TE-Mass Transfer-II (309351) (Term-II)

Course Outcomes	**PSO**	
	PSO1	**PSO2**
C351.1	2	
C351.2	2	
C351.3	2	
C351.4	2	
C351.5	2	
C351.6	2	
Average	**2**	

Table 3.1.2.11. BE-Process Dynamics and Control (409341) (Term-I)

Course Outcomes	**PSO**	
	PSO1	**PSO2**

C441.1	2	2
C441.2	2	2
C441.3	2	2
C441.4	2	2
C441.5	1	
C441.6	2	
Average	**1.83**	**2**

Table 3.1.2.12. BE-Project Stage II (409353) (Term-II)

Course Outcomes	**PSO**	
	PSO1	**PSO2**
C453.1	2	
C453.2	2	
C453.3	2	1
C453.4	2	1
C453.5	2	1
C453.6	2	
Average	**2**	**1**

3.1.3 Program level Course-PO matrix of all courses INCLUDING first year courses (10)

Cycle-I: **FE: AY 2016-17**
SE: AY 2017-18
TE: AY 2018-19
BE: AY 2019-20

Cycle-II: **FE: AY 2017-18**
SE: AY 2018-19
TE: AY 2019-20
BE: AY 2020-21

Cycle-III: **FE: AY 2018-19**
SE: AY 2019-20
TE: AY 2020-21
BE: AY 2021-22

Table 3.1.3-(a) Mapping Courses with POs (Cycle I, II and III)

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
FE: Term-I												
C101	3.0	2.00	1.00									
C102	2.00	1.33	1.00		1.00							
C106	1.00	1.00			1.00							
C112	2.00	1.00	1.00		1.00							
C105	1.00	1.00	1.00		1.00							
C103	2.00	1.00	1.00		1.00							
C107	1.00	1.00	1.00	1.00		1.00						
FE: Term-II												
C108	3.00	2.00	1.00									
C109	2.00	1.00	1.00									
C113	2.00	2.00										
C111	2.00	1.00										
C104	1.67	1.00	1.00									
C110	2.00	1.00	1.00		1.00							
C114	1.00	1.00			1.00							
SE: Term-I												

C204	3.00	2.00	1.00		1.00							
C241	2.00	2.00	2.00	1.00	2.00				1.00	2.00		
C242	2.00	2.00	1.17	2.00					1.00	2.00		
C243	2.00	1.00	1.00	1.00	1.00				1.00	2.00		
C244	2.83	2.83	2.00	2.00						1.00		
C245	1.00		1.00	2.00	1.00	3.00	1.00	1.00				
C246								2.00	2.00	3.00		1.00
SE: Term-II												
C247	2.00	2.00	1.00	1.00					1.00	2.00		
C248	2.00	3.00	3.00	3.00					1.00	2.00		
C249	2.00	2.00	2.00		2.00				1.00	2.00		
C250	1.00	1.00	2.00	2.00								
C251	2.00	2.00	1.67	1.83					1.00	2.00		
C252	1.00		1.00			1.00			1.00	1.00		2.00
TE: Term-I												
C341	2.00	2.00	1.00	1.00						2.00		
C342	2.00	1.83	1.50	1.83					1.00	2.00		
C343	2.17	2.33				1.00		2.00	1.00	2.00	1.00	2.00
C344	2.00	2.00	1.00		2.00				1.00	2.00		
C345	2.00	2.00	1.00	1.00						2.00		
C346	2.00	2.00	2.00		2.00				1.00	2.00		
C347	2.00	1.00	1.00			2.00	2.00	2.00	2.00	2.00	1.00	1.00

TE: Term-II												
C348	3.00	2.00	1.67	2.00					1.00	2.00		
C349	3.00	2.00	1.00	2.00						1.00		
C350	3.00	3.00	2.83	2.00	3.00	1.00	1.50	2.00	2.00	3.00	1.67	1.83
C351	3.00	3.00	2.00	2.00					1.00	2.00		
C352	1.83	1.17	1.20	2.00						2.00		
C353	2.00	2.00				1.00	2.00	2.00	2.00	2.00		2.00
BE: Term-I												
C441	2.00	2.00	2.00	2.00	2.00				1.00	2.00		
C442	2.00	3.00	3.00	3.00						2.00		
C443	2.33	1.50	1.67	1.50	1.00			1.00	1.00	1.83		
C446	2.00	1.00	1.00			2.00	2.00	2.00	2.00	2.00	1.00	1.00
C447	2.00	2.00	2.00	1.00	3.00				1.00	2.00		
C448	2.40	3.00	2.80	2.67	3.00	3.00		2.00	2.00	3.00	1.00	1.33
BE: Term-II												
C449	1.83	1.67	1.50		1.83				1.00	2.00		
C450	2.00	2.00	1.00	1.00	1.00				1.00	2.00	2.50	
C453	2.33	3.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	3.00	1.67	1.17
Avg	**2.03**	**1.80**	**1.50**	**1.79**	**1.63**	**1.80**	**1.92**	**1.80**	**1.27**	**2.03**	**1.40**	**1.48**

Table 3.1.3-(b) Mapping Courses with PSO's

Course	**PSO 1**	**PSO 2**
FE: Term- I		

C101	-	1.00
C102	-	-
C106	-	-
C112	-	-
C105	1.00	-
C103	-	1.00
C107	-	-
FE: Term- II		
C108	-	2.00
C109	1.60	-
C113	-	-
C111	-	-
C104	-	-
C110	-	1.00
C114	-	-
SE: Term- I		
C204	1.00	1.00
C241	1.00	2.00
C242	2.00	-
C243	1.00	1.00
C244	2.00	-
C245	2.00	1.00
C246	1.00	-
SE: Term- II		
C247	1.00	-
C248	2.17	2.25
C249	1.50	2.00
C250	1.00	-
C251	1.67	-
C252	-	-
TE: Term- I		
C341	2.00	-

C342	1.83	-
C343	1.00	-
C344	2.00	2.00
C345	2.00	-
C346	1.33	2.00
C347	2.00	-
TE: Term- II		
C348	2.00	1.00
C349	2.00	-
C350	3.00	3.00
C351	2.00	-
C352	1.00	1.00
C353	2.00	-
BE: Term- I		
C441	1.83	2.00
C442	3.00	-
C443	1.83	1.00
C446	2.00	-
C447	1.00	2.00
C448	2.00	1.00
BE: Term- II		
C449	2.00	2.00
C450	2.00	1.00
C453	2.00	1.00
Avg	**1.72**	**1.51**

3.2 Attainment of Course Outcomes (50)

3.2.1. Describe the assessment processes used to gather the data upon which the evaluation of Course Outcome is based (10)

(Examples of data collection processes may include, but are not limited to, specific exam/tutorial questions, assignments, laboratory tests, project evaluation, student portfolios (A portfolio is a collection of artifacts that demonstrate skills, personal characteristics and accomplishments created by the student during study period), internally developed assessment exams, project

presentations, oral exams etc.)

Assessment Process Details

Course Outcomes (COs): Statements indicating what a student will be able do after the successful completion of a course. Every Course have some Course Outcomes. The CO statements are defined by considering the course content covered in each unit of a course. For every course there are 6 COs framed/reframed. The keywords used to define COs are based on Bloom's Taxonomy.

The department carried out assessment processes to gather and prepare data to evaluate the attainment of course outcomes and program outcomes. Attainment is the action of attaining a standard result towards achievement of expected goals.

Direct and indirect assessment tools are used to calculate CO attainment of the course. 80% weightage is given to direct assessment tools and 20% weightage is given to indirect assessment tool.

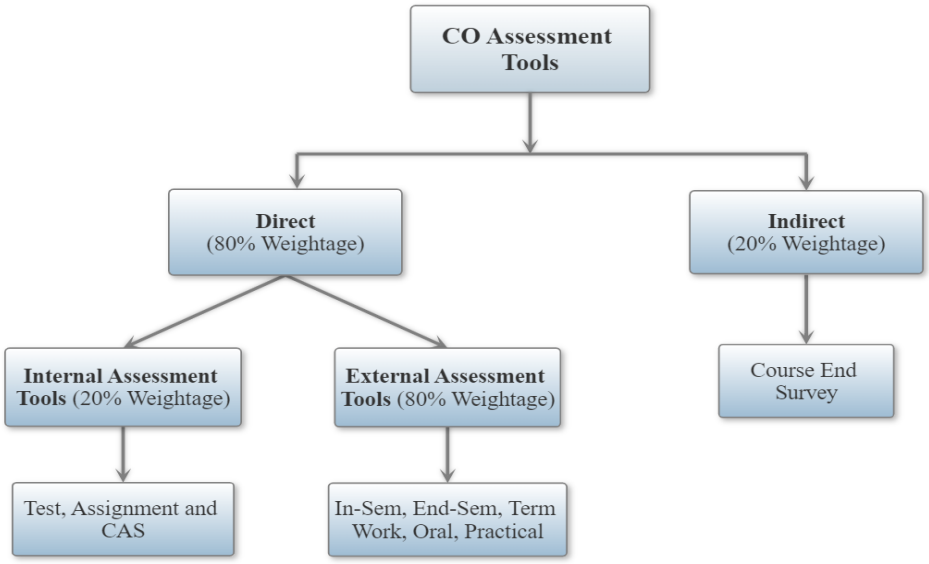


Fig. 3.2.1.1 CO Assessment Tools

Direct Assessment Tools

Course Outcome is evaluated based on the performance of students in internal assessments and in external assessment (university examination) of a course. Internal assessment contributes 20% and

university assessment contributes 80% to the total attainment of a CO using direct assessment tools.

Theory:

Internal Tests and Assignments: Internal tests and assignments serve to encourage students to keep up with course content covered in class. Each course is divided in to six units and one test on each unit is conducted to evaluate students' performance. Three assignments based on 2 units each are designed.

The questions are framed in such a way that it should satisfy Bloom's Taxonomy, wherein each question paper is mapped to the respective course outcome of the course, which is evaluated based on the set attainment levels by the department.

University Examination: These in-semester and end-semester examinations are conducted by university. In semester examination covers 3 units of the course and end-semester examination covers the entire syllabus of the course. In-semester examination satisfy 3 COs and End-semester examination would satisfy all course outcomes for a particular course.

Practical:

Lab courses provide students direct knowledge with course concepts and the opportunity to explore methods used in their discipline. All the students are expected to learn the practical aspects of the course and develop the necessary skills to become professionals. Students' performance is evaluated using Continuous Assessment Sheet (CAS). Parameters used in CAS are Regularity, Experiment write up and his/her Performance during each experiment.

University Examination: The end semester examination in the form of Term Work/Oral/Practical is conducted with an external examiner and the internal examiner.

CO Assessment Tools:

Direct assessment method i.e., using internal and external assessment tools is considered for evaluation of CO.

For the evaluation and assessment of CO's, different tools as defined above are used. Course Outcome is evaluated based on the performance of students with internal assessments and external assessment (university examination) tools for respective course.

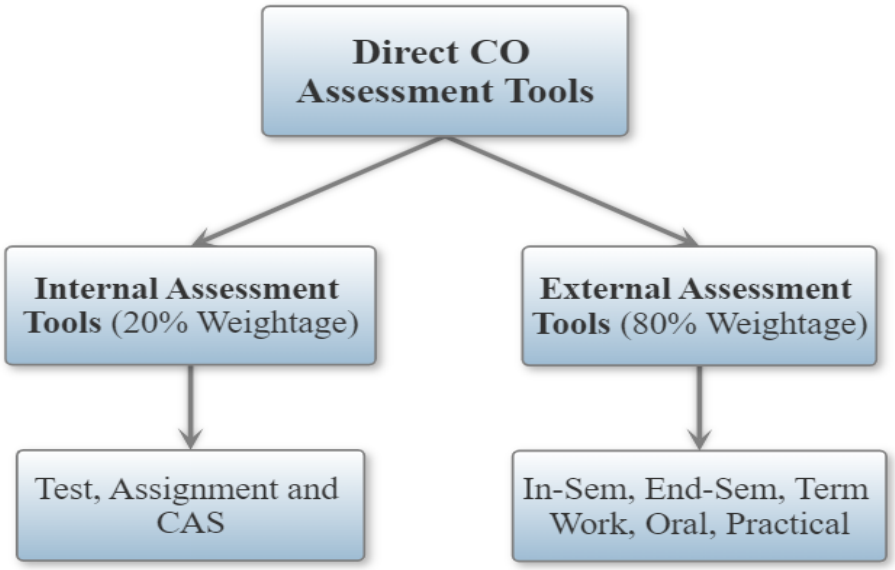


Fig. 3.2.1.2. Direct CO Assessment Tools

The particulars of Assessment tools used for the evaluation of Course Outcomes, Program Outcome and Program Specific Outcome is given in **Table 3.2.1-(a**) The various assessment tools used to evaluate COs, POs/PSOs and the frequency with which the assessment processes are carried out are listed in table.

Table 3.2.1-(a) Mapping of Assessment Tools to COs, POs/PSOs with Frequency

Sr. No.	Assessment Tool	Description	Evaluation of Course Outcomes	Related POs/PSOs	Frequency of assessment per term
Internal Assessment Tools					
1.	Test	Written examination	Questions in the test are mapped against CO of	Corresponding mapped POs/PSOs with the CO	Six times (One for each CO)

			respective course.		
2.	Assignment	Set of question to solve to home. (Open Book)	Questions in the assignment are mapped against two CO of respective course.	Corresponding mapped POs/PSOs with the COs	Thrice (one for Two COs)
3	Continues Assessment Sheet (CAS)	Assessment of students during practical	Based on the COs mapped with the experiments / assignments	Corresponding mapped POs/PSOs with the COs	For each experiment/ assignment during practical.
External Assessment Tools					
4	In-Sem Exam	Written examination	Questions in the exam are mapped against COs corresponds to first three units of respective course.	Corresponding mapped POs/PSOs with the COs	Once (Mid of the Term)
5	End-Sem Exam	Written examination	Questions in the exam are mapped against COs corresponds to complete syllabus of respective course.	Corresponding mapped POs/PSOs with all COs	Once (End of the Term)
6	Term Work	Based on the continues assessment during practical sessions –CAS is used	Based on the COs mapped with the experiments / Assignments	Corresponding mapped POs/PSOs with the COs	Once (End of the Term)

7	Oral/Practical	Based on the experiments / assignment performed during practical session	Based on the COs mapped with the experiments / Assignments	Corresponding mapped POs/PSOs with the COs	One (End of the Term)
8	Seminar	Based on the continues assessment during practical sessions – CAS is used	Based on the COs mapped	Corresponding mapped POs/PSOs with the COs	Internal review: Twice in term and External review: Once (End of the Term)
9	Project	Based on the continues assessment during internal review and university exams, CAS and rubrics are used	Based on the COs mapped	Corresponding mapped POs/PSOs with the COs	Internal Review – Twice in Term and External review: Once (End of the Term)

Indirect CO Assessment Tool: Course End Survey

Course End Surveys are administered at the end of term to get the course to perceptions of students regarding the implementation of academic activity. It also invites the students to further incorporate the feasible suggestions for improvement.

Course End Survey provides valuable feedback to the faculty. This feedback is quite helpful in improving the quality of the teaching learning and closing the quality loop. Based on the feedback, faculty can plan the necessary improvements for next time to enhance the quality.

For each course, a specific course end survey form is designed. The questions related to the course and mapped with the COs. Responses were collected through forms on the scale of 1 – 3 (Low to

High). This data is used for computing the indirect CO attainment. Weightage for indirect CO attainment is 20%.

1. 3.2.2. Record the attainment of Course Outcomes of all courses with respect to set attainment levels (40)

Program shall have set Course Outcome attainment levels for all courses.

(The attainment levels shall be set considering average performance levels in the university examination or any higher value set as target for the assessment years. Attainment level is to be measured in terms of student performance in internal assessments with respect to the Course Outcomes of a course in addition to the performance in the University examination)

Attainment Levels

Course outcomes of the courses are assessed with the help of assessment tools and attainment level is evaluated. Target is stated in terms of percentage of students getting more than the set percentage of marks. Attainment is measured in terms of actual percentage of students getting set percentage of marks. Attainment Levels for internal as well as external assessment tools are defined as;

Attainment Level 1:20- to less than 60% students scoring more than **60%** marks out of the relevant maximum marks.

Attainment Level 2:60% to less than 70%students scoring more than **60%** marks out of the relevant maximum marks.

Attainment Level 3: More than **70%** students scoring more than **60%** marks out of the relevant maximum marks.

A. Evaluation of CO Attainment by Internal Assessment Tool

Internal assessment tools such as Test, Assignment and Continues Assessment Sheet are used to evaluate CO attainment level.

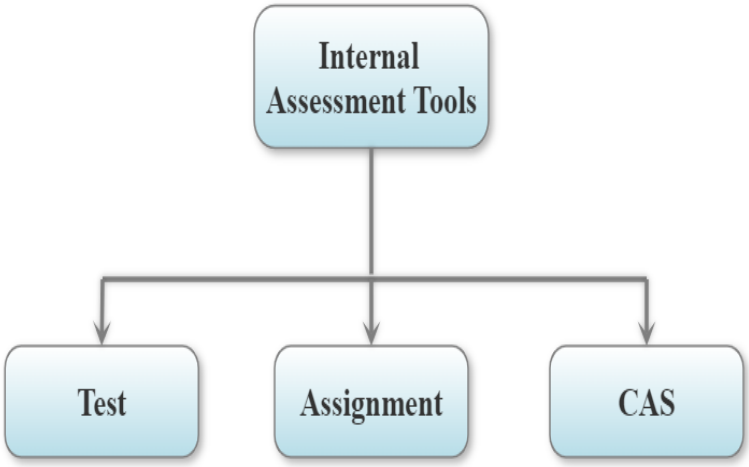


Fig. 3.2.2.1 Internal Assessment Tools

i. CO – Assessment Tool Mapping and evaluation

For the evaluation of the student's performance in terms of CO attainment, each internal assessment tool is mapped with COs.

Consider a particular course having Six Course Outcomes (CO.1 to CO.6) and the assessment tools for each CO and maximum marks (MTi and MAi) as in below **Table – B 3.2.2a**. Considering performance of students and target values, ATi and AAi are the CO attainment by each tool.

Table 3.2.2-(a) Mapping of Assessment Tools

Assessment Tool -->	Test-1	Test-2	Test-3	Test-4	Test-5	Test-6	Assig. -1	Assig. -2	Assig. -3	CAS
COs Mapped	**CO.1**	CO.2	CO.3	CO.4	CO.5	CO.6	**CO.1**, CO.2	CO.3, CO.4	**CO.5**, CO.6	**CO.1** to CO.6
Maximum Marks	MT1	MT2	MT3	MT4	MT5	MT6	MA1	MA2	MA3	MCS
CO Attainment Level	AT1	AT2	AT3	AT4	AT5	AT6	AA1	AA2	AA3	ACS

As multiple tools are used for assessment of each Course Outcome, Final CO attainment of each CO will depend on CO attainment by each tool. Final CO attainment of CO.1 depends on CO attainment through multiple assessment tools such as Test – 1, Assig. – 1 and CAS.

Final CO attainment of CO.1

ACO.1 = f (AT1, AA1, ACS)

Similarly

ACO.2 = f(AT2, AA1, ACS) and

ACO.6 = f(AT6, AA3, ACS)

ii. Weightage and Attainment Levels

Final CO attainment of each CO is calculated by weighted method. Maximum marks allocated for each tool are considered for deciding the weight of corresponding tool. If an assessment tool is used for two or more COs, equal distribution of maximum marks is considered. Assig.-1 is assessment tool for CO.1 and CO.2, maximum mark are distributed equally to each CO i.e. AT1/2 for each CO.

Table 3.2.2-(b) Evaluation of CO attainment

CO	Assessment Tool, Weightage and Attainment Level			Total
CO.1	Test-1	Assig. -1	CAS	
Marks for CO.1	MT1/1	MA1/2	MCS/6	**MCO1**
Weightage	WT1 = MT1 / (1*MCO1)	WA1 = MA1 / (2*MCO1)	WCS = MCS / (6*MCO1)	**1**
CO Attainment	AT1	AA1	ACS	
Final CO Attainment =		**WT1*AT1 + WA1*AA1 + WCS*ACS**		
CO.6	Test-6	Assig. -3	CAS	
Maximum Marks	MT6/1	MA3/2	MCS/6	**MCO6**
Weightage	WT6 = MT6 / (1*MCO6)	WA3 = MA3 / (2*MCO6)	WCS = MCS / (6*MCO6)	**1**
CO Attainment	AT6	AA3	ACS	
Final CO Attainment =		**WT6*AT6 + WA3*AA3 + WCS*ACS**		

Final CO Attainment for particular CO using multiple internal assessment tools is calculated as

$$\Sigma \text{weightage} * CO\ attainment$$

B. CO Attainment Levels by External Assessment Tools:

CO attainment by the external assessment tools (defined in the university syllabus structure) is calculated by weighted average method.

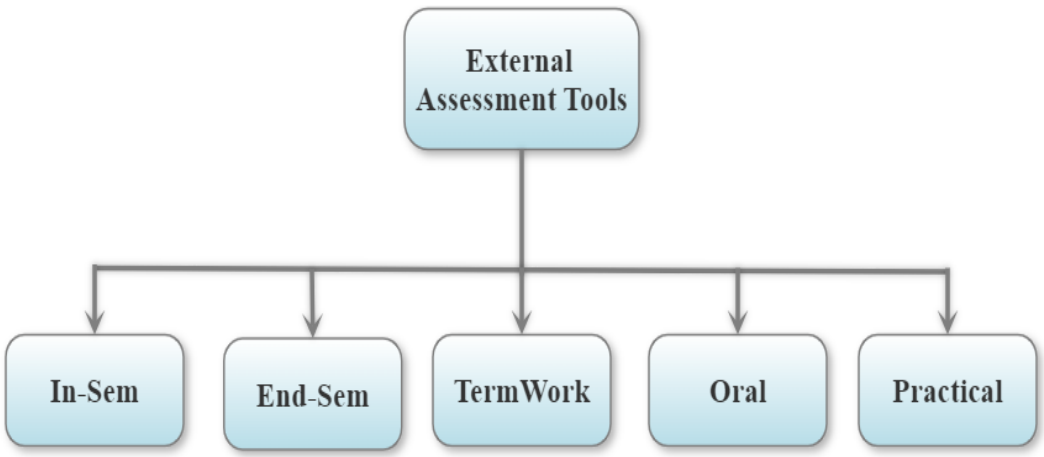


Fig. 3.2.2.2 External Assessment Tools

iii. CO – Assessment Tools Mapping

For the evaluation of the student's performance in terms of CO attainment, each external assessment tool is mapped with COs.

Table 3.2.2-(c) CO -Assessment Tool Mapping

Mapping					End-Sem with weightage	
CO	Tools					
	In-Sem	TW	OR	PR	End-Sem	Marks
CO.1	Yes	Yes	Yes		Yes	**6**
CO.2	Yes	Yes	Yes	Yes	Yes	**6**
CO.3	Yes	Yes	Yes	Yes	Yes	**7**
CO.4		Yes	Yes	Yes	Yes	**17**
CO.5		Yes	Yes	Yes	Yes	**17**
CO.6		Yes	Yes		Yes	**17**
					Total	**70**

End Sem examination is for 70 marks and weightage for each CO is different as marks allocated for each CO are different.

Considering mapping of each external assessment tool and marks allocated weightage is calculated for each assessment tool.

Weighted method is used to calculate final attainment of each CO as defined earlier in case of internal assessment tools.

C. CO Attainment Level by Indirect Assessment Tool

Course end survey is used as Indirect assessment tool for CO attainment. 5 to 6 questions are framed to address all the COs of the course. Responses are collected through forms on the scale of 1 – 3 (Low to High). Average of the responses is considered as CO attainment on the scale of 0 to 3. Weightage for indirect CO attainment is 20%.

D. CO Attainment Level for Course

Multiple tools are used for the evaluation and assessment of COs. Direct assessment tools are Internal assessment tools and external assessment tools are university exams having 80% weightage. While calculating the CO attainment by direct assessment tools for each CO, 20% weightage is given to internal assessment tools and 80% weightage is given to external assessment tools.

Weightage for CO attainment by indirect assessment tool (Course End Survey) is 20 %.

Thus, CO attainment using all the tools is

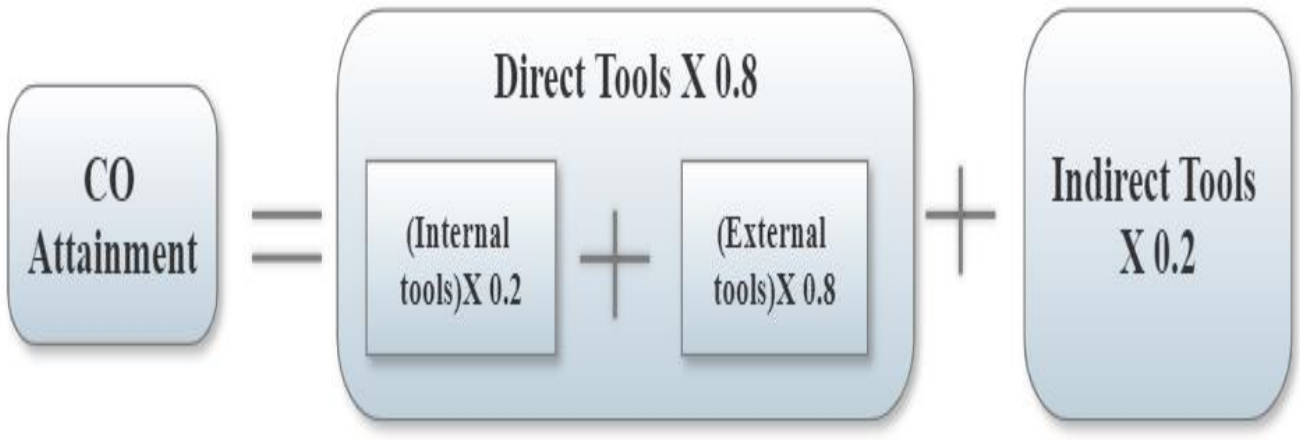


Fig. 3.2.2.3 Calculation of final CO attainment

Cycle-I: **FE: AY 2016-17**

SE: AY 2017-18

TE: AY 2018-19

BE: AY 2019-20

Cycle-II: **FE: AY 2017-18**

SE: AY 2018-19

TE: AY 2019-20

BE: AY 2020-21

Cycle-III: **FE: AY 2018-19**

SE: AY 2019-20

TE: AY 2020-21

BE: AY 2021-22

Table 3.2.2-(d) CO-Attainment (Cycle-I)

Term	Course Code	Course	CO Target	CO1	CO2	CO3	CO4	CO5	CO6
First Year (2016-17)									
I	107001	Engineering Mathematics - I	**1.25**	2.38	2.38	1.22	1.22	1.22	1.22
	107002	Engineering Physics	**1.25**	1.38	1.35	1.83	1.83	1.12	1.08
	102006	Engineering Graphics-I	**1.25**	1.33	1.33	1.33	1.33	1.33	1.33
	104012	Basic Electronics Engineering	**1.25**	1.26	1.25	1.26	1.26	1.36	1.34

	101005	Basic Civil & Env. Engg.	**1.50**	2.28	2.24	2.12	2.60	1.99	1.97
	110003	Fundamentals of Programming Language-I	**1.25**	0.70	0.70	1.14	1.14		
	111007	Workshop Practice	**1.50**	2.93	2.93	2.93	2.93		
II	107008	Engineering Mathematics II	**1.25**	1.32	1.32	1.16	1.16	1.32	1.32
	107009	Engineering Chemistry	**1.25**	1.32	1.16	1.32	1.64	1.64	1.64
	102013	Basic Mechanical Engineering	**1.25**	1.42	1.41	1.42	1.26	1.51	1.33
	101011	Engineering Mechanics	**1.25**	1.76	1.75	1.76	1.76	1.98	1.96
	103004	Basic Electrical Engineering	**1.25**	1.11	1.08	1.11	0.95	0.51	0.51
	110010	Fundamentals of Programming Language-II	**1.25**	1.98	1.95	1.34	1.42		
	102014	Engineering Graphics-II	**1.50**	2.92	2.92	2.92	2.92		
Second Year (2017-18)									
I	207004	Engineering Mathematics	**1.25**	1.38	1.34	1.34	1.36	1.04	1.04

		-III							
	209341	Chemistry-I	**1.50**	1.88	1.90	1.88	1.72	1.82	1.82
	209342	Fluid Mechanics	**1.50**	1.86	1.88	1.88	1.90	2.03	2.01
	209343	Engineering Materials	**1.50**	1.67	1.69	1.67	1.69	1.84	1.86
	209344	Process Calculations	**1.25**	1.66	1.62	1.60	1.58	1.64	1.62
	209345	Introduction to Chemical Engineering	**2.00**	2.90	2.92	2.90	2.92	2.90	2.92
	209346	Soft Skills	**2.00**	2.92	2.90	2.88	2.84	2.92	2.92
II	209347	Chemistry-II	**1.50**	1.74	1.74	1.72	2.14	1.85	1.89
	209348	Heat Transfer	**1.50**	1.85	1.83	1.85	2.23	2.14	2.14
	209349	Principles of Design	**1.25**	1.29	1.27	1.29	1.87	1.52	1.54
	209350	Chemical Engineering Thermodynamics-I	**1.25**	1.28	1.30	1.36	1.36	1.36	1.36
	209351	Mechanical Operations	**1.50**	1.66	1.68	1.78	2.18	1.82	1.82
	209352	Workshop Practices	**2.00**	2.88	2.90	2.92	2.90	2.88	
Third Year (2018-19)									
I	309341	Chemical Engineering	**1.25**	1.43	1.43	1.43	1.47	1.47	1.47

		Mathematics							
	309342	Mass Transfer -I	**1.50**	1.93	1.95	1.93	1.98	2.00	1.97
	309343	Industrial Organization & Management	**1.50**	2.28	2.52	2.55	2.06	2.08	2.03
	309344	Chemical Process Technology	**1.50**	2.12	2.14	2.13	1.93	1.94	1.91
	309345	Chemical Engineering Thermodynamics- II	**1.25**	1.17	1.17	1.15	0.81	0.81	0.83
	309346	Computer Aided Chemical Engineering-I	**2.00**	2.90	2.92	2.92	2.90	2.90	2.92
	309347	Industrial Training Evaluation-I	**2.00**	2.92	2.94	2.94	2.94	2.94	2.94
II	309348	Chemical Reaction Engineering - I	**1.50**	2.06	2.07	2.06	1.84	1.84	1.79
	309349	Transport Phenomena	**1.25**	1.66	1.62	1.60	1.58	1.64	1.62
	309350	Chemical Engineering Design- I	**1.50**	1.91	1.85	1.87	1.91	1.93	1.79

	309351	Mass Transfer- II	**1.50**	1.59	1.61	1.59	1.51	1.51	1.46
	309352	Process Instrumentation & Control	**1.50**	2.31	2.46	2.40	1.97	1.97	1.92
	309353	Seminar	**2.00**	2.90	2.92	2.90	2.94	2.92	3.00
Final Year (2019-20)									
I	409341	Process Dynamics and Control	**1.50**	1.95	1.98	1.93	1.98	1.99	2.01
	409342	Chemical Reaction Engineering II	**1.50**	1.62	1.60	1.60	1.60	1.60	1.64
	409343	Chemical Engineering Design II	**1.50**	2.88	2.94	2.92	2.94	2.80	2.82
	409346	Industrial Training Evaluation-II	**2.00**	2.90	2.88	2.90	2.88	2.90	2.92
	409347	Computer Aided Chemical Engineering-II	**2.00**	2.90	2.92	2.94	2.94	2.92	2.92
	409348	Project Phase I	**2.00**	2.96	2.90	2.88	2.88	2.94	2.90
II	409349	Process Modeling and	**1.50**	2.51	2.50	2.54	2.88	2.90	2.88

		Simulation							
	409350	Process Engineering Costing & Plant Design	**1.50**	2.68	2.67	2.65	2.24	2.29	2.29
	409353	Project Phase II	**2.00**	2.92	2.94	2.94	2.90	2.88	2.92

Table 3.2.2-(e) CO-Attainment (Cycle-II)

Term	**Course Code**	**Course**	**CO Target**	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**
First Year (2017-18)									
I	107001	Engineering Mathematics - I	**1.25**	1.34	1.34	1.34	1.34	1.41	1.41
	107002	Engineering Physics	**1.25**	1.41	1.39	1.41	1.41	1.52	1.50
	102006	Engineering Graphics-I	**1.33**	1.98	1.98	1.98	1.98	1.92	1.92
	104012	Basic Electronics Engineering	**1.29**	1.33	1.30	1.33	1.33	1.12	1.09
	101005	Basic Civil & Env. Engg.	**2.20**	2.26	2.22	2.38	2.38	1.65	1.63
	110003	Fundamentals of Programming Language-I	**1.25**	0.75	0.75	0.75	0.75		

	111007	Workshop Practice	**2.93**	2.93	2.93	2.93	2.93		
II	107008	Engineering Mathematics II	**1.25**	1.07	1.07	1.19	1.19	1.07	1.07
	107009	Engineering Chemistry	**1.25**	1.48	1.44	1.48	1.48	0.92	0.89
	102013	Basic Mechanical Engineering	**1.39**	1.41	1.40	1.41	1.41	1.50	1.48
	101011	Engineering Mechanics	**1.83**	1.46	1.45	1.46	1.46	1.43	1.41
	103004	Basic Electrical Engineering	**1.25**	1.41	1.38	1.41	1.41	0.91	0.89
	110010	Fundamentals of Programming Language-II	**1.67**	1.69	1.69	1.69	1.69		
	102014	Engineering Graphics-II	**2.92**	2.93	2.93	2.93	2.93	2.93	2.93
Second Year (2018-19)									
I	207004	Engineering Mathematics -III	**1.25**	1.38	1.34	1.34	1.36	1.04	1.04
	209341	Chemistry-I	**1.84**	2.10	2.06	2.08	2.08	2.18	2.20
	209342	Fluid Mechanics	**1.93**	1.85	1.87	1.85	1.88	1.99	1.97
	209343	Engineering Materials	**1.74**	1.80	1.80	1.78	1.86	1.98	1.90

	209344	Process Calculations	**1.62**	1.66	1.62	1.60	1.58	1.64	1.62
	209345	Introduction to Chemical Engineering	**2.91**	2.90	2.88	2.88	2.90	2.88	2.90
	209346	Soft Skills	**2.90**	2.92	2.90	2.88	2.84	2.92	2.94
II	209347	Chemistry-II	**1.85**	2.04	2.06	2.08	2.06	2.14	2.16
	209348	Heat Transfer	**2.00**	1.91	1.91	1.92	1.92	1.96	1.96
	209349	Principles of Design	**1.46**	1.44	1.44	1.37	1.39	1.75	1.77
	209350	Chemical Engineering Thermodynamics-I	**1.34**	1.56	1.56	1.58	1.51	1.49	1.51
	209351	Mechanical Operations	**1.82**	1.90	1.91	1.96	1.96	2.01	2.07
	209352	Workshop Practices	**2.90**	2.90	2.88	2.90	2.88	2.86	
Third Year (2019-20)									
I	309341	Chemical Engineering Mathematics	**1.45**	2.43	2.69	2.43	2.28	2.04	2.29
	309342	Mass Transfer -I	**1.96**	2.01	2.02	2.01	1.90	1.84	1.79
	309343	Industrial Organization & Management	**2.25**	2.88	2.88	2.90	2.90	2.92	2.90

	309344	Chemical Process Technology	**2.03**	2.07	2.09	2.07	2.08	2.08	2.05
	309345	Chemical Engineering Thermodynamics- II	**1.25**	1.62	1.40	1.40	1.32	1.30	1.34
	309346	Computer Aided Chemical Engineering-I	**2.91**	2.92	2.94	2.94	2.96	2.92	2.92
	309347	Industrial Training Evaluation-I	**2.93**	2.92	2.94	2.94	2.94	2.95	2.96
II	309348	Chemical Reaction Engineering - I	**1.94**	2.47	2.50	2.49	2.52	2.49	2.50
	309349	Transport Phenomena	**1.62**	1.64	1.62	1.48	1.58	1.60	1.62
	309350	Chemical Engineering Design- I	**1.88**	2.11	2.03	2.07	2.43	2.45	2.33
	309351	Mass Transfer- II	**1.50**	1.74	1.83	1.73	2.08	2.08	2.05
	309352	Process Instrumentation & Control	**2.17**	2.89	2.90	2.89	2.89	2.88	2.88
	309353	Seminar	**2.93**	2.90	2.92	2.92	2.94	2.92	

Final Year (2020-21)									
I	409341	Process Dynamics and Control	**1.97**	2.92	2.85	2.92	2.92	2.92	2.94
	409342	Chemical Reaction Engineering II	**1.61**	2.95	2.94	2.95	2.95	2.94	2.94
	409343	Chemical Engineering Design II	**2.88**	2.92	2.94	2.94	2.90	2.90	2.94
	409346	Industrial Training Evaluation-II	**2.90**	2.88	2.90	2.96	2.94	2.90	2.90
	409347	Computer Aided Chemical Engineering-II	**2.92**	2.88	2.90	2.94	2.92	2.90	2.92
	409348	Project Phase I	**2.91**	2.92	2.94	2.94	2.96	2.94	2.96
II	409349	Process Modeling and Simulation	**2.70**	2.51	2.54	2.56	2.92	2.90	2.90
	409350	Process Engineering Costing & Plant Design	**2.47**	2.95	2.95	2.95	2.95	2.95	2.95
	409353	Project Phase II	**2.92**	2.90	2.94	2.96	2.98	2.96	2.90

Table 3.2.2-(g) CO-Attainment (Cycle-III)

Term	Course Code	Course	CO Target	CO1	CO2	CO3	CO4	CO5	CO6
First Year (2018-19)									
I	107001	Engineering Mathematics - I	**1.36**	1.48	1.48	1.36	1.36	1.43	1.43
	107002	Engineering Physics	**1.44**	1.74	1.71	1.74	1.74	1.53	1.50
	102006	Engineering Graphics-I	**1.96**	1.24	1.21	1.24	1.24	1.00	1.00
	104012	Basic Electronics Engineering	**1.29**	1.53	1.52	1.53	1.53	1.65	1.63
	101005	Basic Civil & Env. Engg.	**2.20**	1.50	1.49	1.50	1.50	1.68	1.65
	110003	Fundamentals of Programming Language-I	**1.25**	0.76	0.76	0.76	0.76		
	111007	Workshop Practice	**2.93**	2.93	2.93	2.93	2.93		
II	107008	Engineering Mathematics II	**1.25**	1.07	1.07	1.07	1.07	1.07	1.07

	107009	Engineering Chemistry	**1.25**	1.51	1.50	1.39	1.39	1.49	1.47
	102013	Basic Mechanical Engineering	**1.43**	1.45	1.44	1.45	1.45	1.54	1.52
	101011	Engineering Mechanics	**1.83**	1.57	1.56	1.45	1.45	1.51	1.49
	103004	Basic Electrical Engineering	**1.25**	1.46	1.43	1.37	1.37	0.96	0.94
	110010	Fundamentals of Programming Language-II	**1.69**	1.37	1.37	1.45	1.45		
	102014	Engineering Graphics-II	**2.93**	2.94	2.94	2.94	2.94	2.94	2.94
Second Year (2019-20)									
I	207004	Engineering Mathematics -III	**1.25**	1.59	1.57	1.55	1.60	1.71	1.67
	209341	Chemistry-I	**2.12**	2.05	2.01	2.01	2.05	1.48	1.46
	209342	Fluid Mechanics	**1.96**	2.26	2.22	2.24	2.25	2.59	2.55
	209343	Engineering Materials	**1.85**	2.59	2.57	2.61	2.63	2.12	2.08
	209344	Process Calculations	**1.62**	1.42	1.40	1.38	1.38	1.40	1.26
	209345	Introduction to Chemical	**2.91**	2.90	2.88	2.88	2.88	2.92	2.92

		Engineering							
	209346	Soft Skills	**2.90**	2.92	2.92	2.90	2.92	2.90	2.90
II	209347	Chemistry-II	**2.09**	2.88	2.90	2.80	2.80	2.58	2.40
	209348	Heat Transfer	**2.00**	2.96	2.94	2.96	2.96	2.94	2.94
	209349	Principles of Design	**1.46**	2.94	2.94	2.81	2.81	2.94	2.94
	209350	Chemical Engineering Thermodynamics-I	**1.54**	2.90	2.92	2.92	2.92	2.94	2.92
	209351	Mechanical Operations	**1.97**	2.81	2.72	2.85	2.76	2.56	2.56
	209352	Workshop Practices	**2.90**	2.88	2.88	2.86	2.84	2.86	
Third Year (2020-21)									
I	309341	Chemical Engineering Mathematics	**2.36**	2.93	2.93	2.93	2.92	2.92	2.93
	309342	Mass Transfer -I	**1.96**	2.88	2.92	2.92	2.94	2.94	2.96
	309343	Industrial Organization & Management	**2.90**	2.90	2.92	2.90	2.90	2.92	2.94

	309344	Chemical Process Technology	**2.07**	2.88	2.92	2.92	2.93	2.93	2.92
	309345	Chemical Engineering Thermodynamics- II	**1.40**	2.57	2.58	2.60	2.28	2.30	2.28
	309346	Computer Aided Chemical Engineering -I	**2.93**	2.90	2.92	2.93	2.91	2.88	2.90
	309347	Industrial Training Evaluation-I	**2.93**	2.90	2.92	2.92	2.94	2.94	2.96
II	309348	Chemical Reaction Engineering -I	**2.50**	2.90	2.88	2.88	2.90	2.90	2.92
	309349	Transport Phenomena	**1.62**	2.88	2.90	2.86	2.86	2.88	2.90
	309350	Chemical Engineering Design- I	**2.24**	2.92	2.91	2.91	2.90	2.93	2.92
	309351	Mass Transfer- II	**1.92**	2.93	2.93	2.93	2.92	2.92	2.93
	309352	Process Instrumentation & Control	**2.89**	2.92	2.92	2.90	2.92	2.90	2.90

	309353	Seminar	**2.93**	2.88	2.86	2.90	2.92	2.92	
Final Year (2021-22)									
I	409341	Process Dynamics and Control	**2.91**	2.89	2.81	2.81	2.81	2.81	2.81
	409342	Chemical Reaction Engineering II	**2.95**	2.76	2.94	2.95	2.95	2.94	2.94
	409343	Chemical Engineering Design II	**2.92**	2.94	2.90	2.96	2.92	2.95	2.91
	409346	Industrial Training Evaluation-II	**2.90**	2.95	2.95	2.96	2.96	2.96	2.96
	409347	Computer Aided Chemical Engineering -II	**2.92**	2.88	2.92	2.92	2.90	2.88	2.88
	409348	Project Phase I	**2.94**	2.95	2.95	2.96	2.96	2.96	2.96
II	409349	Process Modeling and Simulation	**2.70**	2.27	2.23	2.27	2.24	2.25	2.25
	409350	Process Engineering	**2.95**	2.95	2.95	2.95	2.95	2.95	2.95

		Costing & Plant Design							
	409353	Project Phase II	**2.92**	2.95	2.95	2.96	2.96	2.96	2.96

3.3 Attainment of Program Outcomes and Program Specific Outcomes (50)

3.3.1 Describe assessment tools and processes used for measuring the attainment of each of the Program Outcomes and Program Specific Outcomes (10)

(Describe the assessment tools and processes used to gather the data upon which the evaluation of each of the Program Outcomes and Program Specific Outcomes is based indicating the frequency with which these processes are carried out. Describe the assessment processes that demonstrate the degree to which the Program Outcomes and Program Specific Outcomes are attained and document the attainment levels)

"In outcome-based education, a "design down" process is employed which moves from POs to Course Outcomes (COs) and outcomes for individual learning experiences. Outcomes at each successive level need to be aligned with, and contribute to, the program outcomes.

Courses are the building blocks of a program. Teaching strategies, learning activities, assessments and resources should all be designed and organized to help students achieve the learning outcomes at the course level. In the assessment activities, students demonstrate their level of achievement of the course learning outcomes. In a constructively aligned program, the courses are carefully coordinated to ensure steady development or scaffolding from the introduction to mastery of the learning outcomes, leading to achievement of the intended POs. For the effectiveness of the program, the achievement of POs is crucial which needs to be proven through accurate and reliable assessments.

POs give useful guidance at the program level for the curriculum design, delivery and assessment of student learning. However, they represent fairly high-level generic goals that are not directly measurable. Real observability and measurability of the POs at course level is very difficult. To

connect high-level learning outcomes (POs) with course content, course outcomes and assessment, there is a necessity to bring further clarity and specificity to the program outcomes. This can be achieved through the following two-step process of identifying Competencies and Performance Indicators (PI).

(1) Identify Competencies to be attained: For each PO define competencies –different abilities implied by program outcome statement that would generally require different assessment measures. This helps us to create a shared understanding of the competencies we want students to achieve. They serve as an intermediate step to the creation of measurable indicators.

(2) Define Performance Indicators: For each of the competencies identified, define performance Indicators (PIs) that are explicit statements of expectations of the student learning. They can act as measuring tools in assessment to understand the extent of attainment of outcomes. They can also be designed to determine the appropriate achievement level or competency of each indicator so that instructors can target and students can achieve the acceptable level of proficiency.

Once the above process is completed for the program, the assessment of COs for all the courses is designed by connecting assessment questions (used in various assessment tools) to the PIs. By following this process, where examination questions map with PIs, we get clarity and better resolution for the assessment of COs and POs."

PO/ PSO Assessment Tools

Direct assessment tools and indirect assessment tools are considered for assessment of POs and PSOs. Direct assessment tool used is through courses. The tools used for assessment of POs/PSOs are same which are used for assessment of COs. These tools are defined in **Table 3.2.1-(a**). Indirect assessment is done through Graduate exit survey, Employer survey, Parent Survey and Alumni Survey.

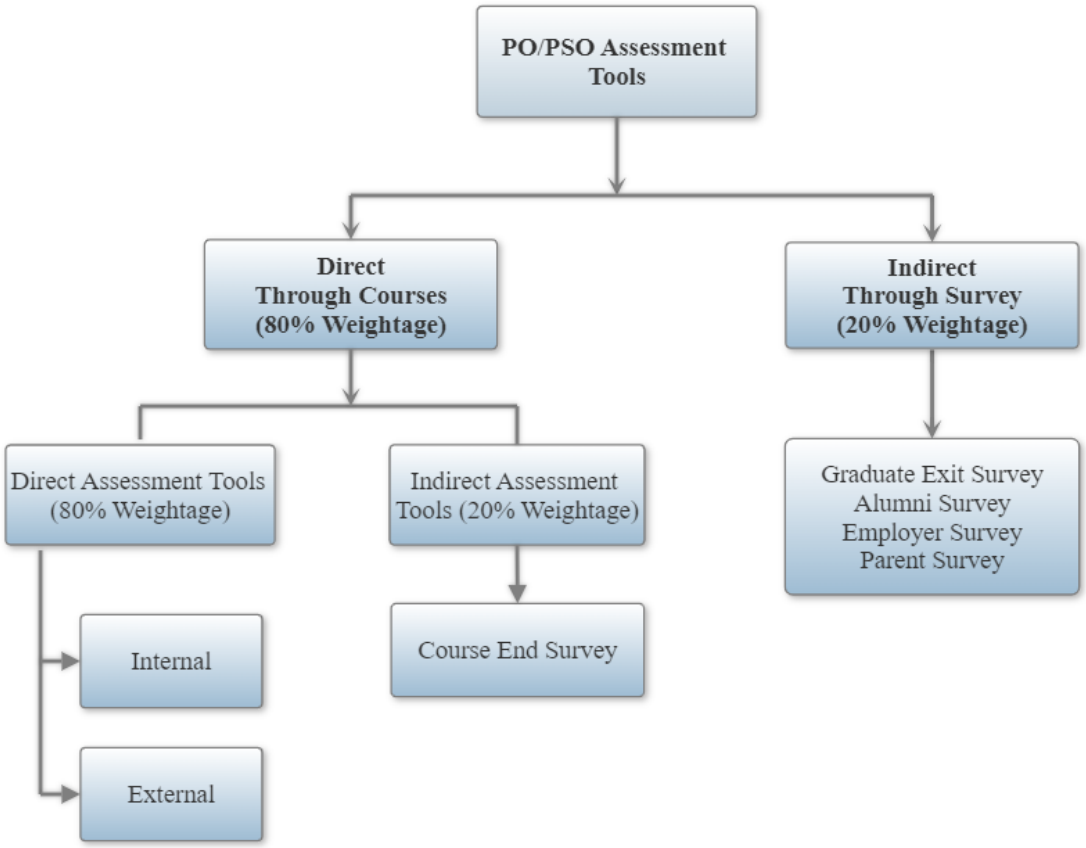


Fig. 3.3.1 PO/ PSO Assessment Tools

PO/PSO assessment is done by giving 80% weightage to direct assessment and 20% weightage to indirect assessment. Direct assessment is based on CO attainment, where 80% weightage is given to attainment through Direct Assessment Tools and 20% weightage is given to attainment through Indirect assessment tool. Indirect assessment of Pos and PSOs is done through Graduate exit survey, Employer Survey, Parent Survey and Alumni Survey. Weightage for each survey is equal.

Target Levels for PO/PSO

The tools used for evaluation on Pos and PSOs are courses and the survey. Hence to decide the target levels of PO/PSOs, average of CO – PO/PSO mapping of all subjects and target level of surveys are consider. 80% weightage is for average of CO – POS mapping and 20 % weightage for survey.

Attainment Levels of POs/PSOs through Courses

The various direct assessment tools used to evaluate COs and the frequency with which the assessment processes are carried out are listed in **Table – B 3.2.1a**.

Tools used to evaluate PO/PSO attainment are same as that of CO attainment. Attainment Levels for internal as well as external assessment tools are also same for PO/PSO attainment and defined as;

Attainment Level 1:20% to less than 60 % students scoring more than **60%** marks out of the relevant maximum marks.

Attainment Level 2:60% to less than 70 %students scoring more than **60%** marks out of the relevant maximum marks.

Attainment Level 3: More than **70%** students scoring more than **60%** marks out of the relevant maximum marks.

As the tools and criteria for defining attainment level are same for CO attainment and PO/PSO attainment levels, values of CO attainment levels are used to calculate PO/PSO attainment. Direct assessment of PO/PSO is based on CO attainment and correlation level.

Sample calculation for PO/PSO attainment is described in following three steps:

Step – 1

CO Attainment and CO – PO/PSO mapping is defined for course by correlation level low to high (1 to 3).

Table 3.3.1-(a)CO - PO Mapping

Course Outcomes	CO Attainment	Program Outcomes			
		PO1	PO2	PO3	PSO1
CO207002.1	2.5	3	1		
CO207002.2	2.8	3	2	1	1
CO207002.3	2.3	2	2		2
CO207002.4	1.5	2	1	1	1
CO207002.5	2.0	1	1		
CO207002.6	3.0	3	3		

Step – 2

Direct PO/PSO attainment is calculated using following formula:

PO/PSO attainment = (Level of Mapping of PO with CO X CO attainment Level) / 3

Table 3.3.1-(b) PO/PSO Attainment Calculations

Course Outcomes	CO Attainment	Program Outcomes			
		PO1	PO2	PO3	PSO1
CO207002.1	2.5	=2.5x3/3	=2.5x1/3		
CO207002.2	2.8	=2.8x3/3	=2.8x2/3	=2.8x1/3	=2.8x1/3
CO207002.3	2.3	=2.3x2/3	=2.3x2/3		=2.3x2/3
CO207002.4	1.5	=1.5x2/3	=1.5x1/3	=1.5x1/3	=1.5x1/3
CO207002.5	2.0	=2.0x1/3	=2.0x1/3		
CO207002.6	3.0	=3.0x3/3	=3.0x3/3		

Step – 3

Direct PO/PSO attainment is evaluated by taking average of PO/PSO attainment by each CO attainment.

Table 3.3.1-(c) Average PO/PSO Attainment by Course

Course Outcomes	CO Attainment	Program Outcomes			
		PO1	PO2	PO3	PSO1
CO207002.1	2.5	2.50	0.83		
CO207002.2	2.8	2.80	1.87	0.93	0.93
CO207002.3	2.3	1.53	1.53		1.53
CO207002.4	1.5	1.00	0.50	0.50	0.50
CO207002.5	2.0	0.67	0.67		
CO207002.6	3.0	3.00	3.00		
Average PO/PSO Attainment		1.92	1.40	0.72	0.99

Indirect PO/PSO attainment: Graduate Exit Survey and Alumni Survey are conducted at the end of program and 20% weightage is given to it.

Surveysare conducted for graduating students and alumni who have graduated out of the department. Relevant questionnaire in survey form to evaluate attainment of POs and PSOs. Each question is having 5 options namely Excellent, Very Good, Good, Average and Poor, which is given marks 5, 4, 3, 2, 1 respectively. These survey results are tabulated and the average values corresponding to each PO and PSO are determined. The attainment for POs/PSOs is calculated by converting average score on the scale of 0 to 3.

Graduate Exit Survey: Relevant questionnaire in graduate Exit survey form to evaluate attainment of POs and PSOs is given in section (i) and relation of POs & PSOs with questionnaire is given in section (ii).

Questionnaire Format: Kindly rate the following criteria on a scale of 1-5. Your genuine response will be helpful for the continuous quality improvement of our UG programme.

3 = strongly Agree 2 = Agree 1 = partially Agree/ Dis-agree

Table 3.3.1-(d) Questionnaire for Graduate Exit Survey

Q1	Basic Chemical Engineering knowledge gained after joining AISSMS COE Pune to become a competent engineer			
Q2	Rate your ability to approach and analyze a Chemical Engineering problem to arrive at concrete and effective results.			
Q3	How efficient are you in developing effective solutions to the Chemical and Allied Engineering problems?			
Q4	Are you able to provide solution to complex problems of your discipline? (Use of basic knowledge and Software to complex problems of Chemical Engineering)			
Q5	Have you learnt any new skills or techniques apart from those included in the curriculum? (Through Project, Seminars, Soft skills etc.)			

Q6	How better have you understood the societal problems with your core knowledge? (Energy crisis, Environment Engineering, Economics)			
Q7	Are you able to apply appropriate knowledge for societal problems? (Jagruti, Student Chapter Events, NSS activities)			
Q8	Are you satisfied with your Development of personal code of ethics? (Honesty, Commitment to work)			
Q9	Were you able to work effectively in teams during the course of the study? (BE Projects, Events in ET, AIChE, IEI and IIChE)			
Q10	Are you able to communicate effectively on complex engineering problems? (Engineering today, competitions, Projects, Seminars, Elective Seminars)			
Q11	Are you satisfied with the knowledge and information provided by the Department to you to do interdisciplinary projects and carry them out in time and utilize fund in a meaningful way? (Conferences, Workshops, Industry Visits/Internships, Webinars)			
Q12	Rate the knowledge provided by the institution to prepare you as a successful self-reliant engineer? (Basic knowledge of Chemical Engineering, Communications skills, team work, Use of various Software)			
Q13	Are you able to identify, analyze, design and develop solutions to Chemical Engineering problems of practical importance to industry and society?			
Q14	Are you able to solve problems through the use of modern experimental methods, computer aided design and simulation software?			

Table 3.3.1-(e) Relation of POs and PSOs with Questionnaire

Question	Q1	Q2	Q3	Q4	Q5	Q6	Q7
PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
Question	Q8	Q9	Q10	Q11	Q12	Q13	Q14
PO/PSO	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2

Alumni Survey: Feedback is taken from alumni. Relevant questionnaire in alumni survey form to evaluate attainment of POs and PSOs is given in section (i) and relation of POs & PSOs with questionnaire is given in section (ii).

Questionnaire Format:

Kindly rate the following criteria on a scale of 1-5. Your genuine response will be helpful for the continuous quality improvement of our UG programme

5. Excellent 4. Very Good 3. Good 2. Average 1. Poor

Table 3.3.1-(f) Questionnaire for Alumni Survey

S N	**Parameters**	**Rating**
1	Your ability to apply knowledge and design and analyze Chemical process systems to meet desired specifications and needs.	
2	Benefit from value added certifications, workshops and training programs conducted during your course.	
3	Your ability to use techniques, skills and modern engineering tools necessary for engineering practice.	
4	Benefit from communication skills, presentation skills and leadership qualities gained from the co-curricular and extracurricular activities.	
5	Your ability to engage in, to resolve contemporary issues and acquire lifelong learning.	

6	Skills attained to create, select and apply appropriate techniques, resources and modern engineering and IT tools.	
7	Extent of Ethical, social and environmental values inculcated, helping you to relate Chemical engineering issues with societal needs.	
8	Your ability to use modern programming softwares of Chemical Engineering.	
9	Ability acquired to meet the industry needs.	

Table 3.3.1-(g) Relation of POs and PSOs with Questionnaire

Question	Q1		Q2	Q3	Q4
PO/PSO	PO1, PO3		PO1, PO5	PO5, PO11	PO9, PO10
Question	Q5	Q6	Q7	Q8	Q9
PO/PSO	PO12	PO2, PO4	PO6, PO7, PO8	PSO2	PSO1, PSO2

Employer Survey: Feedback is taken from employer. Relevant questionnaire in employer survey form to evaluate attainment of POs and PSOs is given in section (i) and relation of POs & PSOs with questionnaire is given in section (ii).

Questionnaire Format:

Kindly rate the following criteria on a scale of 1-5. Your genuine response will be helpful for the continuous quality improvement of our UG programme

5: Strongly Agree, 4: Agree, 3: Moderate, 2: Disagree, 1: Strongly Disagree

Table 3.3.1-(h) Questionnaire for Employer Survey

Sr No	Parameters	Rating
1	Basic Chemical Engineering knowledge:	
2	Ability to analyze Chemical Engineering Problem:	
3	Ability to Design of equipment /Develop Process	
4	Conduct investigations of Chemical Engineering problems	
5	Modern tool usage (Excel, Matlab, UNISIM, DWSIM, ANSYS, ASPEN, etc.,):	
6	Awareness about society	
7	Awareness about impacts on Environment and sustainability thereof	
8	Adherence to Ethical practices while working in organization	
9	Performance as an Individual and in a team	
10	Ability to Communicate with others (Written/Oral)	
11	Knowledge of Project management and finance	
12	Eagerness for Life-long learning	
13	Ability to Identify, analyze, design and develop solutions to Chemical Engineering problems of practical importance to industry and society.	
14	Ability to Demonstrate sound understanding to solve problems through the use of modern tools (Analytical Instruments, Excel, Matlab, Process Simulation and Design Software).	

Table 3.3.1-(i) Relation of POs and PSOs with Questionnaire

Question	Q1	Q2	Q3	Q4	Q5	Q6
PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6
Question	Q7	Q8	Q9	Q10	Q11	Q12
PO/PSO	PO7	PO8	PO9	PO10	PO11	PO12
Question	Q13	Q14				
PSO	PSO1	PSO2				

Parent Feedback: Parent feedback is taken to signify holistic development of their ward through a conducive teaching-learning environment. Relevant questionnaire in parent feedback form to evaluate attainment of POs is given in section (i) and relation of POs with questionnaire is given in section (ii).

Questionnaire Format:

Kindly rate the following criteria on a scale of 1-5. Your genuine response will be helpful for the continuous quality improvement of our UG programme

5: Strongly Agree, 4: Agree, 3: Moderate, 2: Disagree, 1: Strongly Disagree

Table 3.3.1-(j) Questionnaire for Parent Feedback

S N	Parameters	Rating
1	My ward has gained Engineering knowledge through teaching learning process at the institute.	
2	My ward will be able to pursue research and higher studies.	
3	Co-curricular and Extra-curricular activities conducted in institute helped to develop my wards communication, leadership and team work skills.	
4	My ward is aware of social, cultural, environmental, global, public health and safety related issues and tries to resolve them.	
5	My ward has ability to manage activities and financial issues.	
6	My ward follows professional ethics.	
7	My ward is able to use modern tools and techniques.	
8	My ward converted into a lifelong learner.	
9	My ward is able to identify, analyze, design and develop solutions to Chemical Engineering problems of practical importance to industry and society.	
10	My ward has acquired sound understanding of Chemical Engineering fundamentals in terms of ability to solve problems through the use of modern	

	experimental methods, computer aided design and simulation software.	

Table 3.3.1-(k) Relation of POs and PSOs with Questionnaire

Question	Q1	Q2	Q3	Q4	Q5
PO/PSO	PO 1	PO 2, PO 3, PO 4	PO 9, PO10	PO 6, PO7	PO11
Question	Q6	Q7	Q 8	Q9	Q10
PO/PSO	PO8	PO 5	PO 12	PSO1	PSO2

For indirect PO/PSO attainment 20% weightage is given.

Total PO/PSO attainment is calculated as:

Direct Attainment by all courses X 0.8 + Indirect Attainment X 0.2

2. 3.3.2: Provide results of evaluation of each PO & PSO (40)

(Program shall set Program Outcome attainment levels for all POs & PSOs: CO – PO/PSO mapping values are set as PO/PSO attainment levels)

Cycle-I: **FE: AY 2016-17**
SE: AY 2017-18
TE: AY 2018-19
BE: AY 2019-20

Cycle-II: **FE: AY 2017-18**
SE: AY 2018-19
TE: AY 2019-20
BE: AY 2020-21

Cycle-III: **FE: AY 2018-19**
SE: AY 2019-20
TE: AY 2020-21
BE: AY 2021-22

Table 3.3.2-(a) PO Attainment Cycle-I

Term	**Course Code**	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
First Year (2016-17)													
I	107001	1.71	1.14	0.57									
	107002	1.10	0.76	0.57		0.57							
	102006	0.44	0.44			0.44							
	104012	1.22	0.61	0.62		0.60							
	101005	0.73	0.68	0.66		0.71							
	110003	0.61	0.33	0.33		0.31							
	111007	0.98	0.98	0.98	0.98		0.98						
II	107008	1.26	0.84	0.42									
	107009	0.97	0.49	0.50									
	102013	0.91	0.89										
	101011	0.89	0.44										
	103004	0.73	0.44	0.44									

	110010	1.24	0.62	0.62		0.59							
	102014	0.97	0.97			0.97							
Second Year (2017-18)													
I	207004	1.25	0.83	0.42		0.42							
	209341	1.22	1.22	1.22	0.61	1.25				0.61	1.22		
	209342	1.28	1.28	0.75	1.28					0.64	1.28		
	209343	1.16	0.56	0.56	0.56	0.56				0.58	1.16		
	209344	1.53	1.53	1.07	1.07						0.54		
	209345	0.97		0.97	1.93	0.97	2.92	0.97	0.97				
	209346								1.93	1.93	2.90		0.97
II	209347	1.23	1.23	0.62	0.62					0.62	1.23		
	209348	1.34	2.01	1.94	2.01					0.64	1.34		
	209349	0.97	0.97	0.97		1.02				0.50	0.97		
	209350	0.45	0.45	0.89	0.89								
	209351	1.22	1.22	1.02	1.11					0.58	1.22		
	20935	0.9		0.9			0.96			0.9	0.97		1.92

	2	7		6						7			
Third Year (2018-19)													
I	309341	0.97	0.97	0.48	0.48						0.97		
	309342	1.31	1.20	0.98	1.20					0.65	1.31		
	309343	1.61	1.76				0.75		1.50	0.75	1.50	0.75	1.50
	309344	1.35	1.35	0.68		1.28				0.68	1.35		
	309345	0.66	0.66	0.32	0.35						0.66		
	309346	1.94	1.94	1.94		1.94				0.97	1.94		
	309347	1.96	0.98	0.98			1.96	1.96	1.96	1.96	1.96	0.98	0.98
II	309348	1.94	1.29	1.08	1.29					0.67	1.29		
	309349	1.62	1.08	0.54	1.08						0.54		
	309350	1.57	1.15	1.05	0.63	0.63			1.25	1.15	0.63		
	309351	1.54	1.54	1.03	1.03					0.51	1.03		
	309352	1.32	0.83	0.84	1.47						1.45		
	309353	1.94	1.94				0.97	1.94	1.94	1.94	1.94		1.94
Final Year (2019-20)													
I	40934	1.3	1.3	1.3	1.3	1.3				0.6	1.32		

	1	2	1	1	1	1				5			
	409342	1.07	1.61	1.62	1.61						1.07		
	409343	2.25	1.45	1.61	1.45	0.97			0.97	0.96	1.77		
	409346	1.93	0.97	0.97			1.93	1.93	1.93	1.93	1.93	0.97	0.97
	409347	1.95	1.95	1.95	0.97	2.92				0.97	1.95		
	409348	2.33	2.91	2.71	2.60	2.88	2.90		1.94	1.94	2.91	0.97	1.30
II	409349	1.62	1.48	1.34		1.66				0.90	1.80		
	409350	1.65	1.65	0.82	0.82	0.82				0.82	1.65	2.05	
	409353	2.28	2.94	2.94	2.90	2.90	2.92	2.88	1.94	1.94	2.92	1.62	1.13
	Avg.	**1.32**	**1.17**	**1.01**	**1.21**	**1.17**	**1.81**	**1.94**	**1.63**	**1.02**	**1.46**	**1.22**	**1.34**

Table 3.3.2-(b) PO Attainment Cycle-II

Term	**Course Code**	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
First Year (2017-18)													
I	107001	1.36	0.91	0.45									
	107002	1.03	0.68	0.51		0.50							
	10200	1.4	1.4								0.70		

	6	1	0										
	104012	0.73	0.37	0.36		0.38							
	101005	0.70	0.67	0.55		0.79							
	110003	0.50	0.25	0.25		0.25							
	111007	0.95	0.95	0.95	0.95		0.95						
II	107008	1.11	0.74	0.37									
	107009	0.86	0.49	0.42									
	102013	1.00	1.03										
	101011	0.96	0.48										
	103004	0.73	0.41	0.42									
	110010	1.04	0.52	0.52		0.52							
	102014	0.93	0.93			0.93							
Second Year (2018-19)													
I	207004	1.25	0.83	0.42		0.42							
	209341	1.41	1.41	1.41	0.71	1.39				0.71	1.41		
	209342	1.27	1.27	0.74	1.27					0.63	1.27		

	209343	1.23	0.60	0.60	0.60	0.60				0.62	1.23		
	209344	1.32	1.32	0.93	0.93						0.47		
	209345	0.96		0.96	1.92	0.96	2.90	0.96	0.96				
	209346								1.93	1.93	2.90		0.97
II	209347	1.39	1.39	0.70	0.70					0.70	1.39		
	209348	1.29	1.93	1.93	1.93					0.64	1.29		
	209349	1.02	1.02	1.02		1.17				0.51	1.02		
	209350	0.51	0.51	1.03	1.03								
	209351	1.31	1.31	1.10	1.20					0.65	1.31		
	209352	0.96		0.97			0.97			0.96	0.96		1.93
Third Year (2019-20)													
I	309341	1.57	1.57	0.79	0.79						1.57		
	309342	1.29	1.18	0.96	1.18					0.64	1.29		
	309343	2.09	2.25				0.97		1.93	0.97	1.93	0.97	1.93
	309344	1.38	1.38	0.69		1.38				0.69	1.38		
	30934	0.9	0.9	0.4	0.4						0.93		

	5	3	3	5	8								
	309346	1.96	1.96	1.96		1.96				0.98	1.96		
	309347	1.96	0.98	0.98			1.96	1.96	1.96	1.96	1.96	0.98	0.98
II	309348	2.49	1.66	1.39	1.66					0.83	1.66		
	309349	1.59	1.06	0.53	1.06						0.53		
	309350	1.88	1.38	1.25	0.76	0.74			1.49	1.36	0.74		
	309351	1.92	1.92	1.28	1.28					0.64	1.28		
	309352	1.77	1.12	1.16	1.93						1.93		
	309353	1.94	1.94				0.97	1.95	1.95	1.95	1.95		1.95
Final year (2020-21)													
I	409341	1.94	1.94	1.94	1.94	1.94				0.97	1.94		
	409342	1.96	2.95	2.94	2.95						1.96		
	409343	2.27	1.46	1.62	1.46	0.97			0.98	0.97	1.79		
	409346	1.94	0.97	0.97			1.94	1.94	1.94	1.94	1.94	0.97	0.97
	409347	1.94	1.94	1.94	0.97	2.91				0.97	1.94		
	409348	2.35	2.94	2.75	2.62	2.95	2.96		1.96	1.96	2.94	0.98	1.31

II	409349	1.63	1.49	1.35		1.67				0.91	1.81		
	409350	1.97	1.97	0.98	0.98	0.98				0.98	1.97	2.46	
	409353	2.28	2.96	2.96	2.98	2.98	2.90	2.96	1.96	1.96	2.94	1.63	1.14
	Avg.	**1.42**	**1.29**	**1.08**	**1.37**	**1.26**	**1.84**	**1.95**	**1.71**	**1.08**	**1.58**	**1.33**	**1.40**

Table 3.3.2-(c) PO Attainment Cycle-III

Term	**Course Code**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
First Year (2018-19)													
I	107001	1.41	0.94	0.47									
	107002	0.82	0.56	0.42		0.44							
	102006	0.77	0.76								0.38		
	104012	1.04	0.52	0.53		0.51							
	101005	0.52	0.53	0.56		0.50							
	110003	0.51	0.25	0.25		0.25							
	111007	0.97	0.97	0.97	0.97		0.97						
II	10700	1.0	0.7	0.3									

	8	7	1	6									
	107009	0.97	0.48	0.48									
	102013	0.92	0.96										
	101011	0.97	0.49										
	103004	0.73	0.42	0.42									
	110010	0.94	0.47	0.47		0.48							
	102014	0.95	0.95			0.95							
Second Year (2019-20)													
I	207004	1.62	1.08	0.54		0.54							
	209341	1.23	1.23	1.23	0.61	1.34				0.61	1.23		
	209342	1.57	1.57	0.93	1.57					0.78	1.57		
	209343	1.62	0.86	0.86	0.86	0.86				0.81	1.62		
	209344	1.29	1.29	0.91	0.91						0.46		
	209345	0.97		0.96	1.92	0.96	2.92	0.96	0.97				
	209346								1.94	1.94	2.91		0.97
II	209347	1.82	1.82	0.91	0.91					0.91	1.82		

	209348	1.97	2.95	2.95	2.95					0.98	1.97		
	209349	1.93	1.93	1.93		1.96				0.96	1.93		
	209350	0.97	0.97	1.95	1.95								
	209351	1.81	1.81	1.49	1.66					0.91	1.81		
	209352	0.95		0.96			0.96			0.95	0.95		1.92
Third Year (2020-21)													
I	309341	1.95	1.95	0.98	0.98						1.95		
	309342	1.95	1.79	1.47	1.79					0.98	1.95		
	309343	2.10	2.26				0.97		1.94	0.97	1.94	0.97	1.94
	309344	1.46	1.46	0.98				0.98			0.98	0.98	
	309345	1.62	1.62	0.80	0.83						1.62		
	309346	1.94	1.94	1.94		1.94				0.97	1.94		
	309347	1.95	0.98	0.98			1.95	1.95	1.95	1.95	1.95	0.98	0.98
II	309348	2.90	1.93	1.61	1.93					0.96	1.93		
	309349	2.88	1.92	0.96	1.92						0.96		
	30935	2.4	1.7	1.6	0.9	0.9			1.9	1.7	0.97		

	0	3	8	2	7	7			4	8			
	309351	2.93	2.93	1.95	1.95					0.98	1.95		
	309352	1.78	1.13	1.16	1.94						1.94		
	309353	1.92	1.92				0.97	1.93	1.93	1.93	1.93		1.93
Final Year (2021-22)													
I	409341	1.88	1.88	1.89	1.89	1.89				0.94	1.88		
	409342	1.94	2.91	2.90	2.91						1.94		
	409343	2.28	1.47	1.63	1.46	0.98			0.98	0.98	1.79		
	409346	1.97	0.99	0.99			1.97	1.97	1.97	1.97	1.97	0.99	0.99
	409347	1.93	1.93	1.93	0.97	2.90				0.97	1.93		
	409348	2.37	2.96	2.76	2.63	2.96	2.96		1.97	1.97	2.96	0.99	1.31
II	409349	1.38	1.25	1.13		1.38				0.75	1.50		
	409350	1.97	1.97	0.98	0.98	0.98				0.98	1.97	2.46	
	409353	2.30	2.96	2.96	2.96	2.96	2.96	2.96	1.97	1.97	2.96	1.64	1.15
	Avg.	**1.59**	**1.44**	**1.24**	**1.62**	**1.29**	**1.85**	**1.79**	**1.76**	**1.20**	**1.74**	**1.29**	**1.40**

Table 3.3.2-(d) PSO Attainment Cycle-I

Term	Course Code	PSO1	PSO2
First Year (2016-17)			
I	107001		0.61
	107002		
	102006		
	104012		
	101005	0.66	
	110003		0.31
	111007		
II	107008		0.88
	107009	0.76	
	102013		
	101011		
	103004		
	110010		0.62
	102014		
Second Year (2017-18)			
I	207004	0.42	0.40
	209341	0.61	1.25
	209342	1.28	
	209343	0.58	0.56
	209344	1.08	
	209345	1.94	0.97
	209346	0.97	
II	209347	0.62	

	209348	1.46	1.51
	209349	0.76	1.02
	209350	0.45	
	209351	1.02	
	209352		
Third Year (2018-19)			
I	309341	0.97	
	309342	1.20	
	309343	0.75	
	309344	1.35	1.28
	309345	0.66	
	309346	1.29	1.94
	309347	1.96	
II	309348	1.29	0.69
	309349	1.08	
	309350	1.15	0.63
	309351	1.03	
	309352	0.71	0.71
	309353	1.94	
Final Year (2019-20)			
I	409341	1.20	1.31
	409342	1.61	
	409343	1.77	0.97
	409346	1.93	

	409347	0.97	1.95
	409348	1.94	0.97
II	409349	1.80	1.80
	409350	1.65	0.82
	409353	1.94	0.97
	Avg	**1.19**	**1.01**

Table 3.3.2-(e) PO Attainment Cycle-II

Term	**Course Code**	**PSO1**	**PSO2**
First Year (2017-18)			
I	107001		0.46
	107002		
	102006		
	104012		
	101005	0.54	
	110003		0.25
	111007		
II	107008		0.71
	107009	0.75	
	102013		
	101011		
	103004		
	110010		0.52
	102014		
Second Year (2018-19)			

I	207004	0.42	0.40
	209341	0.71	1.39
	209342	1.27	
	209343	0.62	0.60
	209344	0.93	
	209345	1.93	0.96
	209346	0.97	
II	209347	0.70	
	209348	1.39	1.45
	209349	0.78	1.17
	209350	0.51	
	209351	1.09	
	209352		
Third Year (2019-20)			
I	309341	1.57	
	309342	1.18	
	309343	0.97	
	309344	1.38	1.38
	309345	0.93	
	309346	1.30	1.96
	309347	1.96	
II	309348	1.66	0.83
	309349	1.06	
	309350	1.36	0.74
	309351	1.28	

	309352	0.96	0.96
	309353	1.95	
Final Year (2020-21)			
I	409341	1.78	1.94
	409342	2.95	
	409343	1.79	0.97
	409346	1.94	
	409347	0.97	1.94
	409348	1.96	0.98
II	409349	1.81	1.81
	409350	1.97	0.98
	409353	1.96	0.99
	Avg	1.31	1.06

Table 3.3.2-(f) PO Attainment Cycle-III

Term	**Course Code**	**PSO1**	**PSO2**
First Year (2018-19)			
I	107001		0.48
	107002		
	102006		
	104012		
	101005	0.55	
	110003		0.25
	111007		

II	107008		0.71
	107009	0.77	
	102013		
	101011		
	103004		
	110010		0.47
	102014		
Second Year (2019-20)			
I	207004	0.54	0.55
	209341	0.61	1.34
	209342	1.57	
	209343	0.81	0.86
	209344	0.92	
	209345	1.93	0.97
	209346	0.97	
II	209347	0.91	
	209348	2.13	2.21
	209349	1.45	1.96
	209350	0.97	
	209351	1.50	
	209352		
Third Year (2020-21)			
I	309341	1.95	
	309342	1.79	
	309343	0.97	
	309344	1.95	0.97

	309345	1.62	
	309346	1.29	1.94
	309347	1.95	
II	309348	1.93	0.96
	309349	1.92	
	309350	1.78	0.97
	309351	1.95	
	309352	0.97	0.97
	309353	1.93	
Final Year (2021-22)			
I	409341	1.73	1.89
	409342	2.91	
	409343	1.79	0.98
	409346	1.97	
	409347	0.97	1.93
	409348	1.97	0.99
II	409349	1.50	1.50
	409350	1.97	0.98
	409353	1.97	0.99
	Avg	**1.51**	**1.13**

Annexure I: Program Outcomes

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the

engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

CRITERION 4	STUDENTS' PERFORMANCE	150

4. STUDENTS' PERFORMANCE (150)

4.1 Enrolment Ratio (20)

Table B.4.1a

Item	CAY 22-23	CAYm1 (2021-22)	CAYm2 (2020-21)	CAYm3 (2019-20)
Sanctioned intake of the program (*N*)	60	60	60	60
Total number of students admitted in first year *minus* number of students migrated to other programs/institutions plus no. of students migrated to this program (*N*1)	60	49	49	50
Number of students admitted in 2nd year in the same batch via lateral entry (*N*2		14	24	20
Separate division students, if applicable (*N3*)		---	---	----
Total number of students admitted in the Program (*N*1 + *N*2 + N3)		63	73	70
N1/N	1	0.817	0.817	0.83
Average Enrolment Ratio	0.86			

Academic Year

CAYm1- Current Academic Year minus1= Current Assessment Year

CAYm2 - Current Academic Year minus2=Current Assessment Year minus 1

LYG – Last Year Graduate

LYGm1 – Last Year Graduate minus 1 LYGm2 – Last Year Graduate minus 2

Table B.4.1b

Item (Students enrolled at the First Year Level on average basis during the previous three academic years starting from current academic year)	**Marks**
>=90% students enrolled	20
>=80% students enrolled	18
>=70% students enrolled	16
>=60% students enrolled	14
>=50% students enrolled	12
Otherwise	0

4.2 Success Rate in the stipulated period of the program (40)

4.2.1 Success rate without backlogs in any semester/year of study (25)

Table B.4.2.1a

Year of entry	***N*1 + *N*2 + N3** **(As defined above)**	**Number of students who have successfully graduated without backlogs in any semester/year of study** **(Without Backlog means no compartment or failures in any semester/year of study)**			
		I Year	II Year	III Year	IV Year
CAY 22-23	60				
CAYm1(21-22)	49+14	10			
CAYm2(20-21)	49+24	47	34		
CAY*m3* (19-20)	50+20	44	63	46	
CAY*m4*(18-19)	58+12	25	37	37	37
CAY*m5*(17-18)	52+22+0	29	31	30	30
CAY*m6(16-17)*	53+21+0	26	28	24	24
CAY*m7* (15-16)	58+28+0	9	16	16	16

Success rate without backlogs in any semester/ year of study (25)

SI= (Number of students who have graduated from the program without backlog)/ (Number of students admitted in the first year of that batch and actually admitted in 2nd year via lateral entry and separate division, if applicable)

Table B.4.2.1b

Item	*LYG(18-19) MAY22*	*LYGm1(17-18) MAY21*	*LYGm2(16-17) MAY20*	*LYGm3(15-16) MAY19*
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	58+12	52+22=74	53+21=74	58+28=86
Number of students who have graduated without backlogs in the stipulated period	37	30	24	16
Success Index (SI)	0.52	0.41	0.32	0.18
Average SI	0.41			

Success rate without backlogs in any year of study assessment = 25 × Average SI

*= 25*0.41*

=10.41

4.2.2 Success rate with backlogs in any semester/year of study (15)

Table B.4.2.2a

Year of entry	***N*1 + *N*2 + N3** **(As defined above)**	**Number of students who have successfully graduated in stipulated period of study)** **[Total of with Backlog + without Backlog]**			
		I Year	II Year	III Year	IV Year
CAY 22-23	60				
CAYm1(21-22)	49+14	47			
CAYm2(20-21)	49+24	49	73		
CAY*m3* (19-20)	50+20	50	67	65	
CAY*m4*(18-19)	58+12	44	56	56	55
CAY*m5*(17-18)	52+22	47	63	63	63
CAY*m6(16-17)*	53+21	46	61	61	61

CAY*m7* (15-16)	58+28	43	60	56	56

SI= (Number of students who graduated from the program in the stipulated period of course duration)/ (Number of students admitted in the first year of that batch and actual admitted in 2nd year via lateral entry and separate division, if applicable)

Average SI = mean of Success Index (SI) for past three batches

Table B.4.2.2b

Item	*LYG(18-19)* *MAY22*	*LYGm1(17-18)* *MAY21*	*LYGm2(16-17)* *MAY20*	*LYGm3(15-16)* *MAY19*
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	58+12	52+22=74	53+21=74	58+28=86
Number of students who have graduated with backlogs in the stipulated period	55	63	61	56
Success Index (SI)	0.78	0.85	0.82	0.65

Average SI	0.816	

Success rate with backlogs *assessment = 15 × Average SI* *=15*0.816*

= 12.249

4.3 Academic Performance in Third Year (15)

*Academic Performance = 1.5 * Average API (Academic Performance Index)*

API = ((Mean of 3rd Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Third Year/10)) x (number of successful students/number of students appeared in the examination)

Successful students are those who are permitted to proceed to the final year.

Table B.4.3

Academic Performance	**CAYm 3 (19-20) may 22**		**CAYm 4 (18-19) may21**	**CAYm 5 (17-18) may20**	**CAYM 6 16-17 may19**
Mean of CGPA or Mean Percentage of all successful students (X)	8.38		9.54	7.89	7.03
Total no. of successful students (Y)	65		56	63	61
Total no. of students appeared in the examination (Z)	66		56	63	61
API = x* (Y/Z)	**8.25**		**9.54**	**7.89**	**7.03**

Average API = (AP1 + AP2 + AP3)/3		8.55	

*Academic Performance assessment = 1.5 * Average API (Academic Performance Index)*

= 1.5 * 8.55

=12.83

4.4 Academic Performance in Second Year (15)

*Academic Performance Level = 1.5 * Average API (Academic Performance Index)*

API = ((Mean of 2nd Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Second Year/10)) x (number of successful students/number of students appeared in the examination)

Successful students are those who are permitted to proceed to the Third year.

Table B.4.4

Academic Performance	**CAY m1 (20-21) may 22**	**CAY m2 (19-20) may21**	**CAY m3 18-19 may20**	**LYG 17-18 may19**
Mean of CGPA or Mean Percentage of all successful students (X)/10	7.5	9.02	8.53	6.62
Total no. of successful students (Y)	73	67	56	63
Total no. of students appeared in the examination (Z)	73	70	56	69
API = X* (Y/Z)	7.5	8.63	8.53	6.04

Average API = (AP1 + AP2 + AP3)/3	8.22	

*Academic Performance assessment = 1.5 * Average API (Academic Performance Index)*

= 1.5 *8.22=12.33

=11.60

4.5 Placement, Higher Studies and Entrepreneurship (40)

Table B.4.5

Item	LYG 21-22	LYGm1 20-21	LYGm2 19-20	LYGm3 18-19
Total No. of Final Year Students (N)	55	63	61	56
No. of students placed in companies or Government Sector (x)	36	50	38	40
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	6	2	14	4
No. of students turned entrepreneur in engineering/technology (z)	0	1	0	0
x + y + z =	42	53	52	44
Placement Index: (x + y + z)/N	0.76	0.84	0.85	0.79

Average placement= (P1 + P2 + P3)/3	0.82			

Assessment Points = 40 × average placement

= 40*0.82=32.8

4.5a. Provide the placement data in the below mentioned format with the name of the program and the assessment year:

Table B.4.5a

Chemical Engineering Assessment Year 2022-23				
S.No.	**Name of the student placed**	**Enrollment no.**	**Name of the Employer**	**Appointment letter reference no. with date**
1	Sharayu Sevkram Badhe	71905443F	Institute of Chemical Technology, Matunga Mumbai	22POL215
2	Beldar Umesh Purushottam	71904990D	Dr. Reddy's Laboratories Ltd	L85195TG1984PLC004507
3	Borhade Hrutuja Nivrutti	71905019H	Infosys Ltd.	1319897
4	Mahesh Raju Chavan	71905033C	Nocil Limited	12/08/2022
5	Shraddha Pandurang Darshale	71905048M	Tata Consultancy Services Ltd.	05/10/2021
6	Sakshi Parmeshwar Deshmane	71905050C	Gulbrandsen Private Ltd.	10/10/2022
7	Niranjan Deochake	71905054F	Praj Industries Ltd.	11/07/2022
8	Dhananjay Kumar Singh	71905065M	Reliance Industries Ltd.	16-12-2021
9	Nitin Jitendra Dhardubey	71905069D	Fluid Technics	07/07/2022
10	Bhushan Dolas	71905075J	Victory Polychem Pvt Ltd	March 2023

11	Pratiksha Pravin Ghadle	71905110L	Cipla Ltd. Pune	74690-257227-343520
12	Viraj Gandhi	71905097K	Reliance Industries Ltd.	5171/80166049/30031051/040722/1850
13	Priyanka Samir Garade	71905381B	Cipla Ltd. Pune	74690-257227-343520
14	Abhishek Vijay Ingale	71905135F	Innovative Water Technologies Private Limited	U41000KA2021PTC153950
15	Bhumika Sagar Kakade	71905168B	Synergy Process Systems	
16	Tejas Deepak Kanade	71905180M	GATE	CH23S62067024
17	Ritesh Rajendra Kolhapure	71905213M	UHP Technologies Private Limited	UHP/HR/OL/GET/2021/50
18	Abhishek Kumbharde	71905230M	Granules India Ltd.	20-09-2022
19	Dikshita Kamlesh Mehta	71905074L	Alkyl Amines Chemical Ltd	2904
20	Devendra Amar More	71905277H	Alkyl Amines Chemical Ltd	2903
21	Dhairya Patel	71905322G	Michigan Technological University	Spring 2023
22	Abhijeet Maruti Patil	71905324C	QSPIDERS(U – TEST YANTRA SW SOL.(I) P LTD	

23	Ketan Suresh Patil	71905332D	Larsen & Toubro Infotech Ltd.	01/04/2022
24	Sarthak Patil	71905343K	Laxmi Organic Industries Ltd.	TMPCON092248140
25	Pawar Pranav Rupchand	71905355C	Institute of Chemical Technology	Year 2022-23
26	Siddhi Pedamkar	71905359F	Reliance Industries Ltd.	16-12-2021
27	Krunal Laxmikant Raut	71905220D	ENPRO Industries Pvt. Ltd.	
28	Mohasin Rajmohamad Shaikh	71905441K	Tridiagonal Solution Pvt Ltd.	25/02/2023
29	Vaibhav Sanjay Shirsath	71905457F	Indian Institute of Technology Kharagpur	2022114912414
30	Shlok Phulkar	71905463L	NM Jalmaitreya LLP	8 July 2022
31	Nupoor Upadhye	71905303L	Siemens Energy	17-05-2022
32	Rushikesh Wankhede	71905543B	Ramdas A Wani, Energy, EHS and Management System (ISO) Consultant	26/12/2022
33	Paresh Rajendra Chaudhari	72001005F	UHP Technologies Private Limited	UHP/HR/OL/GET/2021/51
34	Khushi Ramesh Dode	72001006D	Marcuras Water treatment (India) Pvt Ltd.	12/07/2022

35	Farate Kunal Dipak	72001007B	Tata Autocom System Ltd	
36	Pratiksha More	72001008L	NM Jalmaitreya LLP	8 July 2022
37	Ujvala Satich Pardeshi	72001009J	Marcuras Water Treatment	06-07-2022
38	Pratik Bhaskar Chavan	72001010B	Nocil Ltd	
39	Sayyad Salman Sayyadjilani	72001011L	Piramal pharma Solutions	
40	Chaitanya Deepak Shelar	72001012J	Meso tech	
41	Shivraj Ankushrao Taur	72012552K	Finance Sector	
42	Vishwajeet Bharat Yadav	72001015C	toyaM Technologies India Pvt. Ltd.	02-05-2022
Assessment Year 2021-22				
S.No.	**Name of the student placed**	**Enrollment no.**	**Name of the Employer**	**Appointment letter reference no. with date**
1	Aditya Umashankar	71811553J	Accenture	29-06-2021
2	Palash Manoj Batra	71812075C	Infosys	HRD/3T/21-22/1002128725 27-07- 2021
3	Bhagat Sanchita Mahesh	71811614D	Infosys	HRD/3T/1002950053/21-22 16-02-2022

4	Bhosale Sakshi Nandaraj	71811642K	ENPRO Industries Pvt. Ltd.	EIPL/HR/2021/170 06-10-2021
5	Borkar Minal Bhojraj	71811659D	Accenture	24-02-2022
6	Chaudhari Resham Ravindra	71811677B	Infosys Ltd.	HRD/3T/21-22/1002126647 28-07-2021
7	Chaure Pratik Tulshiram	71811679J	Praj Industries Ltd., Pune	23-08-2021
8	Chavan Pravin Sanjay	71811681L	Xomic Infotech Pvt. Ltd., Pune	21-01-2022
9	Adesh Vikas Dhaware	71811550D	Genrich Membranes, Chinchwad	CIN: U33111PN2014PTC151381 22-10-2021
10	Divekar Rutuja Shivaji	71811751E	Thermax Ltd., Pune	04-06-2021
11	Erande Sameer Dnyaneshwar	71811761B	Infosys Ltd.	HRD/3T/1002385325/21-22 18-09-2021
12	Gaikwad Akash Shantaram	71811769H	Granules India Ltd., Hinjewadi	CIN:L24110TG1991PLC012471 29-09-2021
13	Gore Suchita Chandrakant	71811808B	Isha Industries	20-01-2022
14	Tejaswini Pravin Indalkar	71812297G	Cognizant	14-11-2021
15	Jagdale Shrikesh Sunil	71811853H	Infosys Ltd.	14-04-2022

16	Jagtap Pratik Deepak	71811857L	Cognizant	23-11-2021
17	Kadu Dimpal	71811890B	LOREAL India	00537268
18	Pranav Anant Kakade	71812157M	Genrich Membranes Pvt. Ltd.	22-10-2021
19	Kale Hrishikesh Chandrakant	71811894E	Granules India Ltd., Hinjewadi	12-10-2021
20	Khaladkar Prasad Dnyandeo	71811930E	CIPLA Ltd., kurkumbh, Pune	23-08-2021
21	Kulkarni Manali Mahesh	71811960G	Ashaya Recyclers Pvt. Ltd., Pune	16-09-2021
22	Kulkarni Sakshi Mahesh	71811961E	KPMG	25-09-2021
23	Netke Ritesh Abasaheb	71812056G	Chegg	06-05-2022
24	Patil Hemant Sanjay	71812097D	BEC Chemicals, Roha	BCPL/HR/21-22 01-11-2021
25	Patil Pranav Madhav	71812106G	Postgraduate diploma in Advance Computing(CDAC)	01-08-2022
26	Patil Satyam Suresh	71812111C	Cipy Polyurethanes Pvt. Ltd., Pune	CPPL/HRD/OL/2021 20-08-2021

27	Patil Yashoda Sadanand	71812123G	Tata Consultancy Services Ltd.	21-11-2021
28	Shruti Manoj Pawar	71812251J	Ramdas A. Wani	04-03-2022
29	Mahima Anup Phade	71811996H	Enpro	08-02-2022
30	Phadnis Nachiket Anant	71812143M	Granules India Ltd., Hinjewadi	CIN: L24110TG1991PLC012471 08-11-2021
31	Sumit Vasant Rathod	71812273K	Sustainable Technosolutions for Environmental Protection Pvt. Ltd.	09-05-2022
32	Sapkal Saurabh Ashok	71812210M	Thermax Ltd., Pune	0F86052
33	Sharma Rohit Dindayal	71812235G	NALCO (Ecolab), Pune	01-10-2021
34	Shedge Krushna Balasaheb	71811953D	MSc Finance in Oxford Brookes	26-11-2021
35	Suryawanshi Mukesh Dnyanoba	71812282J	Capgemini Technology Services India Limited	24-05-2022
36	Tejas Hire	71812295L	Cognizant	23-11-2021
37	Thole Sanket Rajesh	71812299C	UniChem Laboratory Goa	13-06-2022
38	Thorat Pranjal Mahesh	71812302G	Cognizant	23-11-2021

39	Thorbole Umesh Rameshwar	71812316G	Cognizant	23-11-2021
40	Dombale Sagar Babaso	71925915M	Hetero Lab, Hyderabad	219602
41	Gunjote Sagar Sagoji	71925916K	Hypro Engineers, Bavdhan	22-11-2021
42	Jadhav Mayuresh Sharad	71925917H	Praj Industries, Pune	04-01-2022
43	Joshi Samruddhi Vitthal	71925918F	Ennovate Computer Software and Consulting Pvt. Ltd	24-12-2021
44	Kalgude Kalpesh Ravindra	71925919D	Aastrid Life Sciences Pvt. Ltd., Mahad	ALSPL/HR-2021-O/323 16-11-2021
45	Kshirsagar Sanket Satish	71925922D	IPCA Lab., Mumbai	Embio/Mahad/HR/2022/TA/27 02-05-2022
46	Mirajkar Anuraj Sagar	71925923B	Udyamsheel India Foundation	10-05-2021
47	Patre Rohit Vilas	71925928C	Polychem, Pirangut	POLY/HRD/2021 31-08-2021
48	Pawar Rushikesh Hanmant	71925929M	Praj Industries Ltd., Pune	27-08-2021
49	Pawar Vinayak Dnyandeo	71925930E	Cipla Ltd., Kurkumbh	28-12-2021

50	Shedge Rohit Anandrao	71925931C	RUMARA Engineering	30-05-2022
51	Bhosale Swaraj Vikrant	71925912G	PolicyBazaar Pvt. Ltd.	PW37684
52	Vaibhav Sanjay Gaigole	71925932M	Jalmantrya LLP, Pune	04-09-2021
53	Yamgar Omkar Nathuram	71925933K	Kapstone Cybersecurity Private Limited	20-05-2022
Assessment Year 2020-21				
S.No.	**Name of the student placed**	**Enrollment no.**	**Name of the Employer**	**Appointment letter reference no. with date**
1	Abhinav Kumar	71705618L	Infosys Limited	29-12-2021
2	Aditya Patil	71705623G	TCSL	TCSL/DT2021763 8568/Hyderabad 15-04-2021
3	Allur Varaprasad Rao	71705635L	WARWICK, The University of Warwick	13-05-2021
4	Ashlesha Kamble	71705648B	Electrocoating & Insulation Technologies Pvt. Ltd.	01-02-2021
5	Chanchlani Chirag Manoj	71705692K	University of Calgary	08-03-2021

6	Chitodkar Sayali Sunil	71705710M	MSM Process Solutions Pvt. Ltd., Talwale, Pune	15-03-2021
7	Dangi Krishna Subhash	71705719E	Genrich Membranes Pvt. Ltd., Chinchwad, Pune	08-06-2020
8	Dhokare Dinesh Maruti	71705743H	Krishna Antioxidants Pvt. Ltd.	01-10-2021
9	Dongre Prateek Vinod	71705750L	University of Waterloo	15-02-2022
10	Ghare Sanjay Macchindra	71705774H	Infosys, Pune	03-01-2022
11	Ghatol Suyasha Shirish	71705777B	IIT Kharagpur	01-08-2022
12	Gonde Sakshi Dilip	71705785C	M.Tech(Chemical and Biotechnology) Department of Technology, SPPU	01-02-2021
13	Kadao Pooja Deepak	71705834E	TCSL	TCSL/CT2020337 0808/Lucknow 16-12-2021
14	Kale Sanket Suresh	71705843D	UPSC	10-10-2021
15	Khalade Omkar Anil	71705874D	UNIVERSITAT MAGDEBURG	30-09-2022
16	Kivale Prateek Shamsunder	71705885K	Knorr-Bremse Technology Center	CN012243044 25-01-2022

			India Pvt. Ltd. (E03212700329)	
17	Kulal Prajakta Jakoji	71705899K	M.Tech Chemical VIT, Pune	11-01-2021
18	Medpalli Nikhil Pandurang	71705939B	Celebal Technologies	23-05-2022
19	Mithbhakre Prathmesh Anil	71705946E	Northeastern University	601524016022477 4
20	Mundhe Rushikesh Baban	71705959G	Endurance Technologies Ltd.	05-09-2020
21	Nandgaonkar Bhavana D	71705967H	M.Tech(Chemical and Biotechnology) Department of Technology, SPPU	25-12-2020
22	Pal Ashish Gopal	71705989J	Cipla Ltd., Pune	
23	Pandey Pratik Gyanprakash	71705993G	Serum Institute of India Ltd., Pune	03-05-2021
24	Patil Rohan Dadasaheb	71706026J	Serum Institute of India Ltd., Pune	20-07-2021
25	Patil Vaibhav Jitendra	71706034K	Infosys Ltd.	26-12-2021
26	Phulwade Ajay Pradip	71706049H	MAXX & CO.	03-09-2021

27	Pujara Priyal Nikhil	71706058G	Infosys	HRD/3T/1002032500/21-22 07-06-2021
28	Rajpurohit Nilesh S	71706065K	M.Tech Chemical NIT, Karnataka, Suratkal	07-07-2021
29	Sakshi Yogesh Jain	71706088J	Sai Working Solutions Pvt. Ltd.	10-05-2021
30	Shirke Mayur Ananta	71706140L	Alchemi Lab., Mahad	10-04-2021
31	Tak Govind Venaram	71706179F	M.Tech Chemical IIT, Hyderabad	08-07-2021
32	Wagh Harshal Rajendra	71706226M	Invenio Business Solutions	09-07-2021
33	Wakankar Ameya Subodh	71706230K	GRE, IELTS Syracuse University	5933266832
34	Balapure Divyani Banduji	71811595D	Synergy Process System	10-05-2022
35	Beldar Yogesh Sanjay	71811611K	Genrich Membranes Pvt. Ltd.	23-05-2021
36	Bidawe Sharad Prakash	71811650L	Marcuras Water Treatment (India) Pvt. Ltd., MIDC Bhosari	28-10-2020

37	Devare Sandesh Ramchandra	71811731L	Alkyl Amines Ltd., Gujarat	04-01-2021
38	Dhole Darshan Rajesh	71811740K	Probosys	28-07-2022
39	Gaikwad Rohit Rajendra	71811775B	Cipla Ltd., Dist. Pune	12-05-2020
40	Gandhi Samyak Ishwarlal	71811781G	Entremonde Polycoaters Ltd,. Nashik	10-01-2022
41	Godbharle Madhusudan D	71811802C	Galaxy Chemicals Pvt. Ltd., Ahmednagar	08-03-2021
42	Hulawale Pankaj Machhindra	71811827J	Clean Science and Technology Limited	06-10-2020
43	Ingle Nikhil Ravindra	71811834M	Cipla Ltd., Dist. Pune Pune	12-05-2020
44	Kamble Omkar Ashok	71811904F	Cipla Ltd., Dist. Pune	12-05-2020
45	Katwate Ajaysingh Sunil	71811921F	Cipla Ltd., Dist. Pune	12-05-2020
46	Mane Rushikesh Dattatray	71812005B	Galaxy Laboratories Private Limited	01-01-2022
47	Motikar Akash Tulshiram	71812033H	Cipla Ltd., Dist. Pune	12-05-2020

48	Nagare Rahul Sanjay	71812045M	Hypro Engineers Pvt.Ltd. Pune	07-11-2020
49	Sathe Abhishek Devanand	71812214D	Cipla Ltd., Dist. Pune	23-05-2020
50	Shedage Swapnil Sudam	71812237C	Clean Science and Technology Limited	27-01-2022
51	Shinde Moniya Anil	71812248J	M-Tech (Chemical and Biotechnology) SPPU	25-12-2020
52	Sutar Ashutosh Tulshidas	71812284E	Genrich Membranes Pvt. Ltd., Chinchwad, Pune	23-05-2021

Assessment Year 2019-20

S.No.	Name of the student placed	Enrollment no.	Name of the Employer	Appointment letter reference no. with date
1	Bombale Ashutosh B	71606877L	MACLEOD's Pharmaceuticals Ltd., Mumbai	23-08-2019
2	Chaudhari Gaurav S	71607027J	University of Alberta	31-08-2021
3	Dabbe Shivshankar K	71606738C	IndianOil-Adani Gas Pvt. Ltd.	04-01-2021
4	Darekar Aniket Bapu	71606792H	DSM India Pvt. Ltd.	24-12-2019
5	Deo Parth Pushkar	71606631k	IIT Guwahati	09-03-2021
6	Gaidhane Bhavesh Murlidhar	71607118F	Synergy Process Systems	10-05-2022
7	Garje Abhimanyu Babu	71607110L	KBR	10-08-2022

8	Gayathri Madhusoodhanan	71606671J	A PLUS PROJECTS & TECHNOLOGY (P) LTD.	29-09-2021
9	Ghodekar Prashant Satyawan	71606933E	Darshan Chemicals Turbhe,mumbai	17-06-2019
10	Kolapkar Shubham Shashikant	71606635B	Lupin	40001371
11	Kulkarni Shubham Vyankatesh	71606879G	Symbiosis Institute of Operations Management	21020741142
12	Mahajan Mukunda Raghunath	71606534H	TCS, Pune	16-07-2019
13	Mohammad Atif Ur Rehman	71606872k	Thermax, Ltd., Dahej	01-08-2020
14	Mohite Kiran Anil	71606582H	Lonestar	05-08-2019
15	Nanote Prajakta Shiwaji	71606591G	Technoquest	0048
16	Patil Abhijit Sudhir	71606815L	MACLEOD's Pharmaceuticals Ltd., Mumbai	23-08-2019
17	Pawar Somnath Balu	71607013J	IIT Kharagpur	20-07-2021
18	Pillai Reshnu Renukumar	71606939D	P-square Technologies, Pune	16-06-2019
19	Potdar Aniket Shriniwas	71606555L	Bell Engineering Software Technologists Limited	01-07-2019
20	Rohida Chetan Rajesh	71606537B	Embark Water Pvt.ltd.,pune	24-06-2019
21	Sayali Pidurkar	71606986F	ARKCHEM Systems Pvt. Ltd.	20-02-2020
22	Shinde Archana Maruti	71606498H	Synergy Process Systems, Pune	01-07-2019

23	Shirdhone Vishal Appaso	71606541L	Marcuras Water Treatment(India) Pvt. Ltd.	27-11-2021
24	Sude Ganesh Sanjay	71607094E	IIT Roorkee	20519006
25	Supriya S Paste	71606507L	Sepadu Tech, Hinjewadi	ST025
26	Vinayak B. Rajan	71606627M	Chemsys Process Engineering Pvt. Ltd.	10-04-2021
27	Vishakha Raghunath Dhumal	71606535F	Synergy Process Systems, Pune	01-07-2019
28	Ambulkar Harshal Y	71731118L	CIPLA Ltd., kurkumbh, Pune	27-01-2020
29	Ameya J Mansata	71731119J	Gharada Chemicals Ltd.,chipalun	22-12-2020
30	Bankar Chaitali D	71731120B	Kwality Paints & Coatings Pvt. Ltd.	01-12-2021
31	Dhamanse Shubham Chindu	71731123G	MAZDA Factory, Roha	15-07-2021
32	Kadiri Rahil Javidhusain	71731126M	Kesar Petro Products Ltd., Chipalun	15-07-2019
33	Khandekar Pavan Subhash	71731127K	Elantas Beck India Ltd.,pimpri	17-07-2019
34	Kharade Kiran Pandurang	71731128H	ARKCHEM Systems Pvt. Ltd.	07-09-2020
35	Khetre Deepak Dayanand	71731129F	Synergy Process Systems, Pune	S00026
36	Malusare Mayur Sandip	71731130K	Excel Industries, Roha	01-10-2020
37	Marathe Shivsagar Jalindar	71731131H	Valiant Organics Limited	23-02-2021
38	Nemane Tushar Narayan	71731133D	Corrocomp Plastics Pvt. ltd., pune	01-07-2019

39	Ranjane Kunal Tukaram	71731134B	Laxmi organics Industries Ltd.	01-10-2020
40	Satarkar Prathamesh Pradiprao	71731136J	Shachi Engineering Pvt. Ltd.	25-05-2021
41	Sonkusare Digambar Lekharam	71731138E	Embark Water Pvt.ltd.,pune	24-06-2019
42	Sontakke Abhishek Suresh	71731139C	CIPLA Ltd., kurkumbh, Pune	27-01-2020
43	Torkad Dattatrya Ankush	71731141E	Fluid Technics, Pune	10-12-2019
44	Zade Mahesh Ashok	71731144K	Rcf Ltd.,chembur	

4.6 Professional Activities (20)

4.6.1 Professional societies/chapters and organizing engineering events (5)

Exhibits/Context to be Observed/Assessed:

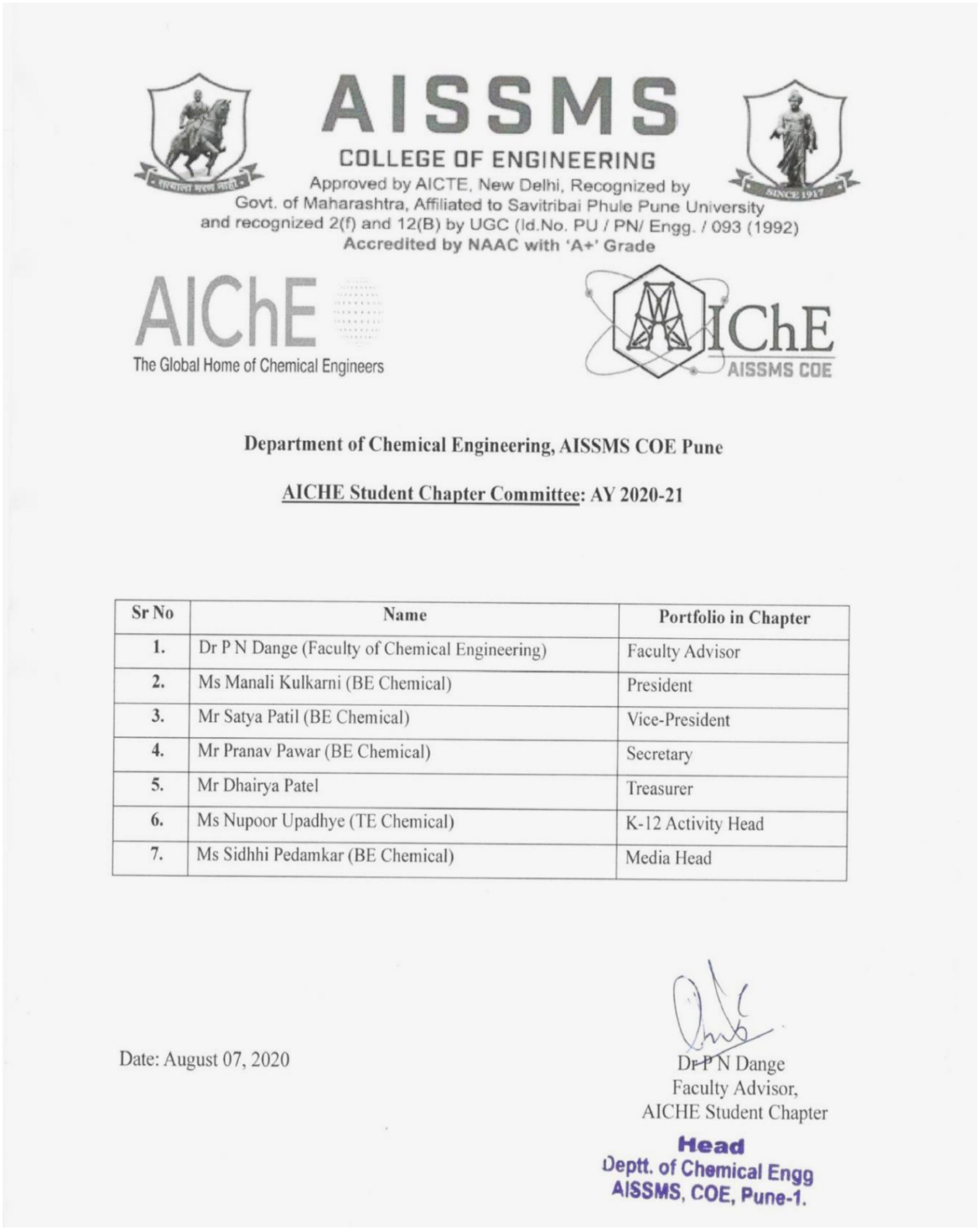
IEI, AICHE, IICHE Student Chapter Activities

ET, Online Quiz, Poster Competition, Webinar

Professional societies/chapters

Table 4.6.1a

S. N	Professional societies/chapters	Faculty coordinator	Student coordinator/President
1	AICHE	Dr. P N Dange	Ms. Manali Kulkarni
2	IEI	Dr. A S Jadhav	Mr. Pranav Kakde
3	IICHE	Mrs. K N Bawankar	Mr. Krunal Raut



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Department of Chemical Engineering, AISSMS COE Pune

AICHE Student Chapter Committee: AY 2020-21

Sr No	Name	Portfolio in Chapter
1.	Dr P N Dange (Faculty of Chemical Engineering)	Faculty Advisor
2.	Ms Manali Kulkarni (BE Chemical)	President
3.	Mr Satya Patil (BE Chemical)	Vice-President
4.	Mr Pranav Pawar (BE Chemical)	Secretary
5.	Mr Dhairya Patel	Treasurer
6.	Ms Nupoor Upadhye (TE Chemical)	K-12 Activity Head
7.	Ms Sidhhi Pedamkar (BE Chemical)	Media Head

Date: August 07, 2020

Dr P N Dange
Faculty Advisor,
AICHE Student Chapter

Head
Deptt. of Chemical Engg
AISSMS, COE, Pune-1.

Fig. 4.1.1 AIChE Student Chapter committee: AY 2020-21

Table 4.6.1.b. Student Chapter Activity list

S. N	Event	Organizer	Date	(Level - Institute /State/National/International) level	Professional societies/ chapters
1	Webinar on "Introduction to Energy Integration"	Dr Kirti Datir	01/05/2022	Institute	IIChE
2	International webinar on "Energy Conservation In Oil and Gas Industries" by Dr. Santosh Madhav Walke	Dr A S Jadhav	22/04/2022	Institute	IEI
3	Expert Lecture On "Energy Management And Energy Efficiency In Industrial Utilities"	Dr A S Jadhav	08/04/2022	Institute	IEI
4	Webinar on "Role of Economics in Selection of Technology".	Dr M Y Naniwadekar	16/03/2022	Institute	IIChE
5	Seminar on Introduction to Chemical Plant Operations	Prof. P. M. Warke	04/03/2022	Institute	AIChE
6	Webinar on Memory Enhancement	Dr P N Dange	02/03/2022	Institute	AIChE

7	Guest lecture on the topic “Application of Chemical Engineering for Process Development”	Dr A S Jadhav	16/01/2022	Institute	IEI
8	Coding of MATLAB	Dr A S Jadhav	09/12/2021	Institute	IEI
9	Session on “Gravity Falls” under the K-12 Outreach Programme	Dr P N Dange	31/10/2021	Institute	AIChE
10	Session on “Capillarity” under the K-12 Outreach Programme	Dr P N Dange	10/10/2021	Institute	AIChE
11	“Paper Presentation Competition (CH-1)” under ET-2021 (CHEMIXIR).	Dr M S Deshpande	29/09/2021	Institute	IIChE
12	Orientation Program	Dr P N Dange	27/08/2021	Institute	AIChE
13	Guest Lecture on Safety devices for Process Equipment	Mrs. K N Bawankar	20/06/2021	Institute	IIChE
14	Online Guest Lecture on "CFD Analysis & Case Studies."	Dr. P N Dange	04/06/2021	National	AIChE
15	Online Guest lecture on “Intellectual Property Rights”.	Dr. P N Dange	03/06/2021	National	AIChE
16	Expert Guest Lecture for the SE Chemical on “Design of Vessels in Pharmaceutical Industries.”	Dr.S B Ghugare	02/06/2021	Institute	IEI
17	Guest Lecture for BE Chemical on “Food Quality Assurance” by Mrs Kanan Patel from Sydney.	Dr. M S Deshpande	30/05/2021	Institute	AIChE

18	Guest lecturer organized on subject Process Instrumentation & Control.	Mr.K B Gandhi	29/05/2021	Institute	IEI
19	Organized Chess tournament .	Dr. P N Dange	26/05/2021	Institute	AIChE
20	Industry visit to waste water treatment plant, Nigadi, Pune	Dr P N Dange	17/05/2022	Institute	AIChE
21	Guset lecture on" Plant startup and shut down procedures".	Mr.P M Warke	26/10/2020	Institute	IIChE
22	Webinar on “Six Sigma” by Mr Yogesh Khaladkar, Plant Manager, H B Fuller India Adhesives , Pvt Ltd.	Dr. M S Deshpande	24/10/2020	State	AIChE
23	Online Guest lecture on”control and energy conservation of ammonia plant.”	Dr S B Ghugare	21/10/2020	Institute	IEI
24	webinar on "Your Branding Page-Resume""	Mr.P M Warke	02/10/2020	State	AIChE
25	Online guest lecture on”Business opportunities for chemical engineers”.	Dr. M Y Naniwadkar	18/09/2020	Institute	AIChE
26	online Industry -Institute Interaction .	Mr.P M Warke	12/09/2020	Institute	AIChE
27	online Industry -Institute Interaction .	Mr.P M Warke	05/09/2020	Institute	AIChE
28	National webinar on "An overview of CFD and it's application in today's world'.	Mr.P M Warke	16/08/2020	National	AIChE

29	Online quiz on chernobyl web series-NUCLEAR CLOG.	Dr. P N Dange	16/08/2020	Institute	AIChE
30	Online Industrial Visit at “Sudarshan Chemical Industries Ltd.	Dr.A S Jadhav	28/07/2020	Institute	IEI
31	National Webinar on the topic “Piping Design Engineering and Construction’. Mr Pramod Deshmukh, Head, CITP, Asian Academy of Professional Training, Pune. was the invited speaker.	Dr.P N Dange	04/07/2020	Institute	AIChE
32	National Webinar on the topic ‘Process Intensification’. Dr.Makrand Pimpalpure, Flow Chemistry Consultant and Founder, Makspeed Technologies, Pune was invited speaker for the program	Dr.P N Dange	23/06/2020	Institute	AIChE
33	Workshop on “Engineers as Entrepreneurs”	Mr.P M Warke	12/06/2020	State	AIChE
34	An online poster competition was organized with the theme "Protecting the Environment for Sustainable Future".	Dr.P N Dange	29/05/2020	State	AIChE
35	Webinar on ‘Job oportunities in japan"	Mr.P M Warke	26/05/2020	Internati onal	AIChE
36	Webinar on ‘PFD & Process Design Aspect’	Mr.P M Warke	16/05/2020	Institute	IIChE

37	Online quiz competition, QUIZ@QUARANTINE with multiple choice questions on physics, Chemistry and Mathematics was organized.	Dr.P N Dange	12/05/2020	State	AIChE
38	National webinar on “Office Etiquettes during and post COVID 19"for teaching & non teaching staff.	Mr.P S Tadkar	02/05/2020	National	IIChE
39	Online Guest lecture on”Mechanical design aspects of equipment”	Dr S B Ghugare	13/03/2020	Institute	IEI
40	Online Documentary of BBC on "ABSOLUTE ZERO -THE CONQUEST OF COLD "	Dr. M Y Naniwadekar	08/03/2020	Institute	AIChE
41	Industrial Visit to BILT Graphic Paper Products Ltd., Unit Bhigwan, Tal. Indapur, Dist. Pune	Mr.P M Warke	06/03/2020	Institute	IIChE
42	Webinar on ‘How to Prepare GATE?’ Mr. Harishankar K.V. from Asian Academy of Professional Training, Pune was an invited speaker for the event.	Dr.P N Dange	03/03/2020	Institute	AIChE
43	Guset lecture on Technical Selling: A career option for Engineers	Mr.P M Warke	07/01/2020	Institute	IIChE
44	Guest lecture by Mr Anil Raut	Mr.R S Raut	15/10/2019	Institute	IEI
45	Industrial visit organised to Sewage treatment Plant, Erandawane	Mr.K B Gandhi	14/10/2019	Institute	IEI

46	Guest lecture by Virendra Saitwal	Dr P N Dange	11/10/2019	Institute	IIChE
47	Guest lecture by Mahendra Shinde	Dr S B Ghugare	10/10/2019	Institute	IEI
48	Industrial visit organised to PCMC WTP, Nigadi	Dr P N Dange	08/10/2019	Institute	IIChE
49	Industrial visit organised to Ross Boilers India, Kondhwa, Pune	Mr.P M Warke ,Dr. M Y Naniwadekar ,, Dr A V Mohod	05/10/2019	Institute	IEI
50	Guest lecture by Ms Pooja Malpani	Mr.P M Warke	03/10/2019	Institute	IIChE
51	Guest lecture by Mr Balasaheb Londhe	Mr.P S Tadkar	30/09/2019	Institute	IIChE
52	Industrial Visit to Xtreme Engineering Equipment Pvt. Ltd., Narhe Industrial Estate, Pune	Mr.P M Warke	27/09/2019	Institute	IIChE
53	Industrial visit organised to Katraj Dairy Ltd.	Dr.A S Jadhav	21/08/2019	Institute	IEI
54	Guest lecture by Dr Pankaj N Patil	Mr.P S Tadkar	10/07/2019	Institute	IIChE

4.6.2 Publication of technical magazines, newsletters, etc. (5)

(The Department shall list the publications mentioned earlier along with the names of the editors, publishers, etc.)

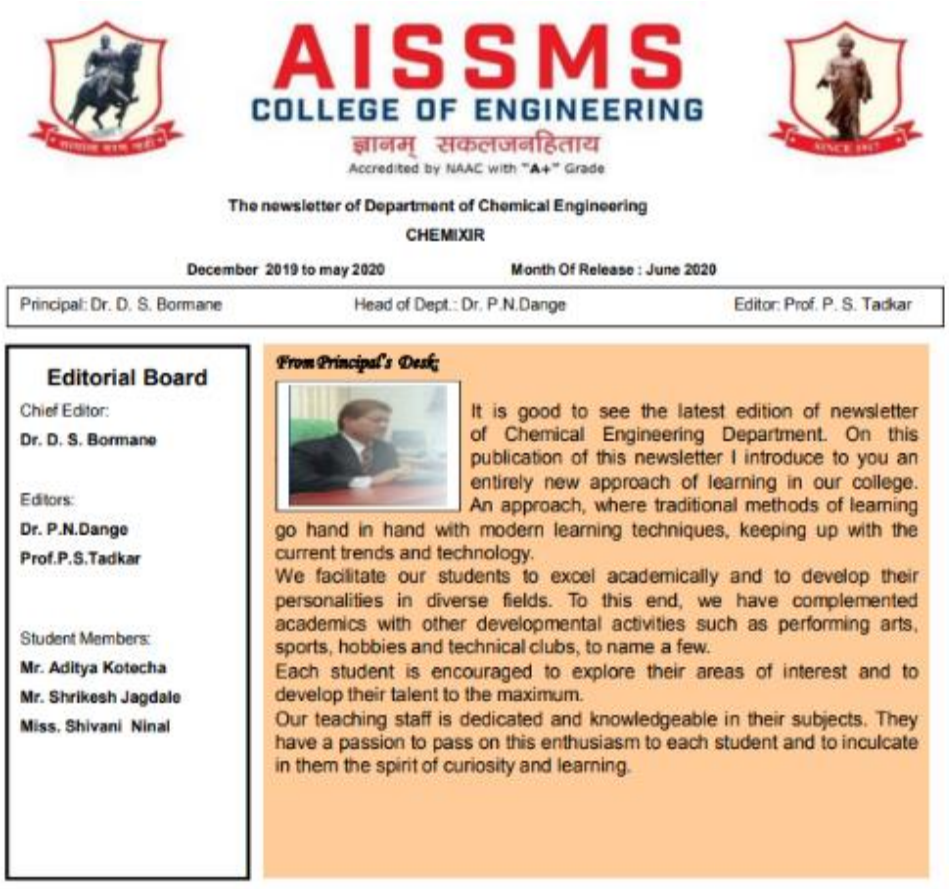
A. Quality & Relevance of the contents and Print Material (3)

B. Participation of Students from the program (2)

Table 4.6.2

S.N.	Title	Editors	Student Coordinator	Publisher	Period
1	CHEMIXIR	Dr P N Dange Mr P S Tadkar	Mr Abhishek Kumbharde Mr Aman Sayyad Miss Vaishnavi Ghorpade	Department of Chemical Engineering.	(Dec.20-May 21)
2	CHEMIXIR	Dr P N Dange Mr P S Tadkar	Mr Abhishek Kumbharde Mr Aman Sayyad Miss Vaishnavi Ghorpade	Department of Chemical Engineering.	(June.20-Nov.20)
3	CHEMIXIR	Dr P N Dange Mr P S Tadkar	Mr. Aditya Kotecha Mr. Shrikesh Jagdale Miss. Shivani Ninal	Department of Chemical Engineering.	(Dec.19-May 20)
4	CHEMIXIR	Dr K R Jethani Mr P S Tadkar	Mr. Aditya Kotecha Mr. Shrikesh Jagdale	Department of Chemical Engineering.	(June.19-Nov.19)

			Miss. Shivani Ninal		
5	CHEMIXIR	Dr K R Jethani Mr P S Tadkar	Mr. Aniket Darekar Mr. Aditya Kotecha Mr. Om Giri	Department of Chemical Engineering.	(Dec.18-May 19)
6	CHEMIXIR	Dr K R Jethani Mr P S Tadkar	Mr. Aniket Darekar Mr. Aditya Kotecha Mr. Om Giri	Department of Chemical Engineering.	(June.18-Nov.18)



AISSMS
COLLEGE OF ENGINEERING
ज्ञानम् सकलजनहिताय
Accredited by NAAC with "A+" Grade

The newsletter of Department of Chemical Engineering

CHEMIXIR

December 2019 to may 2020 Month Of Release : June 2020

Principal: Dr. D. S. Bormane | Head of Dept.: Dr. P.N.Dange | Editor: Prof. P. S. Tadkar

Editorial Board

Chief Editor:
Dr. D. S. Bormane

Editors:
Dr. P.N.Dange
Prof.P.S.Tadkar

Student Members:
Mr. Aditya Kotecha
Mr. Shrikesh Jagdale
Miss. Shivani Ninal

From Principal's Desk;

It is good to see the latest edition of newsletter of Chemical Engineering Department. On this publication of this newsletter I introduce to you an entirely new approach of learning in our college. An approach, where traditional methods of learning go hand in hand with modern learning techniques, keeping up with the current trends and technology.

We facilitate our students to excel academically and to develop their personalities in diverse fields. To this end, we have complemented academics with other developmental activities such as performing arts, sports, hobbies and technical clubs, to name a few.

Each student is encouraged to explore their areas of interest and to develop their talent to the maximum.

Our teaching staff is dedicated and knowledgeable in their subjects. They have a passion to pass on this enthusiasm to each student and to inculcate in them the spirit of curiosity and learning.

Fig;4.6.2 Chemical Department Newsletter



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Fig:4.2. CHEMIXIR Newsletter: AY 2020-21

4.6.3 Participation in inter-institute events by students of the program of study (10)

(The Department shall provide a table indicating those publications, which received awards in the events/conferences organized by **other institutes**.)

A. Events within the state (2)

B. Events outside the state (3)

C. Prizes/awards received in such events (5)

Exhibits/Context to be Observed/Assessed:

A. Events within the state (2)

Table 4.6.3a

S. N.	Name of Student	Event	Date	Prize/Award	(Level - State/National/International)	Year
01	Ms. Gangurde Sneha Sanjay	Kshitij ,IIT Kharagpur2022	02.02.2022	Participated	state	21-22
02	Ms Manali Kulkarni & Ms Yashoda Patil	Prakalpa-2020 organized by MIT AOE Pune	11-12/09/2020	First prize in Environmental Engineering category	state	20-21
03	Ms Dimpal Kadu	Prakalpa-2020 organized by MIT AOE Pune	11-12/09/2020	First prize in Chemical Reaction Engineering category	state	20-21

04	Ms.Siddhi Pedamkar	Mindspark - Dexter's Lab	September 16-17, 2019	2nd Place	state	19-20

Events outside the state (3)

Table 4.6.3b

S. N.	Name of Student	Event	Date	Prize/Award	(Level - State/National/ International)	Year
1	Ms. Nupoor upadhy	Chemistry of Materials-ACS Journal	02/02/2022	Review paper	International	21-22
2	Mr.Tejas Deepak Kanade	NPTEL	Jan - April 2022	Gold	National	21-22
3	Mr.Soham Shivaji Kumbhar	NPTEL	Jan - April 2022	Silver	National	21-22
4	Ms Dixita Mehta	NPTEL	Jan - April 2022	Gold	National	21-22
5	Mr Mohammed Omar Mohammed Ilyas Shaikh	NPTEL	Jan - April 2022	Elite	National	21-22
6	Mr.Gaikwad Sankalp Sunil	NPTEL	Jan - April 2022	Successfully Completed	National	21-22
7	Mr.Mahesh Chavan	NPTEL	Jan - April 2022	Elite	National	21-22
8	Ms.Bhumika Kakde	NPTEL	Jul - oct 2021	Silver	National	21-22
9	Mr.Devendra More	NPTEL	Jul - oct 2021	Silver	National	21-22
10	Mr.Vaibhav Shirsath	NPTEL	Jul - oct 2021	Gold	National	21-22
11	Mr. Riteshkumar Kolhapure	NPTEL	Jul - oct 2021	Gold	National	21-22

12	Mr .Riteshkumar Kolhapure	NPTEL	Jul - oct 2021	Silver	National	21-22
13	Ms. Marale Utkarsha	NPTEL	Sept - nov 2020	Successfully completed	National	20-21
14	Mr.Vrukodar Sunil Jadhav	NPTEL	Sept - nov 2020	Elite	National	20-21
15	Mr.Abhishek Kumbharde	NPTEL	Sept - nov 2020	Elite	National	20-21
16	Ms.Dikshita Kamlesh Mehta	NPTEL	Sept - nov 2020	Gold	National	20-21
17	Mr.Sameer Erande	NPTEL	Jul - Sep 2019	Gold	National	19-20
18	Ms.Mahima Phade	NPTEL	Jul - Sep 2019	Silver	National	19-20
19	Mr.Satyam Suresh Patil	NPTEL	Jul - Sep 2019	Elite	National	19-20
20	Ms.Minal Bhojraj Borkar	NPTEL	Jul - Sep 2019	Silver	National	19-20
21	Ms.Yashoda Patil	NPTEL	Jul - Sep 2019	Elite	National	19-20
22	Mr.Pratik Chaure	NPTEL	Jul - Sep 2019	Successfully Completed	National	19-20
23	Ms.Divekar Rutuja Shivaji	NPTEL	Jul - Sep 2019	Silver	National	19-20

C. Prizes/awards received in such events (5)

Table 4.6.3c NPTEL/Coursera Courses cleared by Students

S. N.	Name of Student	Event	Date	Prize/Award	Year
1	Mr.Tejas Deepak Kanade	NPTEL	Jan - April 2022	Gold	21-22
2	Mr.Soham Shivaji Kumbhar	NPTEL	Jan - April 2022	Silver	21-22
3	Ms Dixita Mehta	NPTEL	Jan - April 2022	Gold	21-22
4	Mr Mohammed Omar Mohammed Ilyas Shaikh	NPTEL	Jan - April 2022	Elite	21-22
5	Mr.Gaikwad Sankalp Sunil	NPTEL	Jan - April 2022	Successfully Completed	21-22
6	Mr.Mahesh Chavan	NPTEL	Jan - April 2022	Elite	21-22
7	Ms.Bhumika Kakde	NPTEL	Jul - oct 2021	Silver	21-22
8	Mr.Devendra More	NPTEL	Jul - oct 2021	Silver	21-22
9	Mr.Vaibhav Shirsath	NPTEL	Jul - oct 2021	Gold	21-22
10	Mr. Riteshkumar Kolhapure	NPTEL	Jul - oct 2021	Gold	21-22
11	Mr. Riteshkumar Kolhapure	NPTEL	Jul - oct 2021	Silver	21-22
12	Ms Gangurde Sneha Sanjay	Kshitij ,IIT Kharagpur2022	02.02.2022	Participated	21-22
13	Ms. Marale Utkarsha	NPTEL	Sept - nov 2020	Successfully completed	20-21

14	Mr.Vrukodar Sunil Jadhav	NPTEL	Sept - nov 2020	Elite	20-21
15	Mr.Abhishek Kumbharde	NPTEL	Sept - nov 2020	Elite	20-21
16	Ms. Dikshita Kamlesh Mehta	NPTEL	Sept - nov 2020	Gold	20-21
17	Ms Manali Kulkarni & Ms Yashoda Patil	Prakalpa-2020 organized by MIT AOE Pune	11-12/09/2020	First prize in Environmental Engineering category	20-21
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19	Mr. Sameer Erande	NPTEL	Jul - Sep 2019	Gold	19-20
20	Ms.Mahima Phade	NPTEL	Jul - Sep 2019	Silver	19-20
21	Mr.Satyam Suresh Patil	NPTEL	Jul - Sep 2019	Elite	19-20
22	Ms.Minal Bhojraj Borkar	NPTEL	Jul - Sep 2019	Silver	19-20
23	Ms.Yashoda Patil	NPTEL	Jul - Sep 2019	Elite	19-20
24	Mr.Pratik Chaure	NPTEL	Jul - Sep 2019	Successfully Completed	19-20
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26	Ms.Siddhi Pedamkar	Mindspark - Dexter's Lab	September 16-17, 2019	2nd Place	19-20

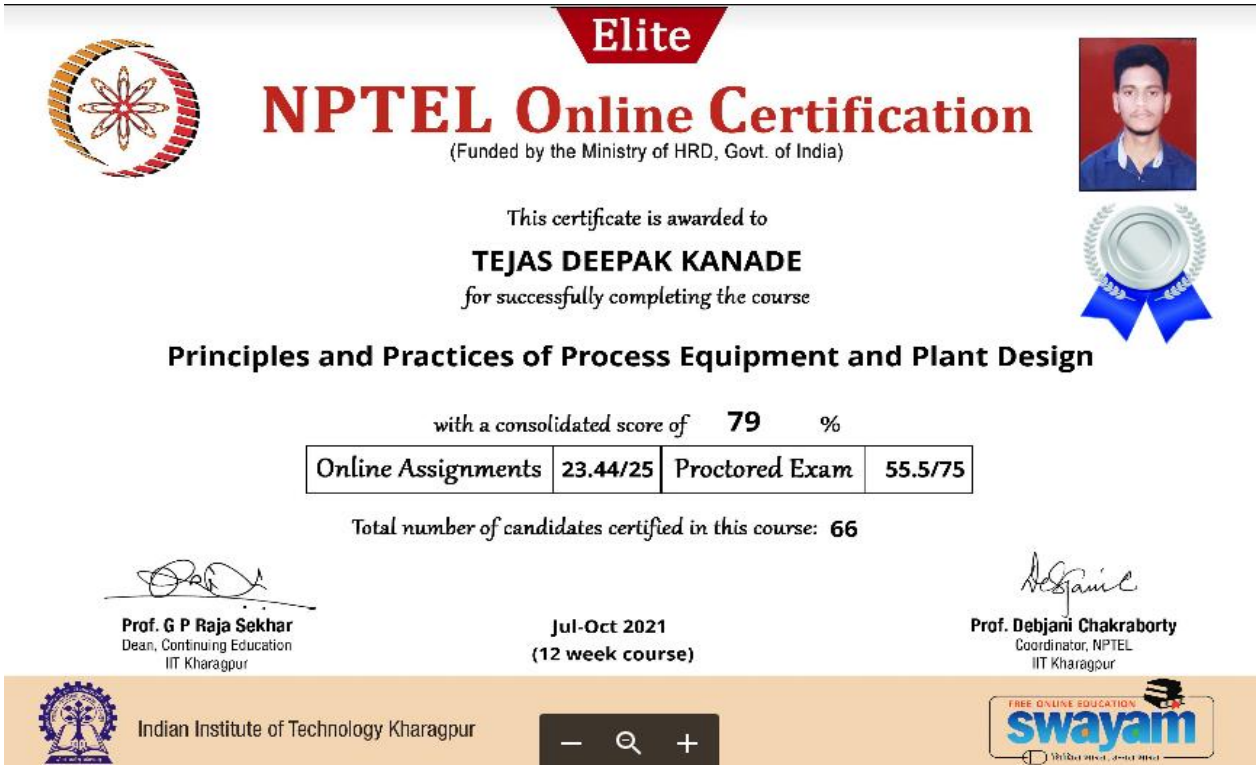


Fig:4.3.1 Certificate NPTEL Course




Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

DIKSHITA KAMLESH MEHTA

for successfully completing the course

Aspen Plus® simulation software - a basic Course for Beginners

with a consolidated score of 94 %

Online Assignments	24.06/25	Proctored Exam	70/75

Total number of candidates certified in this course: 305

Jan-Apr 2022
(12 week course)

Prof. Hemant B Kaushik
Head, Center for Educational Technology
NPTEL Coordinator, IIT Guwahati

Indian Institute of Technology Guwahati

swayam

CRITERION 5	FACULTY INFORMATION AND CONTRIBUTIONS	200

Faculty Qualification

AY: 2022-23

A) Regular Faculty

Sr. No	Name of the Faculty Member	Qualification			Association with the Institution	Designation	Date of Joining	Department	Specialization	Academic / Research		
		Degree (highest degree)	University	Year of attaining higher qualification						Research Paper Publications	Currently Associated (Y/N)	Nature of Association
1	Dr M Y Naniwadekar	PhD	SPPU Pune	2019	Assistant Professor	Assistant Professor	2-8-1999	Chemical	Chemical Engg	9	Y	Regular
2	Dr P N Dange	PhD	ICT Mumbai	2017	Asso.Prof	Asso.Prof	10-10-2008	Chemical	Chemical Engg	8	Y	Regular
3	Dr A S Jadhav	PhD	BIT Mesra	2021	Assistant Professor	Assistant Professor	10-8-1998	Chemical	Chemical Engg	23	Y	Regular
4	Mrs H L Kamble	ME	SPPU Pune	2011	Assistant Professor	Assistant Professor	2-8-1999	Chemical	Chemical Engg	-----	Y	Regular
5	Mr P M Warke	ME	SPPU Pune	2017	Assistant Professor	Assistant Professor	15-7-2005	Chemical	Chemical Engg	4	Y	Regular
6	Mr K B Gandhi	ME	SPPU Pune	2016	Assistant Professor	Assistant Professor	1-9-2003	Chemical	Chemical Engg	-----	Y	Regular
7	Dr S B Ghugare	PhD	SPPU Pune	2012	Assistant Professor	Assistant Professor	4-8-2005	Chemical	Chemical Engg	5	Y	Regular
8	Mrs K N Bawankar	ME	SPPU Pune	2005	Assistant Professor	Assistant Professor	1-10-2008	Chemical	Chemical Engg	4	Y	Regular
9	Dr A V Mohod	Post Doc	USP Brazil	2022	Assistant Professor	Assistant Professor	16-11-2010	Chemical	Chemical Engg	10	Y	Regular
10	Mr P S Tadkar	M.Chem	ICT Mumbai	2008	Assistant Professor	Assistant Professor	4-10-2010	Chemical	Chemical Engg	2	Y	Regular
11	Dr M Baingne	Ph.D	IIT Roorkee	2020	Assistant Professor	Assistant Professor	4-10-2021	Chemical	Chemical Engg	3	Y	Regular
12	Dr K A Datir	Ph.D	ICT Mumbai	2020	Assistant Professor	Assistant Professor	4-10-2021	Chemical	Chemical Engg	4	Y	Regular

5.1 Student-Faculty Ratio (SFR) (20):

Table 5.1:

Year	CAY (2022-23)	CAYm1 (2021-22)	CAYm2 (2020-21)	CAYm3 (2019-20)
UG : Chemical Engg				
2nd Year	66	66	66	66
3rd Year	66	66	66	66
4th Year	66	66	66	66
UG	198	198	198	198
PG : Chemical Engg				
PG 1st Year	18	18	18	18
PG 2nd Year	18	18	18	18
PG	36	36	36	36
Total No. of Students in the Department (S)	234	234	234	234

Year	Total No. of students (S)	Total No. of faculties (F)	SFR (S/F)
CAYm (AY2022-23**)**	234	12	19.5
CAYm1 (AY2021-22**)**	234	13	18
CAYm2(AY2020-21**)**	234	13	18
CAYm3(AY2019-20**)**	234	13	18
Average SFR			18.37

5.1.1. Information about the regular and contractual faculty:

Table 5.1.1 Faculty Details

Year	Total number of regular faculty in the department	Total number of contractual faculty in the department
CAYm (AY2022-23**)**	13	00

CAYm1 (AY2021-22**)**	13	00
CAYm2(AY2020-21**)**	13	00
CAYm3(AY2019-20**)**	13	00

5.2. Faculty Cadre Proportion (25)

The reference Faculty cadre proportion is 1(F1): 2(F2): 6(F3)**Year**	**No. of students asper SFR**	**Professors**		**Associate Professors**		**Assistant Professors**	
		Required RF1	**Available AF1**	**Required RF2**	**Available AF2**	**Required RF3**	**Available AF3**
CAYm (AY2022-23**)**	234	1.3	1	2.6	1	7.8	10
CAYm1 (AY2021-22**)**	234	1.3	1	2.6	1	7.8	10
CAYm2 (AY2020-21**)**	234	1.3	1	2.6	1	7.8	10
CAYm3 (AY2019-20**)**	234	1.3	1	2.6	1	7.8	10
Average RF		1.4	2	2.6	1	7.8	**10**

The reference Faculty cadre proportion is 1(F1):2(F2):6(F3)

F1: Number of Professors required = 1/9 x Number of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (N) as per 5.1

F2: Number of Associate Professors required = 2/9 x Number of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (N) as per 5.1

F3: Number of Assistant Professors required = 6/9 x Number of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (N) as per 5.1

Case 1: (2021-22): Cadre proportion marks = (0.76+0.23+0.512) x 12.5 = 18.88

Average Cadre Ratio Marks (20198-2022) =

[(AF1 / RF1) + [(AF2 / RF2) * 0.6] + [(AF3 / RF3) * 0.4]] * 12.5

= [18.88 +18.88 +18.88]/3=18.88

5.3. Faculty Qualification (25)

Year	No .of Regular Faculty with PhD (X)	No .of Regular Faculty with ME/M.Tech(Y)	No. of Students	No. of Regular Faculty required to comply 20:1SFR	FQ = 2.5 x [(10X+4Y)/F)]
CAYm (AY2022-23**)**	**7**	**5**	234	11.7	18.75
CAYm1 (AY2021-22**)**	**7**	6	234	11.7	20.07
CAYm2 (AY2020-21**)**	5	8	234	11.7	20.07
CAYm3 (AY2019-20**)**	3	10	234	11.7	20.07
Average Assessment UG					19.74

5.4. Faculty Retention (25)

No. of regular faculty member in the base year (**CAYm3**(AY2019-20):	**13**
No. of retained faculty member in the year **CAYm2**(AY2020-21):	**13**
No. of regular faculty member in the base year (**CAYm1** (AY2021-22)	**13**
No. of retained faculty member in the year (**CAYm)** (AY2022-23):	**12**
Average No. of faculty member retained during the period of assessment:	**13**
Percentage of faculty retained during the period of assessment:	**100.00**

Since >=75% of required Faculty members retained during the period of assessment (keepingCAYm2 as base year)

5.5. Innovations by the Faculty in Teaching and Learning (20)

GOALS:

In order to improve students' teaching experience aside from traditional classroom teaching, thedepartment uses novel concepts and their subsequent execution by means of quantifiable programmes with following goals:

The department will continuously strive to:

- Enrich student learning by innovative practices.
- Develop students' comprehension and expertise of creative methods and strategies.
- Broaden students' perspective of emerging technologies and tools in academics, contemporaryand social issues by innovative strategies.
- Motivate students to innovatively think, formulate and perform through different club activities.

List of initiatives in teaching and learning process followed by the department:

Each and every faculty use innovative practices, knowingly or unknowingly to enhance the teaching learning experience of every student and make understand the concepts throughout the year. Some initiatives may be so small to escape attention, and might be difficult to quantify and record; but may affect the learning of students in a subtle but important way. On the other hand, some initiatives might be so impactful so as to be clearly visible as making huge strides in improving the teaching-learning process.

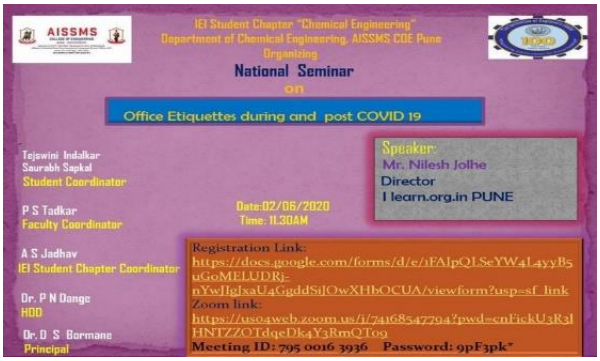
Given below is a listing of some of the noticeable initiatives taken by the faculty of the department. However, it should not be construed as a conclusive list; but as a part of an open ended process of continuous improvement.

1.Student Chapter activities: The department has following professional chapters which provides a good platform for the students to take active part in the various completions, seminars and lectures arranged by the society. The activities help the students to showcase their talents in terms for team building, communications skills, team work, target work and overall development in professional activities. One faculty advisor is associated with eachstudent chapter for mentoring, guidance and overall governance.

i. IEI Students Chapter

ii. AIChE Students Chapter

iii. IIChE Student Chapter



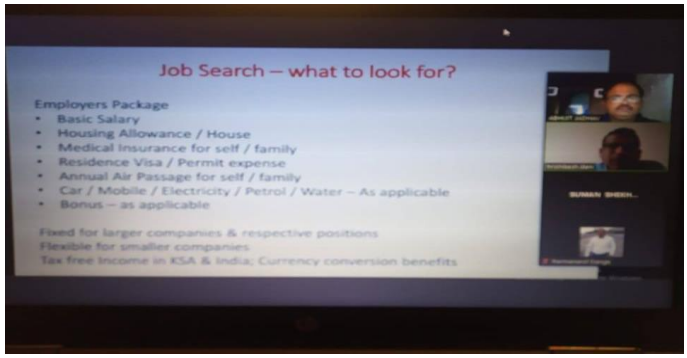


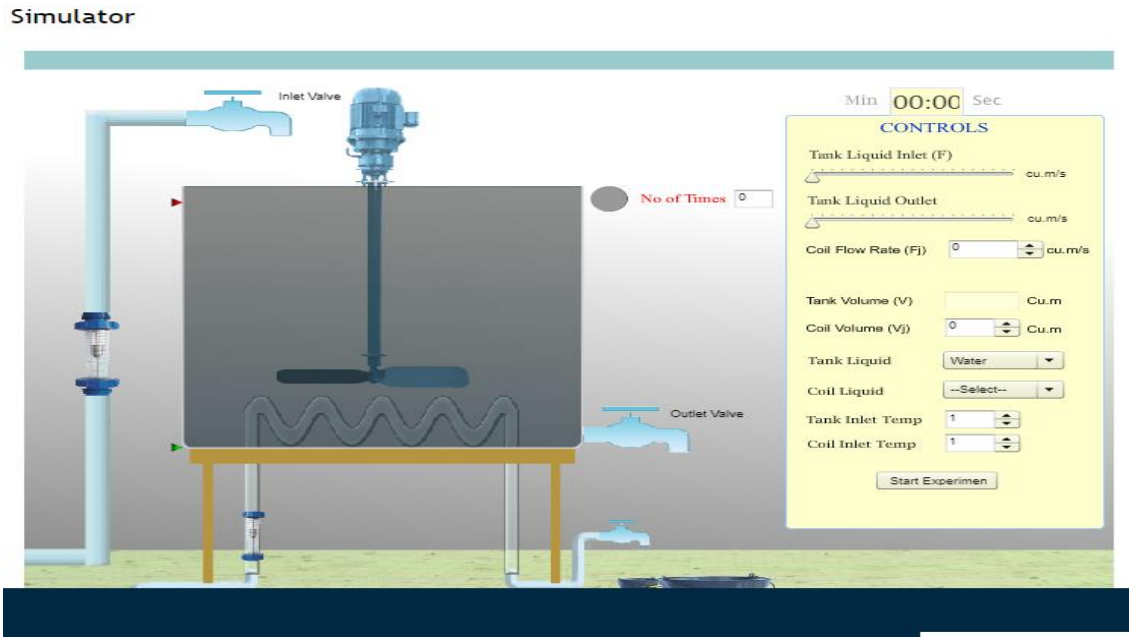
Fig.5.1.1. Guest Lecture by Mr Niesh Jolhe Director i-learn.org



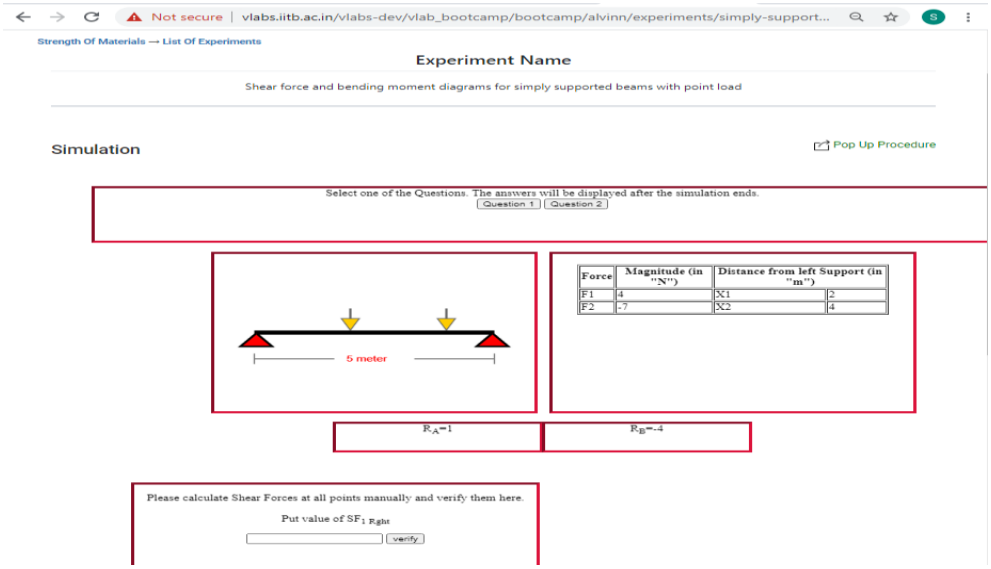
Fig. 5.1.2. IEI Students Chapter Chemical Engg., and NSS AISSMS COE donated Masks on 9-11-2020

2. Virtual labs: In certain labs like the dynamics of machinery lab, some relevant experiments are conducted online on web browsers with the help of simulators. Such online facilities are called as virtual labs (http://www.vlab.co.in/), and are a part of an excellent innovative initiative takenby the MHRD of India.

1. Virtual Experiment of IIT vlabs on Response of Stirred Tank Heater was conducted online for the practical subject, PDC of B.E. Chemical



2.Virtual Labs: Experiment of VLabs on SFD & BMD introduced to the students of S.E. Chemical in the practical of POD subject practicals



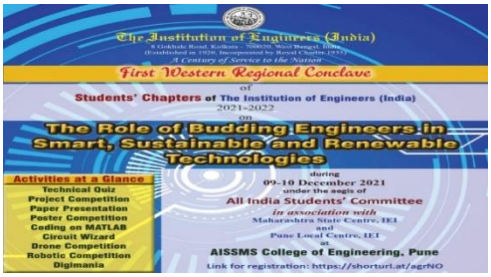
POD Virtual Lab (vlab) Content copy

3. Project based Learning and working models: In many relevant subjects, faculty encourage the students to make miniature working models of mechanisms and machine components. The faculty members also make use of cut sections as well as working models to enhance interest andlevel of learning.

The final year undergraduate curriculum includes completion of a one year project with comprehensive viva voce. Hence, the final year students are divided in 2 to 4 member teams for executing the project tasks allotted by their project adviser(s). Also, the students are given chances for pursuing their final year projects in prestigious institutions like ICT, National laboratories (NCL Pune) and in the institutions in abroad. As a result many undergraduate project teams have published their project works in prestigious international journals and conference proceedings.

4.Use of models/Animations/ Mini projects/PPTs/CASE studies :

The department has cutsections of the solids which are used to teach Engineering Graphics subject. The department alsohas cut section of the engine parts which helps students to understand the concept in a better way.Some faculty members develop models as well as mini projects with the help of students. All the classrooms are well-equipped with high quality projectors ready for use any time.

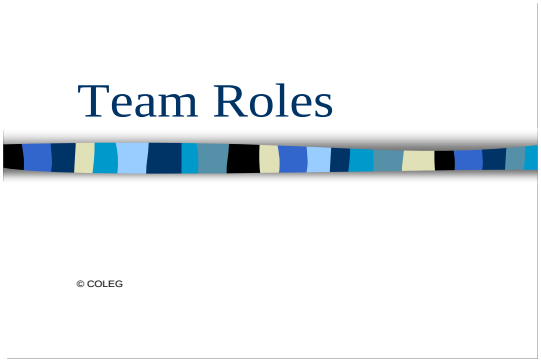




a) First Regional Conclave of Students on Coding of “MATLAB”

Department of Chemical Engineering AISSMS COE, PUNE-01 conducted First Regional Conclave of Students’ Chapter of The Institution of Engineers (India) for Western Region for the year 2021-22 , 09-10 December 2021. “Coding of MATLAB” event conducted by Department of Chemical Engineering. Total students Participated in event is 95

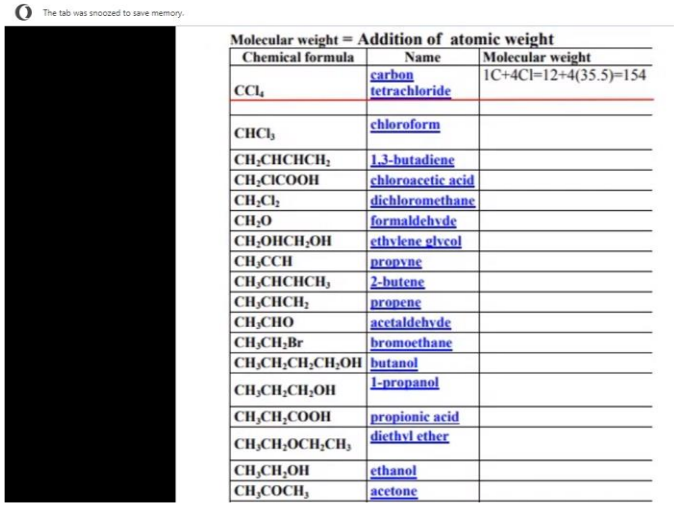
5. Learning resources on ERP/MS Teams: Faculty frequently upload notes, presentations, assignments, videos and test results on ERP as well as MS Teams. This significantly boosts theout-of-class learning experience of students.





6. E content on YouTube: Faculty have also created their own YouTube Channels and Google drives wherein they upload study material relevant to their own subjects. The links are shared with the students and the contents are openly accessed by all students.

Link : https://youtu.be/4VCB4EoARTo



a) Video Lecture of Prof K B Gandhi in subject of Engineering Materials

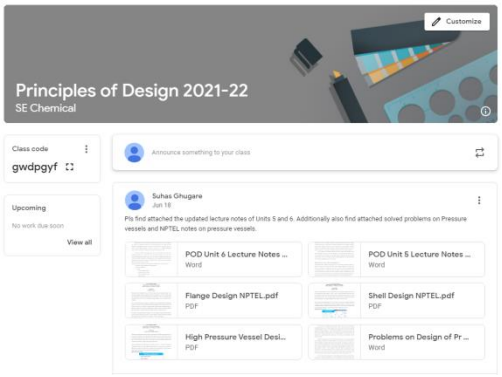
7. Online Lectures using MS Teams/Google meet/Zoom/Google classroom platform: In the pandemic situation, the faculty members have taken special efforts to prepare powerpointpresentations and conducted lectures on regular basis using various platforms. The notes were shared alongwith lecture recordings with the students. The class tests as well as practice testesalongwith revision lectures were also conducted to help the students to prepare for the universityexaminations.

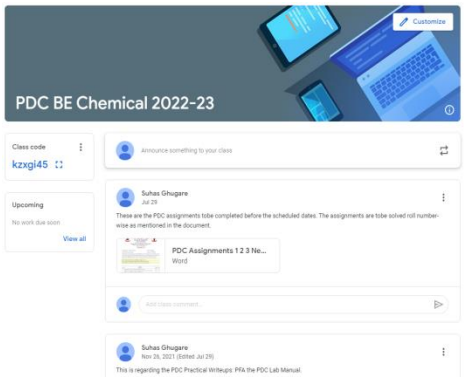
1. Google Classroom:

i. Subject: Process Dynamics & Control: Following Google Classroom was used to provide Lectures Notes, ppts, reference books, papers, question bank, model answers: (https://classroom.google.com/c/MzE5MjA5MjMwOTky?cjc=kzxgi45)

ii. Subject: Petroleum Refining: Following Google Classroom was used to provide Lectures Notes, ppts, reference books, papers, question bank, model answers: (https://classroom.google.com/c/MzE5MjA5MjMxMTAz?cjc=qx3n4n6)

iii. Subject: Principles of Design: Following Google Classroom was used to provide Lectures Notes, ppts, reference books, papers, question bank, model answers (https://classroom.google.com/c/NDY5NTMzOTkyNzA4?cjc=gwdpgyf)





2. **NPTEL Lectures:**

NPTEL lecture videos and PPTs were presented for the subject, Process Dynamics & Control

- (https://archive.nptel.ac.in/courses/103/101/103101142/)

- NPTEL lecture videos and PPTs were presented for the subject, Principles of Design (https://onlinecourses.nptel.ac.in/noc22_ch29/preview)

8. Classroom quiz sessions: This help in creating interest by breaking monotony of regular classes while enhancing the learning experience. Every year Quiz is conducted in CHEMIXIR The AIChE Student Chapter, Department of Chemical Engineering AISSMS COE Pune, organized a Quiz competition on 1st October 2021 under 16th AISSMS Engineering Today-2021, “CHEMIXER”. The quiz was organized to challenge and broaden the mind of the participants.

The quiz was conducted in 2 rounds. Quiz questions were based on Fluid Mechanics, Process Calculations, and general Science. The first round (elimination round) was based on Multiple choice questions which started at 10:30 am and ended at 11:10 am. Among several participants, 12 participants were promoted to the second round based on merit. The result of 1st round was declared at 11:30 am. The second round of the competition was based on the comprehensive question and answers which exactly started at 12:00 pm and ended at 12:45 pm between all promoted participants. Winners for the competition were decided based on marks obtained in the second round.

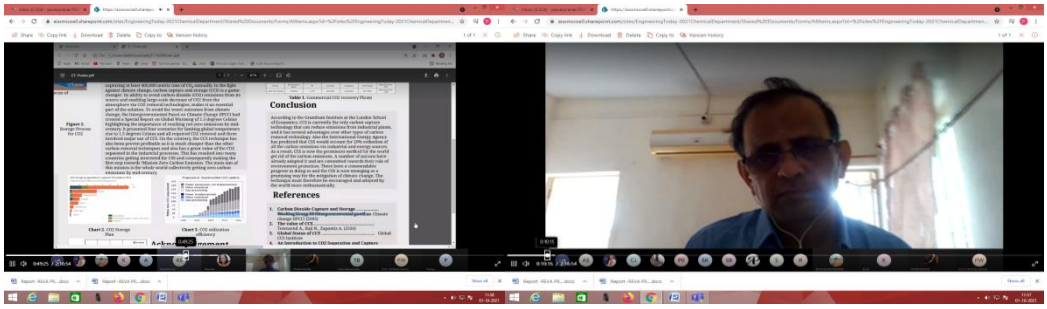
To ensure that the participants were clear with all doubts, the meeting was held at 10:00 am before the start of the competition. All rules of the competition were briefly explained in the meeting. Extending the vote of thanks, one of the student coordinators expended gratitude towards faculty coordinators and all participants. Winners of the competition were declared in the excellence award ceremony.

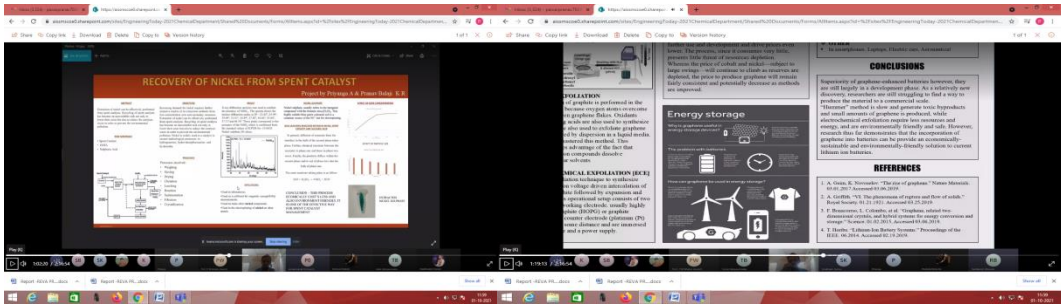
1. Mr. Darshan Desadla and Ms. Dikshita Mehta were declared as the winner and runner-up of the quiz competition respectively.

2. Students Symposium:

The department conducts Engineering Today (CHEMIXIR), an annual national level student symposium, in the month of September every year to encourage the students organizingand participating in various events to enhance their skills. The institute also conducts science exhibition where the testing facilities and projects are exhibited to SE and TE students as wellas students invited from nearby schools.

IEI Student Chapter "Chemical Engineering" Conducted Engineering Today "CHEMIXIR" event Poster Presentation Competition on 30th Sept 2021 from 10AM to 1AM. Total 6 Poster Presentation were given by the participants. Students from different colleges participated in this competition. They get a good technical platform to present their technical skills.





a) Mr. Sameer Sathe (Apptrain System, Vadodara, Consultant- Chemical Engineer and trainer) **10. Laboratory sessions** – (Spreadsheet based calculations for Process Control Lab, ASPEN, & MATLAB)

(i) The teaching of computer aided process simulation lab is usually consists of

black box teaching (Students are clueless about what the simulation software is doing for them). As an innovative practice, the students are taught to develop equations for all the equipment models that are present in the software (Aspen HYSYS) based on the conservation principles. The solution procedure along with the algorithms were discussed and analyzed

(ii) Use Microsoft Excel to teach Vapor-Liquid-Equilibrium (both Ideal and Non-ideal) calculations to find the vapor and liquid composition in a vaporization/condensation problem involving multi-components.

(iii) Use Microsoft excel to teach kinetic rate parameter estimation, reactor optimization and recycle problems. The evaluation of the kinetic parameters especially for heterogeneous reactions requires non-linear regression. This was simplified by linearizing the rate expression and Multiple-regression was used to estimate the parameters.

11. Students Internship

Students also undertake internships at renowned institutes and research organizations within India such as, IIChE Kolkatta. A large number of students also goes for industry internships. For details, please refer to Criterion B.2.2.5.

Table 5.1 List of students who have completed internship under IIChE Students' Chapter

Sr No	Name of Student	Class	Name of Course	Duration	Grade
1	Krunal Raut	BE	Applications of Matlab and Chemcad	Sept 20,2021- Nov 8, 2021	A
2	Mohamed Faiz Riyaz Momin	BE	Domestic and Agriculture Solar Energy: Commissioning to installation	Sept 15,2021-Oct 30,2021	A
3	Abhishek Ingale	BE	Application of Matlab and Chemcad	Sept 20,2021- Nov 8, 2021	A
4	Mahesh Chavan	BE	Application of Matlab and Chemcad	Sept 20,2021- Nov 8, 2021	A
5	Murtuza Charbiwala	BE	Application of Matlab and Chemcad	Sept 20,2021- Nov 8, 2021	A

6	Sakshi Deshmane	BE	Application of Matlab and Chemcad	Sept 20,2021- Nov 8, 2021	B
7	Ishant Kanchan	TE	Industrial Environmental Pollution Management	July 25, 2021- Sept10, 2021	A^+
			Two day ISO Certificate Course on Quality Management System	October 2-3, 2021	
8	Ashish Kakade	BE	Chemical Process Technology	July 15, 2021- August 23, 2021	B^+
9	Suraj Bandal	BE	Chemical Process Technology	July 15, 2021- August 23, 2021	B^+
10	Bhumika Kakade (non member)	BE	Chemical Process Technology	June 10-July 20, 2021	A+
11	Shraddha Darshale (non member)	BE	Chemical Process Technology	June 10-July 20, 2021	A+
12	Tejas Kanade (non member)	BE	Chemical Process Technology	May 08 - June 15, 2021	A
13	Kartik Joshi	TE	Big Data and Data Visualization	June 19 – July 31, 2021	B+
14	Ritesh Kolhapure (non member)	BE	Chemical Process Technology	May 08 - June 15, 2021	A
15	Sharayu Badhe (non member)	BE	Petroleum Refinery Engineering	July 15 -August 30,2021	A+

5.6. Faculty as participants in FDP/STTPs (15):

Sr no	**Name of Faculty**	**CAYm2** (AY2019-20)	**CAYm1** (AY2020-21)	**CAY m** (AY2021-22)
1	Dr P N Dange	3	4	5
2	Dr K R Jethani	2	4	5
3	Dr A S Jadhav	3	5	5

4	Dr M Y Naniwadekar	5	5	5
5	Dr S B Ghugare	2	3	3
6	Prof P M Warke	5	5	5
7	Prof K N Bavankar	0	3	5
8	Prof H L Kamble	5	2	5
9	Prof A V Mohod	5	5	0
10	Prof K B Gandhi	2	2	3
11	Prof P S Tadkar	2	2	5
	SUM	34	40	46
	RF= Number of Faculty required to comply with 20:1 Student-Faculty ratio as per 5.1	16.46	16.38	14.86
	Assessment = 3 × (Sum/0.5RF) (Marks limited to 15)	12.39	11.35	9.28
	Average assessment over three years (Marks limited to 15) =	11.00		

5.7. Research and Development (30)

5.7.1. Academic Research (10)

- **Academic research includes research paper publications, , and faculty receiving Ph.D. during the assessment period.**

A) Research papers in referred/ SCI indexed journals

2022-2023

Sr. No	Title of Paper/Book/Chapters	Name of the author/s	Name of Journal/Books publisher	Index of Journal	Year of publication	DOI	Citations
1	Improvements in crystallization of Copper sulphate using ultrasound and comparison with conventional method	Ashish Modod,S Bangadkar,S Singh,M Bagal,,P Gogate	Chemical Engineering and Processing Process intensification	Scopus	2022-23	DOI:10.1109/TUFFC.2002.1049740	--
2	Effect of additives on degradation of polyvinyl alcohol (PVA) using ultrasound and microwave irradiation	M Bagal, R Saini,Abdul Rahim ,S Patil, A Mohod, D Pinjari	International journal of Polymer Processing	Scopus, SCI	2022-23	https://doi.org/10.1515/ipp-2022-4232	--
3	Degradation of dye in a continuous zig zag flow pattern photo catalytic reactor using Doehlert matrix	Manisha Bagal,Gajanan Kumbhar, Shankar Shukla, Ashirwad Tiwari, Dhammadip Gajbhiye,Ashish Mohod	Chemical Engineering Research and Design	Scopus, SCI	2022-23	https://doi.org/10.1016/j.cherd.2022.09.019	--
4	Influence of reaction parameters on Oxalic acid crystallisation using conventional and ultrasonication : Doehlert matrix	Manisha Bagal,Saurabh Patil, Kiran Shinde,Sonali Singh ,Ashish Mohod [b]	Journal of Crystal Growth	Scopus, SCI	2022-23	https://doi.org/10.1016/j.jcrysgro.2022.126717	--
2021-2022							
5	Effect of Stabilizer addition on size and shape	Mayuri S Pawar ,P N	International Journal of All	UGC ,Thoms	2021-22	--	--

	factor of Silver Nanoparticles	Dange,Srinivasa A	Research Education and Scientific Methods	on Reuters			
6	Extraction of Pectin from Orange Peels:Optimization ,Charaterization and Utilization Studies	Anjali V Tajane	International Journal of All Research Education and Scientific Methods	UGC ,Thomson Reuters	2021-22	--	--
7	Optimization of esterification of palm fatty acid using conventional approach and its comparison with ultrasonic and microwave irradiation	M Bagal,B Deb, T Unaharia, V Ranjan, , A Mohod	Energy Ecology and Environment	Scopus	2021-22	DOI:10.1007/s40974-021-00206-5	
2020-2021							
8	Adsorption of heavy metal on active carbon derived from coconut leaves agro-waste	A S Jadhav	Chemistry and Chemical Technology	Scopus	2020-21	10.23939/chcht14.04.553	--
9.	Quantitative risk analysis of alkylation technologies to quantify benefits of ionic liquid alkylation	Asmita S Kulkarni, P N Dange	Journal of Research and Analytical Reviews	UGC Approved	2020-21	--	--
10	Design of 40 KLPD absolute	Mangesh Kulkarni,	Journal of Innovative	Google Scholar	2020-21	--	--

	alcohol plant by MSDH Process	Rajendra Raut	Research and Technology				
11	Intensified synthesis of biodiesel using low cost feedstock and catalyst via conventional as well as ultrasonic irradiation based approach	R Thakur.A Mohod, N Bhaskar, M Bagal	South African Journal of Chemical Engineering	Scopus	2020-21	https://doi.org/10.1016/j.sajce.2020.05.003	
2019-2020							
12	'Heterogeneous Synthesis of Ethyl Butyrate: Parameter Optimization and Kinetic Studies'	Dr. P. N. Dange and V. K. Rathod	Catalysis in Green Chemistry and Engineering	SCI	2019-20	10.1615/CatalGreenChemEng.2019030634	--
13	'Design and Mathematical Modeling of Cyclone Separator Using Openfoam'	M. Kulkarni and P. N. Dange	International Journal of Research Analysis and Reviews		2019-20	--	--
14	Ferets diameter estimation of activated carbon for effluent treatment application	Abhijit Jadhav, Govindaraj Thangaraj Mohanraj, Ashok Gokarn, Suseeladevi Mayadevi	Journal of Indian Chemical Society	SCI	2019-20		1

15	Rapid method for determination of nano surface area of arecanut shell derived activated carbon by iodine adsorption number	Abhijit Jadhav, Govindaraj Thangaraj Mohanraj, Ashok Gokarn, Suseeladevi Mayadevi	News of the National Academy of Sciences of the Republic of Kazakhstan. Series of chemistry and technology	Scopus	2019-20	https://doi.org/10.32014/2018.2518-1491.26	2
16	Co-gasification of High Ash Coal–Biomass Blends in a Fluidized Bed Gasifier: Experimental Study and Computational Intelligence-Based Modeling	Tiwary, S., Ghugare, S.B., Chavan, P.D., Saha, S., Datta, S., Sahu, G. and Tambe, S.S.	Waste and Biomass Valorization	SCI	2019-20	https://doi.org/10.1007/s12649-018-0378-7	8
17	Treatment of Methylene Blue Dye Using Immersed Lamp Photocatalytic Reactor: 5 L Scale Study	Pravin S. Tadkar• Palas K. Borkar • Sayali N. Gholap• Vitthal L. Gole	J. Inst. Eng. India Ser. E	Scopus	2019-20	https://doi.org/10.1007/s40034-019-00150-4	5
	Design of 40 KLPD absolute alcohol plant by MSDH Process	Mangesh Kulkarni and Rajendra Raut	International Journal of Innovative Research and	Index Copernicus	2019-20	--	--

3.

			Technology				

- Ph.D. awarded during the assessment period while working in the institute (4)

Faculty receiving Ph.D	**CAY m1 (2019-20)**	**CAY m2 (2020-21)**	**CAY m (2021-22)**
A S Jadhav			✓

-

- **Ph.D. guidance- Nil**

5.7.2. Sponsored Research (5)

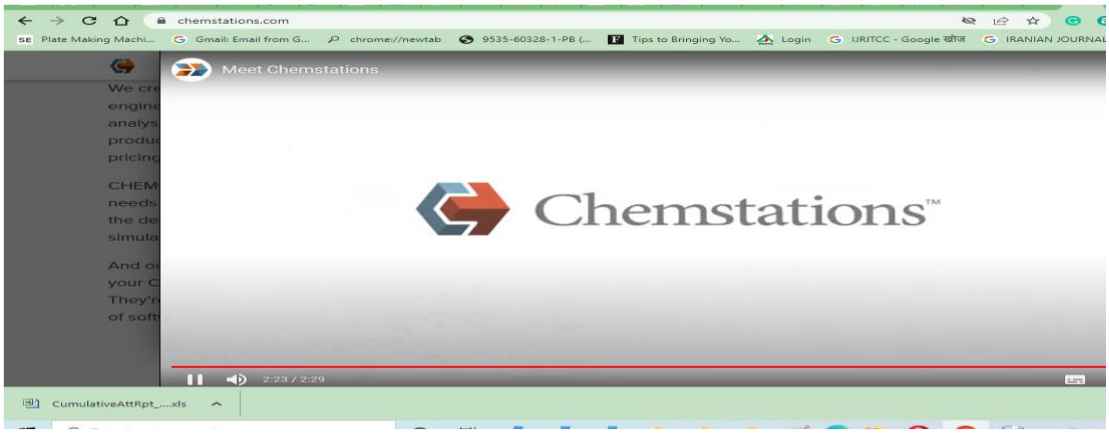
Name of Principal Investigator	**Duration of project**	**Name of the research project**	**Amount / Fund received**	**Name of funding agency**	**Year of sanction**
Dr P N Dnage	One Year	Computer aided design of scrubber treating waste gases		Patpert Ltd Pune	2020-21
Dr P N Dnage	Solution based	Treatment of Industrial Waste Water using advanced oxidation Process		Azeocryst Organics Ltd Mumbai	2020-21
Dr M Y Naniwadekar	One Year	Dehydration of Magnecium chloride hexahydarte to anyhydrous form		Azeocryst Organics Ltd	2020-21
Dr M Y Naniwadekar	One Year	Production of sodium hex meta phosphate		REVA Process	2020-21
Prof P M Warke	Consultancy	Testing of COD and BOD	2000	Azeocryst Organics Ltd	2020-21
Dr M Y Naniwadekar	Consultancy	Process Development		REVA Process	2021-22

				Technologies	

5.7.3. Development activities (10)

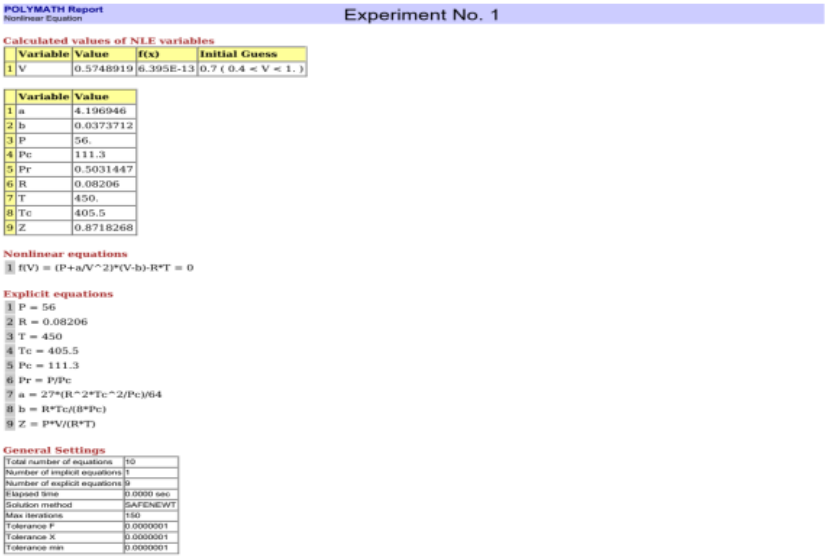
- **Research laboratories:**

  (1) PG & Research Computer Laboratory: The department has computer laboratory equipped with high performance computers and high end softwares like UNISIM ,Chem CAD, that can be utilized for research purpose. Research projects are using this software for Simulation and Modelling of process



- **Instructional materials:**

  Faculty members have created Lab Manuals for each subject which help students toerform practical's during Laboratory hours. E.g Lab manual of CACHE-I is prepared using POLYMATH SOTFWARE.



POLYMATH Report
Nonlinear Equation

Experiment No. 1

Calculated values of NLE variables

	Variable	Value	f(x)	Initial Guess
1	V	0.5748919	6.395E-13	0.7 (0.4 < V < 1.)

	Variable	Value
1	a	4.196946
2	b	0.0373712
3	P	56.
4	Pc	111.3
5	Pr	0.5031447
6	R	0.08206
7	T	450.
8	Tc	405.5
9	Z	0.8718268

Nonlinear equations

1 f(V) = (P+a/V^2)*(V-b)-R*T = 0

Explicit equations

1 P = 56
2 R = 0.08206
3 T = 450
4 Tc = 405.5
5 Pc = 111.3
6 Pr = P/Pc
7 a = 27*(R^2*Tc^2/Pc)/64
8 b = R*Tc/(8*Pc)
9 Z = P*V/(R*T)

General Settings

Total number of equations	10
Number of implicit equations	1
Number of explicit equations	9
Elapsed time	0.0000 sec
Solution method	SAFENEWT
Max iterations	150
Tolerance F	0.0000001
Tolerance X	0.0000001
Tolerance min	0.0000001

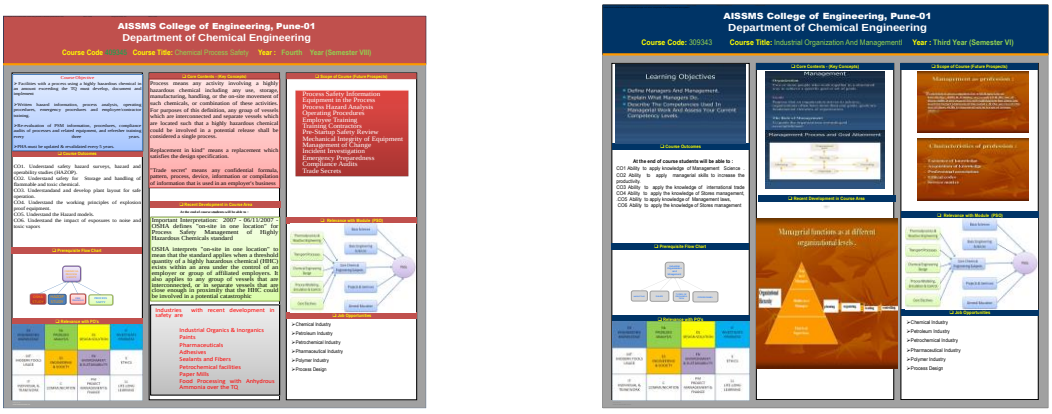
a) Practical lab manual with for CACHE-I Subject using Polymath Software

- **Working models & charts**

(1) The department has working models available for Theory of machine lab. Also relevant projects done by final year students are kept in the respective labs.

(2) Charts prepared by faculty members are displayed in the respective laboratory.

(3) Knowledge wall flex boards are displayed outside each laboratory.



a) Knowledge wall of Subjects CPS and IOM

Consultancy (from Industry) (5)

Name of Principal Investigator	Duration of project	Name of the research project	Amount / Fund received	Name of funding agency	Year of sanction

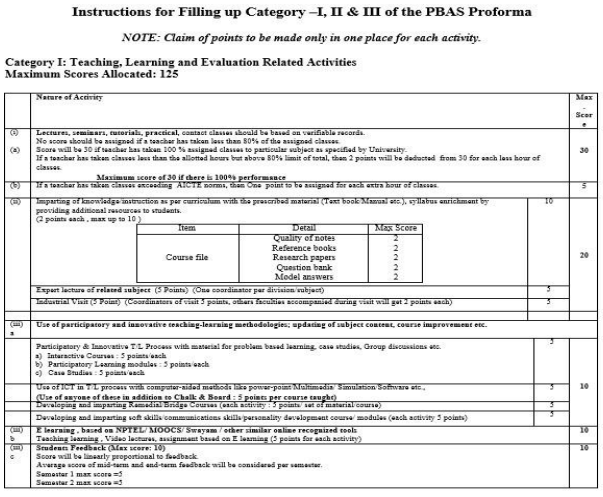
Prof P M Warke	Consultancy	Testing of COD and BOD	2000	Azeocryst Organics Ltd	2020-21
Dr Kirti Datir	Consultancy	Process Development		Sarbi Petroleum And Chemicals Pvt Ltd	2021-22
Dr M Y Naniwadekar	Consultancy	Process Development		REVA Process Technologies	2021-22

5.8. Faculty Performance Appraisal and Development System (FPADS)(30)

The college has following appraisal and development schemes for faculty:

Performance based appraisal scheme (PBAS) :

The college has well defined faculty appraisalsystem. The PBAS details are submitted by each faculty at the end of each semester. The performance is assessed by Head of department as well as Head of the institution. The faculty feedback is also collected from the students at mid and end of the semester. The feedback is assessed by Head of the department and appropriate feedback/suggestions are given to the faculty for the improvement.



Instructions for Filling up Category –I, II & III of the PBAS Proforma

NOTE: Claim of points to be made only in one place for each activity.

Category I: Teaching, Learning and Evaluation Related Activities
Maximum Scores Allocated: 125

	Nature of Activity		Max Score
(i) (a)	Lectures, seminars, tutorials, practical, contact classes should be based on verifiable records. No score should be assigned if a teacher has taken less than 80% of the assigned classes. Score will be 30 if teacher has taken 100 % assigned classes to particular subject as specified by University. If a teacher has taken classes less than the allotted hours but above 80% limit of total, than 2 points will be deducted from 30 for each less hour of classes. **Maximum score of 30 if there is 100% performance**		30
(b)	If a teacher has taken classes exceeding AICTE norms, than One point to be assigned for each extra hour of classes.		5
(ii)	Imparting of knowledge/instruction as per curriculum with the prescribed material (Text book/Manual etc.), syllabus enrichment by providing additional resources to students. (2 points each , max up to 10)	10	20
	Item: Course file — Detail: Quality of notes, Reference books, Research papers, Question bank, Model answers — Max Score: 2, 2, 2, 2, 2		
	Expert lecture of related subject (5 Points) (One coordinator per division/subject)	5	
	Industrial Visit (5 Point) (Coordinators of visit 5 points, others faculties accompanied during visit will get 2 points each)	5	
(iii) a	**Use of participatory and innovative teaching-learning methodologies; updating of subject content, course improvement etc.**		
	Participatory & Innovative T/L Process with material for problem based learning, case studies, Group discussions etc. a) Interactive Courses : 5 points/each b) Participatory Learning modules : 5 points/each c) Case Studies : 5 points/each	5	10
	Use of ICT in T/L process with computer-aided methods like power-point/Multimedia/ Simulation/Software etc., **(Use of anyone of these in addition to Chalk & Board : 5 points per course taught)**	5	
	Developing and imparting Remedial/Bridge Courses (each activity : 5 points/ set of material/course)	5	
	Developing and imparting soft skills/communications skills/personality development course/ modules (each activity 5 points)	5	
(iii) b	**E learning , based on NPTEL/ MOOCS/ Swayam / other similar online recognized tools** Teaching learning , Video lectures, assignment based on E learning (5 points for each activity)		10
(iii) c	**Student Feedback (Max score: 10)** Score will be linearly proportional to feedback. Average score of mid-term and end-term feedback will be considered per semester. Semester 1 max score =5 Semester 2 max score =5		10



(iii) d	**Result Analysis (Max score: 20)** No score should be assigned if a subject result is below 50%. Score will be proportional to % of results, as score = [(result in %) * 2]/10 If faculty is handling more than one subject, than average score of the subjects will be considered.		20
(iv)	**Examination Related Work**		10
	SN: 1 — Indicators: University Examination work as per duties allotted — Type of duty: Senior Supervisor, Junior Supervisor, Evaluation of answer sheets, Coordination, Any other — Max. Score: 10		
	SN: 2 — Indicators: College Examination — Type of duty: Coordinator, Question paper setting, Evaluation of answer sheets, Any other — Max. Score: 5		
(v)	**Project (Max score: 10)**		10
	Industrial collaboration/ Sponsorship (Max marks 3): 3 Project apart from curriculum (Max marks 3): 3 External funding (Max marks 3): 3 Award (Max 3 marks): 3 Project success in terms of Students participation in event / Students publication. (Max 3 marks): 3		
	Special case For HMCT No of students guided — 1 mark per 2 students (max marks 4) Evaluation of project by external examiner — 6 marks (average of students guided to a percentage score of 6)		

Category II: Co-Curricular, Extension and Professional Development Related Activities.
Maximum Scores Allocated: 50

S.No.	Nature of Activity		Max. Score
(i)	**Extension and Co-curricular , Extension and Professional Development Related Activities**		
	Field studies(1 mark for 2 hours) educational tours/Any extra industrial visit not considered in category I - 5 marks to be given, industrial/ in-plant training (**of minimum 8 hours or 1 day**) and placement activity (**1 mark per activity**)	5	10
	Social / cultural/ sports program 5 points per activity to main coordinator 2 point per activity to sub-coordinators	5	
	Campus publications: Departmental level Institutional level	2 5	
(ii)	**Contribution to Corporate Life and Management of the Institution**		

(1) Recognition of Excellence award: The faculty members completing PhD and significant contribution in academics are awarded by the AISSMS Society every year 42conferring Recognition of excellence award with memento and certificate on the day of Shahu Jayanti. Etc.

Dr A S Jadhav received Excellence award for donating masks in gram.





a) Prof A S Jadhav and Prof R S Raut received award as AISSMS COVID Warrior



b) Award through ANUSAYA FOUNDATION Dhayari, Chairperson Mrs. Swati Sachin Pokkale

(2) Module co-ordinators : The department has module coordinator system for improvement in academics. Seniors faculty members are assigned as a module coordinators. The module coordinatorassess the course file of every faculty members in the module and give suggestions for the improvement. Following are the modules and module co-coordinators at department level.

(3) Support for Higher Studies: The faculty members persuing higher studies are awarded with financial assistance of Rs.1 lakh or One month study leave as per the choice of the faculty. The faculty member is permitted to carry out research studies by adjusting the teaching load in the morning slot andrest of the time can be utilized for study. Dr A S Jadhav awarded fianancial assistance of Rs One Lakh for his PhD Purpose

(4) Financial assistance for attending FDP/QIP/STTP/International Conferences: The faculty member

is permitted on duty leave to attend the respective quality improvement program. The financialassistance is provided for payment of registration fees, travel fare and accommodation to attend international conference





a) International Conference on Material Science at Dubai b) Materials conference at London

(5) Project work

Mini projects and final year projects are carried out by a group of students under the guidance of faculty wherein students apply the knowledge of all related courses in design and development of processes and solving actual industrial problems.



5.9. Visiting/Adjunct/Emeritus Faculty etc. (10)

The department has provison for visiting faculty for the subject Advanced Mathematics at PG level. Following are the details of the faculty:

Year	Visiting/Adjunct/Emeritus Faculty
CAY m (2021-22)	---

CAYm2 (2020-21)	---
CAYm1(2019-20)	1 Dr. Vivek Vitankar 2. Mr S U Lokahnde



AISSMS
COLLEGE OF ENGINEERING

Dr D S Bormane
Principal

Ref. : AISSMSCOE/PRIN/ 1084 /2019-20
Date : 04 FEB 2020

OFFICE ORDER

Subject: Appointment as Visiting Faculty.

Ref : Approved submission letter No. AISSMSCOE/PRIN/1084/2019-20 dated 04.02.2020

We have pleasure to inform you that with effect from 03 February 2020 you are hereby appointed as Visiting Faculty in Chemical Engineering (TE Chemical Engineering) in Department of Chemical Engineering of All India Shri Shivaji Memorial Society's College of Engineering, Kennedy Road, Pune - 411001, on honorarium of Rs.600/- per clock hour for theory period and Rs.300/- per clock hour for practical as per the teaching load assigned to you by the HOD.

Your appointment is on purely temporary and on clock-hour basis (CHB).

Dr D S Bormane
Principal

To

Shri Sohas Ulhas Lokhande
Smitharsh, Plot No. 10, Mahatma Society
Nate Gandhi Bhavan, Kothrud
Pune - 411038

C.C. to HOD for information and needful (forward a copy of individual time-table showing the details of teaching load assigned).



ORDER OF APPOINTMENT

Date: 10 MAR 2022

No.AISSMSCOE/EST-APT/PRIN/625-A /2021-22

To

Shri Pravin Ramdas Jedhe
Sr Design Engineer
Puspet Teknow Systems Pvt. Ltd
Sr No. 52/70-2, Plot No 11, Near Burhani Park
Tilkar Nagar, Kamji-Kondhwa Road, Pune - 411048

Subject : Appointment to the post of Adjunct Professor in Chemical Engineering.

I am pleased to appoint you on temporary basis for the post of **Adjunct Professor in Chemical Engineering** in All India Shri Shivaji Memorial Society's College of Engineering, Kennedy Road, Pune – 411 001, for a period from 10.03.2022 or from the date of assuming the charge of the post.

You are required to communicate your acceptance on or before 20.03.2022, failing which it will be presumed that you are not interested in the offer and this appointment will be treated as cancelled.

The appointment is subject to the following terms and conditions:

1. You will require for conducting advance topics and project based learning in Chemical Engineering and receive honorarium of Rs. 1000/- per hour / lecture.
2. You will be required to devote one working days per week to the College.
3. You will be required to maintain students attendance record or any other information on the present day.
4. Your appointment is purely on temporary basis for the period from 10.03.2022 till the staff member selected by the Selection Committee constituted by Savitribai Phule Pune University join their duties or till 31.05.2022 whichever is earlier.
5. You are not entitled for vacation or any kind of leave. After the expiry of the above period, your services shall remain automatically terminated without any notice and you shall have no claim whatsoever on the said post.
6. The appointment can be terminated, at any time, by either side / party, by giving one month notice.
7. The terms of this offer are subject to the approval of AISSMS Governing Council. In case of the non-approval or a change in the terms of the offer, AISSMS or the appointee is free to terminate or quit the service, as applicable.

MalojirajeChhatrapati
HONORARY SECRETARY
The All India Shri Shivaji Memorial Society's
Pune-411 005.

Copy to the Principal AISSMS College of Engineering, Pune -1, for information and necessary action.

CRITERION 6	FACILITIES AND TECHNICAL SUPPORT	80

6.1 Adequate and well equipped laboratories, and technical manpower (30)

Sr. No	Name of the Laboratory	Number of students per set up (Batch Size)	Name of the Important Equipment	Weekly utilization status (all the courses for which the lab is utilized)	Technical Manpower Support		
					Name of the Technical staff	Designation	Qualification
1	Chemistry Laboratory	20	• Digital Weighing Balance • Flame Photometer • Digital Colourimeter • Single Pan Balance	12 Hrs (40%)	Ms. K C Rathod	Lab. Assistant	Diploma Chem.
2	Process Dynamics & Control/Process Instrumentation& Control	20	• On-off controller set up • PID controller setup (Trainer) • Interacting and Non-Interacting System • PC based PID Controller • Refractometer • Conductivity meter	8 Hrs (26%)	Mr. N B Jagtap	Sr. Lab. Assistant	MSc. Analitycal Chem.
3	Mechanical Operations/ Fluid Mechanics	20	• Sigma mixer • Vibrating Screen Setup • Blake Jaw Crusher • Ball Mill • Gyratory Sieve Shaker • Magnetic Separator • Verification of Bernoullis Theorem	8 Hrs (26%)	Mr. N B Jagtap	Sr. Lab. Assistant	MSc. Analitycal Chem.

			• Flow measurement by Venturimeter and Orificemeter • Losses in Pipe fitting • Pipe Friction (Recirculating type) • Reynolds Apparatus				
4	Mass Transfer-I	20	• Natural Draft Tray dryer • Diffusion in Still Air • Fluidized bed dryer • Humidification Equipment • De- humidification Equipment • Wetted Wall Column • Cooling Tower • Gas Absorption Column with Sieve Tray	16 Hrs (53%)	Mr. A S Deshpande	Lab. Assistant	Diploma Chem.
5	Mass Transfer-II	20	• Fractional Distillation Unit • Bubble Cap Distillation Column • Sieve Plate Distillation Column	16 Hrs (53%)	Mr. A S Deshpande	Lab. Assistant	Diploma Chem.
6	Chemical Reaction Engineering	20	• Continuous Stirred Tank Reactor • Plug Flow Reactor • Temperature Controlled Water Bath • Magnetic Stirrer with Temperature Indicator	16 Hrs (53%)	Ms. K C Rathod	Lab. Assistant	Diploma Chem.
7	Heat Transfer	20	• Natural convection apparatus • Heat transfer from a cylindrical spine in natural convection	8 Hrs (26%)	Mr. R S Mane	Lab. Assistant	Diploma Chem.

			• Stefan Boltzman apparatus • Thermal conductivity of metal rod • Lagged pipe apparatus • Heat transfer in Forced Convection • Thermal Conductivity of Insulating Powder • Shell & Tube Heat Exchanger • Finned tube heat exchanger • Double Pipe Heat Exchanger • Plate Type Heat Exchanger				
8	Software Laboratory	20	• Lenovo i3 ThinkCentre Desktop PCs, • MATLAB, Simulink and Tool boxes • AutoCAD perpetual Licence • Unisim Design Academic Programe • ChemCAD (CC) Software • Ansys FLUENT CFD Academic Teaching	23 Hrs (76%)	Mr. R S Mane	Lab. Assistant	Diploma Chem.
9	Project Laboratory	10	• Chemito UV/Vis Spectrophotometer • Autoclavable Bioreactor • Water Bath with Heater and Stirrer • Simple Distillation	12 Hrs (40%)	Mr. A S Deshpande	Lab. Assistant	Diploma Chem.

			Unit • Digital COD digester • High Speed Centrifuge • Air Compressor				
10	Central Research Laboratory	5	• Environmental Discovery System (EDS) • Biodiesel Manufacturing Prototype Model	4 Hrs (13%)	Ms. K C Rathod	Lab. Assistant	Diploma Chem.

6.2 Additional facilities created for improving the quality of learning experience in laboratories (25)

Sr. No	**Facility Name**	**Details**	**Reason(s) for creating facility**	**Utilization**	**Areas in which students are expected to have enhanced learning**	**Relevance to POs/PSOs**
1	Environmental Discovery System (EDS) created in collaboration with VESBE Germany	The EDS was created in collaboration with VESBE Germany in the Central Research Lab.	For research study of water treatment systems	B.E. Chemical and Civil Engg. Research projects on water treatment systems	Water treatment	PO1, PO2, PO3, PO4, PO5, PO7, PO11, PO12/ PSO1, PSO2
2	Sewage Treatment Plant (STP)	The waste water treatment facility working on the	For waste water treatment of the institute and related research study	Institute waste water treatment and B.E. Chemical Research projects	Waste water treatment	PO1, PO2, PO3, PO4, PO5, PO7, PO11, PO12/ PSO1, PSO2

		principle of cavitation is installed in workshop, which treats the waste water of the institute				
3	Biodiesel Manufacturing Prototype Model	The biodiesel manufacturing prototype model is a working Lab-scale system for study and research of biodiesel production	Study of biodiesel manufacturing and related research	B.E. Chemical Engg. Research projects on biodiesel synthesis	Sustainable energy	PO1, PO2, PO3, PO4,PO5, PO7, PO11, PO12/ PSO1, PSO2
4	Double Beam UV Spectrophotometer	Analytical Instrument created in the Project lab.	For analytical work in research projects	Research and final year projects	Analytical procedures	PO1, PO3, PO5/PSO1, PSO2
5	Ratio Control Setup	Ratio Control Setup created in the PDC lab	Study of complex control system	B.E. Chemical practical in the subject: Process Dynamics & Control	Concepts of complex control schemes	PO1, PO3, PO4,PO5/PSO1, PSO2
6	Conductivity type level controller	Conductivity type level controller created in the PDClab	For study of level control	B.E. Chemical practical in the subject: Process Dynamics & Control	Concepts of basic control schemes	PO1, PO3, PO4,PO5/PSO1, PSO2
7	Digital	Water and Soil Analysis	Demonstration of analytical	Research and	Analytical methods for	PO1, PO3, PO5, PO7/PSO1, PSO2

	Water & Soil Analysis Kit	kit created in the Chemistry Lab.	methods for Water and Soil	final year projects	Water and Soil analysis	
8	Ultrasonic Horn	Ultrasonic Probe Sonicator apparatus created in the CRE Lab.	Study of ultrasound assisted reactions or processes	Research and final year projects	Process intensification and waste water treatment	PO1, PO2, PO3, PO5, PO7/ PSO1, PSO2
9	ANSYS Fluent CFD Software	ANSYS Fluent 7.2 version software installed in Software Lab.	Acquainting students with use of CFD software	Research and final year projects	CFD software for simulation of flow systems	PO1, PO2, PO3, PO4, PO5/ PSO1, PSO2
10	Scilab FOSS Software	Scilab 6.1.0 version software installed in Software Lab.	Acquainting students with use of FOSS numerical analysis and simulation software	BE Chemical practicals in the subject, Process Dynamics and Control	FOSS software for Numerical analysis and simulation of dynamic systems	PO1, PO2, PO3, PO5/ PSO1, PSO2
11	DWSIM FOSS Process Simulation Software	DWSIM Process Simulation Software 6.5.3 version software installed in Software Lab.	For simulation of simple to advanced chemical processes	BE Chemical practicals in the subject, CACHE-II and Process Modeling and Simulation	FOSS software for Process simulation	PO1, PO2, PO3, PO5/PSO1, PSO2
12	High Speed Centrifuge	Centrifuge equipment facility	For separation of solid form liquid	Research and final year projects	Separation Techniques	PO1, PO2, PO3/PSO1, PSO2

		created in the Project lab.				
13	Autoclavable Bioreactor	Bioreactor facility created in the Project lab.	For study of bioreactions	Research and final year projects	Biochemical reactions	PO1, PO2, PO3, PO4,PO5/ PSO1, PSO2
14	IR Oven	IR oven facility created in the Project lab.	For study of IR assisted reactions	Research and final year projects	Advanced reactor analysis and process intensification	PO1, PO2, PO3, PO5/PSO1, PSO2
15	Ultra Sonic Bath	Ultrasonic Bath created in the Project lab.	Study of ultrasound assisted reactions or processes	Research and final year projects	Process intensification andwaste water treatment	PO1, PO2, PO3, PO6,PO7/ PSO1, PSO2

6.3 Laboratories: Maintenance and overall ambiance (10)

All the laboratories are well equipped with latest equipments that are regularly serviced and maintained. All the laboratories have sufficient area for conducting practical as per the syllabus.

(A) Laboratory Maintenance

i. Regular and preventive maintenance of the equipments is carried out at the beginning and at the end of each term.
ii. History cards are maintained for each equipment indicating the maintenance/ servicing/ repair details of the equipment as recorded.
iii. Maintenance schedule and report of equipments are recorded in each semester.
iv. Old equipments beyond repair are discarded as write-off and consequently new equipments are purchased to replace them.
v. All electrical connections in the laboratories are regularly checked for avoiding any electrical hazards.
vi. Antivirus software is installed on each computer in the department for the protection against computer virus.
vii. The maintenance of Computer Hardware is done under Annual Maintenance Contracts (AMC).

(B) Laboratory Ambiance

i. Good light and ventilation is maintained in all the laboratories.
ii. Proper exhaust and drainage facilities are provided in the laboratories.
iii. Regular cleaning of all the laboratories is maintained for good ambiance.
iv. Working and safety instruction sheets are displayed in each laboratory.
v. The equipments are spaced appropriately for easy and safe operations in each laboratory.

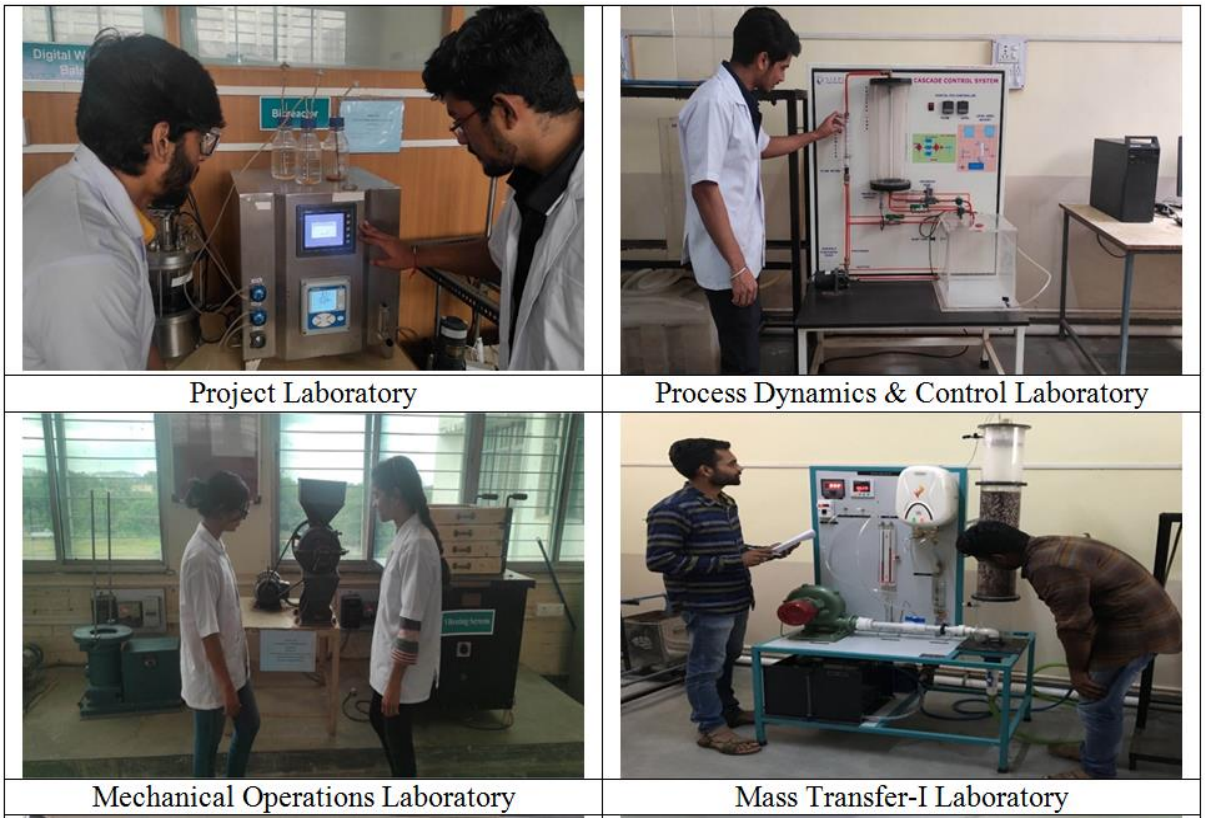


Fig. 6.3.1 Students performing experiments in various laboratories

6.4 Project laboratories (5)

The project laboratory is equipped with latest processing and analytical equipments which are utilized by the students and faculty members of Chemical Engineering for research and project work. The central research laboratory is equipped with the Environmental Discovery System (EDS) created in collaboration with VESBE Germany, which is utilized for research and development work on water treatment. A novel cavitation-based effluent sewage treatment plant (STP) is installed by the department, which is utilized for the waste water treatment of the college.

Some of the major facilities available in the project laboratory are:

- IR Oven
- Autoclavable Bioreactor Setup
- Chemito UV/Vis Spectrophotometer
- Ultrasonic Bath
- High Speed Centrifuge
- Microwave Oven
- Heating Mantles
- Digital COD digester with accessories
- Iodine Value Meter



Project Laboratory



Analytical Instruments

Fig. 6.4.1 Facilities in project laboratory

6.5 Safety measures in laboratories (10)

- All the laboratories are equipped with proper safety devices for the safe operation of equipments.
- Laboratory in-charges and assistants ensure the safety of all students during the progress of practicals.
- Safety audits of each laboratory is carried out before the commencement of each term.
- All electrical connections are properly earthed.
- Special safety devices such as apron, handgloves and safety goggles are used in laboratories while handling hazardous chemicals.
- First-aid box for primary medical treatment are installed in each major laboratory at appropriate location for easy access.

Sr. No	Laboratory Name	Safety Measures
1	Chemistry (Room no. 302)	Apron, goggles and handgloves are available for conducting the experiments. The lab is equipped with exhaust fans and first-aid box. Fire Extinguishers are installed and Safety Instruction Sheet is displayed
2	Process Dynamics & Control/Process Instrumentation & Control(Room no. 319)	Fire Extinguishers are installed, first-aid boxes are available and Safety Instruction Sheet are displayed
3	Mechanical Operations/Fluid Mechanics (Room no. 321)	Fire Extinguishers are installed, first-aid boxes are available and Safety Instruction Sheet are displayed
4	Mass Transfer-I (Room no. 322)	Apron, goggles and handgloves are available for conducting the experiments. The labs are equipped with exhaust fans and first-aid boxes. Fire Extinguishers are installed and Safety Instruction Sheet displayed
5	Mass Transfer-II (Room no. 323)	Apron, goggles and handgloves are available for conducting the experiments. The labs are equipped with exhaust fans and first-aid boxes. Fire Extinguishers are installed and Safety Instruction Sheet displayed
6	Chemical Reaction Engineering (Room no. 327)	Apron, goggles and handgloves are available for conducting the experiments. The labs are equipped with exhaust fans and first-aid boxes. Fire Extinguishers are installed and Safety Instruction Sheet displayed
7	Heat Transfer (Room no. 328)	Fire Extinguishers are installed, first-aid boxes are available and Safety Instruction Sheet are displayed
8	Project (Room no. 330)	Apron, goggles and handgloves are available for conducting the experiments. The lab is equipped with exhaust fans and first-aid boxes. Fire Extinguisher is installed and Safety Instruction Sheet displayed
9	Software (Room no. 329,353)	Fire Extinguishers installed and first-aid box available, Antivirus software is installed on all PCs.
10	Central Research (Room no. 448, 449)	Apron, goggles and handgloves are available for conducting the experiments. The lab is equipped with exhaust fans and first-aid boxes. Fire Extinguisher is installed and Safety Instruction Sheet displayed

	
Safety during industrial visit	Fire Extinguisher in Laboratory

Fig. 6.5.1 Safety measures in the department

CRITERION 7	CONTINOUS IMPROVEMENT	50

7. CONTINUOUS IMPROVEMENT (50)

7.1. Actions taken based on the results of evaluation of each of the POs & PSOs (20)

Identify the areas of weaknesses in the program based on the analysis of evaluation of POs & PSOs attainment levels. Measures identified and implemented to improve POs & PSOs attainment levels for the assessment years.

Actions to be written as per table in 3.3.2.

Examples of analysis and proposed action

Sample 1-Course outcomes for a laboratory course did not measure up, as some of the lab equipment did not have the capability to do the needful (e.g., single trace oscilloscopes available where dual trace would have been better, or, non-availability of some important support software etc.). Action taken-Equipment up-gradation was carried out (with details of up-gradation)

Sample 2-In a course on EM theory student performance has been consistently low with respect to some COs. Analysis of answer scripts and discussions with the students revealed that this could be attributed to a weaker course on vector calculus.

Action taken-revision of the course syllabus was carried out (instructor/text book changed too has been changed, when deemed appropriate).

Sample 3-In a course that had group projects it was determined that the expectations from this course about PO3 (like: “to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations”) were not realized as there were no discussions about these aspects while planning and execution of the project. Action taken-Project planning, monitoring and evaluation included in rubrics related to these aspects.

A. Continuous improvement of POs in cognitive domain and PSOs

The follow-up action plan for the subsequent academic year is recommended for those courses in which the targets of POs and PSOs are not achieved. The improvement in attainment of POs and PSOs are monitored in subsequent year.

PO/PSO Attainment: Cycle - 1														
PO/PSO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
Direct attainment (X)	1.32	1.17	1.01	1.21	1.17	1.81	1.94	1.63	1.02	1.46	1.22	1.34	1.19	1.01
Indirect (Exit Survey)	2.13	2.13	2.07	2.00	2.07	2.00	2.07	2.40	2.47	2.20	1.87	2.00	2.00	1.93
Indirect (Employer Survey)	2.78	2.63	2.70	2.70	2.55	2.93	2.78	2.93	3.00	2.85	2.70	2.85	2.72	2.63
Indirect (Alumni Survey)	2.40	2.42	2.40	2.33	2.21	2.40	2.47	2.45	2.30	2.20	2.10	2.30	2.46	2.30
Indirect (Parent Feedback)	2.43	2.47	2.30	2.10	2.10	2.40	2.37	2.21	2.40	2.10	2.10	2.10	2.44	2.45
Total Indirect (Y)	2.43	2.41	2.37	2.28	2.23	2.43	2.42	2.50	2.54	2.34	2.19	2.31	2.41	2.33
PO Attainment (0.8X +0.2Y)	1.54	1.42	1.28	1.43	1.38	1.93	2.03	1.81	1.32	1.64	1.42	1.53	1.43	1.27

Target and Gap														
PO Target	1.25	1.25	1.00	1.00	1.00	0.75	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00
Gap	-0.29	-0.17	-0.28	-0.43	-0.38	-1.18	-1.28	-1.06	-0.57	-0.89	-0.67	-0.78	-0.43	-0.27

POs & PSOs Attainment Levels and Actions for improvement (A. Y. 2019-2020)

Program name: Chemical Engineering.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	1.25	1.54	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not attain the target levels due to complex nature of those subjects.

Actions to be taken during the next A. Y. (2020-21):

1. YouTube Videos to be demonstrated related to solve complex problems of Engineering Mathematics III.
2. Extra lectures to be delivered related to Chemical Engineering Thermodynamics II to explain concepts in Thermodynamics and for complex problems solving practice of students.
3. Problems in University question papers solving practice related to Mass Transfer II to be carried out by the students.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO2: Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			

PO2	1.25	1.42	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not attain the target levels due to no revision of basic concepts and less practice of solving problems.
Actions to be taken during the next A. Y.: 1. YouTube Videos to be demonstrated related to Engineering Mathematics III for understanding of basic concepts. 2. Extra lectures to be delivered related to Chemical Engineering Thermodynamics II to explain concepts & complex problems. 3. Efforts to be taken by students to analyze complex Problems from University question papers of Mass Transfer II.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO3: Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.			
PO3	1.00	1.28	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not attain the target levels due to less practice of solving numerical problems & inability to understand the how to apply principles of those subjects for public health, safety society and environment.

Actions to be taken during the next A. Y.:

1. YouTube Videos to be demonstrated related to applications of Engineering Mathematics III in actual practice.
2. Extra lectures to be delivered related to Chemical Engineering Thermodynamics II to explain appropriate consideration of principles of the subject for public health, safety society and environment.
3. Theory questions related to consideration of public health, safety, industrial hygiene and environment from previous Q.P. of Mass Transfer II to be attempted by students.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			
PO4	1.00	1.43	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not measure up target levels because of less practice of solving design problems and insufficient attention to Webinars/ Expert lectures.

Actions to be taken during the next A. Y.:

1. YouTube Videos regarding Engineering Mathematics III to be explained to students related to conduct investigations of complex problems.
2. Extra lectures to be delivered related to conduct investigations of complex problems in Chemical Engineering Thermodynamics II.
3. University Q.P. to be solved by students to understand how to conduct investigations of complex problems.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex.			

PO5	0.75	1.38	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not measure up target levels because of no practice of using Software and NPTEL notes.

Action to be taken during the next A. Y.:

1. Few theory lectures including NPTEL or YouTube videos NPTEL notes to be delivered during the classes of Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent.			
PO6	0.75	1.93	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not attain the target levels due to lack of knowledge related to health and safety.

Actions to be taken during the next A. Y.:

1. YouTube Videos on societal, health, safety, legal and cultural issues to be arranged.
2. Interaction with Industry Personnel (III Meet) to be arranged once in a year regarding Chemical Engineering Thermodynamics II and Mass Transfer II.

POs	Target Level	Attainment Level	Observations why there is a gap?

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and the need for sustainable development.			
PO7	0.75	2.03	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not attain the target levels due to due to lack of knowledge on experiments on environmental issues.
Action to be taken during the next A. Y.: 1. Students are asked to refer more literature/references and carry out experimental work related to environmental issues.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	0.75	1.81	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not attain the target levels due to lack of understanding of Ethics in Engineering practices.
Action to be taken during the next A. Y.: 1. Expert lectures/ Webinars to be arranged related to understand ethics or to explain by YouTube videos.			

POs	Target Level	Attainment Level	Observations why there is a gap?
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	0.75	1.32	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not measure up target levels due to no practice of conducting practical/ actual experimental work.
Action to be taken during the next A. Y.: 1 Practical/ experimental work, Project Work to be explained by using YouTube or NPTEL video lectures.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			

PO10	0.75	1.64	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did measure up target levels due to less attention of students towards Webinars/ Expert lectures and Online videos.
Action to be taken during the next A. Y.: 1. Soft skill sessions/ Webinars/ Expert lectures to be organized. 2. YouTube /NPTEL/ Online Videos to be recommended.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			
PO11	0.75	1.42	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not attain the target levels due to lack of actual training in Industries and solving numerical problems.
Action to be taken during the next A. Y.: 1. Students should be asked to do in –plant training especially in core industries. 2. YouTube videos to be explained on project management and finance to students.			
POs	Target Level	Attainment Level	Observations why there is a gap?

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
PO12	0.75	1.53	Course outcomes of Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II are weak due to lack of actual practical/ experimental work in laboratories.
Action to be taken during the next A. Y.: 1. Expert lectures/ Webinars of Industry Personnel and R &D establishments to be organized. 2. YouTube videos to be demonstrated regarding Life-long learning.			

Similar information is to be provided for PSOs [Program Specific Outcomes- Chemical Engineering. CH)]

PSOs	Target Level	Attainment Level	Observations why there is a gap?
PSO1: Identify, analyze, design and develop solutions to Chemical Engineering problems of practical importance to industry and society.			
PSO1	1.00	1.43	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not attain the target levels.
Actions to be taken during the next A. Y. (2020-21): 1. Extra lectures to delivered on Engineering Mathematics III & Chemical Engineering Thermodynamics II. 2. University Q. P. to be solved by students regarding Mass Transfer II.			
PSOs	Target Level	Attainment Level	Observations why there is a gap?
PSO2: Demonstrate sound understanding of Chemical Engineering fundamentals to solve problems through the use of modern experimental methods, computer aided design and simulation software.			
PSO2	1.00	1.27	Course outcomes of most of the subjects have been attained. However, Engineering Mathematics III, Chemical Engineering Thermodynamics II and Mass Transfer II did not attain the target levels because of less practice of solving numerical problems & understanding of fundamentals.

Actions to be taken during the next A. Y.:

1. More number of numerical problems to be solved from previous question papers regarding Mass Transfer II & YouTube Videos in Engineering Mathematics III.
2. Extra lectures to be delivered to understand fundamentals of Chemical Engineering Thermodynamics II.

PO/PSO Attainment: Cycle - 2														
PO/PSO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
Direct (X)	1.42	1.29	1.08	1.37	1.26	1.84	1.95	1.71	1.08	1.58	1.33	1.40	1.31	1.06
Indirect (Exit Survey)	2.51	2.43	2.49	2.46	2.60	2.57	2.49	2.57	2.46	2.57	2.46	2.54	2.49	2.46
Indirect (Employer Survey)	2.76	2.52	2.58	2.58	2.34	2.88	2.52	2.76	2.94	2.82	2.58	2.58	2.72	2.63
Indirect (Alumni Survey)	2.50	2.45	2.48	2.21	2.34	2.53	2.56	2.42	2.45	2.52	2.46	2.50	2.58	2.60
Indirect (Parent Feedback)	2.50	2.50	2.40	2.20	2.32	2.43	2.40	2.34	2.40	2.50	2.55	2.48	2.45	2.50
Total Indirect (Y)	2.57	2.47	2.49	2.36	2.40	2.60	2.49	2.52	2.56	2.60	2.51	2.53	2.56	2.55
PO Attainment (0.8X +0.2Y)	1.65	1.53	1.36	1.57	1.49	1.99	2.06	1.87	1.37	1.79	1.57	1.62	1.56	1.36

Target	1.25	1.25	1.00	1.00	1.00	0.75	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00
Target*1.25	1.56	1.56	1.25	1.25	1.25	0.94	0.94	0.94	0.94	0.94	0.94	0.94	1.25	1.25
Gap	-0.09	0.03	-0.11	-0.32	-0.24	-1.05	-1.12	-0.93	-0.44	-0.85	-0.63	-0.69	-0.31	-0.11

POs & PSOs Attainment Levels and Actions for improvement (A. Y. 2020-2021)

Program name: Chemical Engineering.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	1.56	1.65	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to inability of students to understand basic concepts and not able to solve complex engineering problems.

Actions to be taken during the next A. Y. (2021-22):

1. YouTube Videos/ Demo Videos to be demonstrated related to courses Engineering Mathematics III, Introduction to Chemical Engineering, Workshop Practices, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation and Project Phase II.
2. Expert lecture of Industry Personnel to be delivered related to the course Principles of Design.
3. Demo Videos to be demonstrated and Extra Lectures to be taken related to the courses Fluid Mechanics and Process Modeling & Simulation.

POs	Target Level	Attainment Level	Observations why there is a gap?

PO2: Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO2	1.56	1.53	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to inability of students to analyze complex engineering problems.

Actions to be taken during the next A. Y.:

1. YouTube Videos/ Demo Videos to be demonstrated related to courses Engineering Mathematics III, Introduction to Chemical Engineering, Workshop Practices, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation and Project Phase II.
2. Expert lecture of Industry Personnel to be delivered related to the course Principles of Design.
3. Demo Videos to be demonstrated and Extra Lectures to be taken related to the courses Fluid Mechanics and Process Modeling & Simulation.

POs	Target Level	Attainment Level	Observations why there is a gap?

PO3: Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

PO3	1.25	1.36	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to inability of students to understand & design complex engineering problems for public health and safety, and cultural, societal, and environmental considerations..

Actions to be taken during the next A. Y.:

1. YouTube Videos/ Demo Videos to be demonstrated related to courses Engineering Mathematics III, Introduction to Chemical Engineering, Workshop Practices, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation and Project Phase II.
2. Expert lecture of Industry Personnel to be delivered related to the course Principles of Design.
3. Demo Videos to be demonstrated and Extra Lectures to be taken related to the courses Fluid Mechanics and Process Modeling & Simulation.

POs	Target Level	Attainment Level	Observations why there is a gap?

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO4	1.25	1.57	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to inability of students to analyze complex engineering problems.

Actions to be taken during the next A. Y.:

To understand how to conduct investigations of complex problems:

1. YouTube Videos/ Demo Videos to be demonstrated related to courses Engineering Mathematics III, Introduction to Chemical Engineering, Workshop Practices, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation and Project Phase II.
2. Expert lecture of Industry Personnel to be delivered related to the course Principles of Design.
3. Demo Videos to be demonstrated and Extra Lectures to be taken related to the courses Fluid Mechanics and Process Modeling & Simulation.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex.			

PO5	0.25	1.49	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to inability of students to utilize modern tools in learning process.
Action to be taken during the next A. Y.: 1. Few theory lectures including NPTEL or YouTube videos NPTEL notes to be delivered during the classes of above-mentioned Courses.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent.			

PO6	0.94	1.99	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to lack of knowledge to assess societal, health, safety, legal and cultural issues and the consequent.

Actions to be taken during the next A. Y.:

1. YouTube Videos on societal, health, safety, legal and cultural issues to be arranged YouTube Videos/ Demo Videos to be demonstrated related to courses Engineering Mathematics III, Introduction to Chemical Engineering, Workshop Practices, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation and Project Phase II.
2. Expert Lecture in Course Principles of Design to be organized.
3. Demo Videos to be demonstrated and Extra Lectures to be taken related to the courses Fluid Mechanics and Process Modeling & Simulation.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and the need for sustainable development.			

PO7	0.94	2.06	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to lack of knowledge for environment & sustainable development.
Action to be taken during the next A. Y.: Students are asked to refer more literature/references and carry out experimental work related to environmental issues w. r. t. above mentioned Courses.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			

PO8	0.94	1.87	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to lack of understanding of Ethics in Engineering practices.
Action to be taken during the next A. Y.: 1. Expert lectures/ Webinars to be arranged on ethics or explain the same via YouTube videos w.r.t. the Courses mentioned above.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			

PO9	0.94	1.37	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to inability of students to function effectively as individual & as a member in the Team.

Action to be taken during the next A. Y.:

1. Practical/ experimental work, Project Work to be explained by using YouTube or NPTEL video lectures w.r.t. Courses mentioned above for the awareness of importance as an individual and part of a Team to perform the particular work.

POs	Target Level	Attainment Level	Observations why there is a gap?

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO10	0.94	1.79	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to inability of students to analyze complex engineering problems due to less attention of students towards Webinars/ Expert lectures and Online videos to understand the importance of Communication.
Actions to be taken during the next A. Y.: 1. YouTube Videos regarding Soft skill or Webinars to be organized related to Seminar, ITE I & II, Project Phase II. 2. YouTube /NPTEL/ Online Videos to be recommended related to above mentioned Courses.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			

PO11	0.94	1.57	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to lack of awareness about management & finance regarding handling of Chemical Engineering Projects.
Actions to be taken during the next A. Y.: 1. Students should be asked to do in –plant training especially in core industries. 2. YouTube videos to be explained on project management and finance to students.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			

PO12	0.94	1.62	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to inability of students due to lack of actual practical/ experimental work in laboratories to learn about applications of the same as a skill for life- long learning.

Actions to be taken during the next A. Y.:

1. Expert lectures/ Webinars of Industry Personnel and R &D establishments to be organized.
2. YouTube videos to be demonstrated regarding Life-long learning.

Similar information is to be provided for PSOs [Program Specific Outcomes- Chemical Engineering. CH)]

PSOs	Target Level	Attainment Level	Observations why there is a gap?
PSO1: Identify, analyze, design and develop solutions to Chemical Engineering problems of practical importance to industry and society.			
PSO1	1.25	1.56	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to inability of students to identify, analyze, design & develop engineering problems related to Industry & Society.

Actions to be taken during the next A. Y. (2021-22):

1. YouTube Videos/ Demo Videos to be demonstrated related to courses Engineering Mathematics III, Introduction to Chemical Engineering, Workshop Practices, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation and Project Phase II.
2. Expert lecture of Industry Personnel to be delivered related to the course Principles of Design.
3. Demo Videos to be demonstrated and Extra Lectures to be taken related to the courses Fluid Mechanics and Process Modeling & Simulation.

PSOs	Target Level	Attainment Level	Observations why there is a gap?

PSO2: Demonstrate sound understanding of Chemical Engineering fundamentals to solve problems through the use of modern experimental methods, computer aided design and simulation software.			
PSO2	1.25	1.36	Course outcomes of Engineering Mathematics III, Fluid Mechanics, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Principles of Design, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation, Project Phase II did not attain the target levels due to lack of sufficient practice of students to use computer aided design and simulation software.

Actions to be taken during the next A. Y.:

1. YouTube Videos/ Demo Videos to be demonstrated related to courses Engineering Mathematics III, Introduction to Chemical Engineering, Workshop Practices, Mass Transfer I, Transport Phenomena, Seminar, Industrial Training Evaluation I & II, Computer Aided Chemical Engineering 2, Process Modeling & Simulation and Project Phase II.
2. Expert lecture of Industry Personnel to be delivered related to the course Principles of Design.
3. Demo Videos to be demonstrated and Extra Lectures to be taken related to the courses Fluid Mechanics and Process Modeling & Simulation.

PO/PSO Attainment: Cycle - 3														
PO/PSO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
Direct (X)	1.59	1.44	1.24	1.62	1.29	1.85	1.79	1.76	1.20	1.74	1.29	1.40	1.51	1.13
Indirect (Exit Survey)	2.69	2.77	2.62	2.62	2.92	2.77	2.46	2.85	2.85	2.77	2.77	2.85	2.77	2.77
Indirect (Employer Survey)	2.77	2.72	2.68	2.68	2.54	2.82	2.72	2.82	2.91	2.82	2.63	2.82	2.72	2.63
Indirect (Alumni Survey)	2.45	2.50	2.45	2.40	2.10	2.35	2.60	2.40	2.55	2.10	2.20	2.20	2.42	2.40
Indirect (Parent Feedback)	2.35	2.30	2.40	2.00	2.25	2.37	2.56	2.10	2.20	2.00	2.00	1.90	1.80	2.00
Total Indirect (Y)	2.57	2.57	2.54	2.42	2.45	2.58	2.59	2.54	2.63	2.42	2.40	2.44	2.43	2.45
PO Attainment (0.8X +0.2Y)	1.78	1.67	1.50	1.78	1.52	1.99	1.95	1.91	1.48	1.88	1.51	1.61	1.69	1.39

Target and Gap														
Target	1.50	1.50	1.20	1.20	1.20	0.90	0.90	0.90	0.90	0.90	0.90	0.90	1.20	1.20
Target (X1.25)	1.80	1.80	1.44	1.44	1.44	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.44	1.44
Gap	0.02	0.13	-0.06	-0.34	-0.08	-0.91	-0.87	-0.83	-0.40	-0.80	-0.43	-0.53	-0.25	0.05

POs & PSOs Attainment Levels and Actions for improvement (A. Y. 2021-2022)

Program name: Chemical Engineering.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	1.80	1.78	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to inability of students to understand basic concepts and not able to solve complex engineering problems.

Actions to be taken during the next A. Y. (2022-23):

1. YouTube Videos/ Demo Videos/NPTEL Videos to be demonstrated related to Courses Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II.
2. Expert lecture to be organized related to Chemical Engineering Design.
3. Demo Videos to be demonstrated and Extra Lectures including MCQs to be taken related to the Course Process Modeling & Simulation.

POs	Target Level	Attainment Level	Observations why there is a gap?

PO2: Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	1.80	1.67	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to inability of students to analyze complex engineering problems.
Actions to be taken during the next A. Y.: 1. YouTube Videos/ Demo Videos/NPTEL Videos to be demonstrated related to Courses Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II. 2. Expert lecture to be organized related to Chemical Engineering Design. 3. Demo Videos to be demonstrated and Extra Lectures including MCQs to be taken related to the Course Process Modeling & Simulation.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO3: Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.			

PO3	1.44	1.50	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to inability of students to understand & design complex engineering problems for public health and safety, and cultural, societal, and environmental considerations..

Actions to be taken during the next A. Y.:

1. YouTube Videos/ Demo Videos/NPTEL Videos to be demonstrated related to Courses Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II.
2. Expert lecture to be organized related to Chemical Engineering Design.
3. Demo Videos to be demonstrated and Extra Lectures including MCQs to be taken related to the Course Process Modeling & Simulation.

POs	Target Level	Attainment Level	Observations why there is a gap?

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO4	1.44	1.78	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to inability of students to analyze complex engineering problems.

Actions to be taken during the next A. Y.:

1. YouTube Videos/ Demo Videos/NPTEL Videos to be demonstrated related to Courses Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II.
2. Expert lecture to be organized related to Chemical Engineering Design.
3. Demo Videos to be demonstrated and Extra Lectures including MCQs to be taken related to the Course Process Modeling & Simulation to conduct investigations of complex problems.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex.			

PO5	1.44	1.52	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to inability of students to utilize modern tools in learning process.

Action to be taken during the next A. Y.:

1. Few theory lectures including NPTEL or YouTube videos NPTEL notes to be delivered during the classes of Courses Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II.
2. Expert lecture to be organized related to Chemical Engineering Design.
3. Demo Videos to be demonstrated and Extra Lectures including MCQs to be taken related to the Course Process Modeling & Simulation.

POs	Target Level	Attainment Level	Observations why there is a gap?
PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent.			

PO6	1.08	1.99	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to lack of knowledge to assess societal, health, safety, legal and cultural issues and the consequent.

Actions to be taken during the next A. Y.:

1. YouTube Videos/ Demo Videos/NPTEL Videos to be demonstrated related to Courses Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II.
2. Expert lecture to be organized related to Chemical Engineering Design.
3. Demo Videos to be demonstrated and Extra Lectures including MCQs to be taken related to the Course Process Modeling & Simulation.

POs	Target Level	Attainment Level	Observations why there is a gap?

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and the need for sustainable development.

PO7	1.08	1.95	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to lack of knowledge for environment & sustainable development.
Action to be taken during the next A. Y.: Students should be asked to refer more literature/references and YouTube/NPTEL Videos related to environmental issues.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			

PO8	1.08	1.91	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to lack of understanding of Ethics in Engineering practices.
Action to be taken during the next A. Y.: Expert lectures/ Webinars to be arranged on ethics or explain its importance in Engineering practices with the help of YouTube videos.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			

PO9	1.09	1.48	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to inability of students to function effectively as individual & as a member in the Team.
Action to be taken during the next A. Y.: Practical/ experimental work, Project Work to be explained by using YouTube or NPTEL video lectures w.r.t. Courses mentioned above for the awareness of importance as an individual and part of a Team to perform the particular work.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			

PO10	1.08	1.88	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to inability of students to analyze complex engineering problems due to less attention of students towards Webinars/ Expert lectures and Online videos to understand the importance of Communication.
Actions to be taken during the next A. Y.: 1. Soft skill sessions to be organized. 2. YouTube /NPTEL/ Online Videos to be recommended.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			

PO11	1.08	1.51	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to lack of awareness about management & finance regarding handling of Chemical Engineering Projects.
Actions to be taken during the next A. Y.: 1. Students should be asked to do in –plant training especially in core industries. 2. YouTube videos to be explained on project management and finance to students.			
POs	Target Level	Attainment Level	Observations why there is a gap?
PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			

PO12	1.08	1.61	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to inability of students due to lack of actual practical/ experimental work in laboratories to learn about applications of the same as a skill for life- long learning.
Actions to be taken during the next A. Y.: 1. Expert lectures/ Webinars of Industry Personnel and R &D establishments to be organized. 2. YouTube videos to be demonstrated regarding Life-long learning.			

Similar information is to be provided for PSOs [<u>Program Specific Outcomes- Chemical Engineering. CH)</u>]

PSOs	Target Level	Attainment Level	Observations why there is a gap?
PSO1: Identify, analyze, design and develop solutions to Chemical Engineering problems of practical importance to industry and society.			
PSO1	1.44	1.69	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to inability of students to identify, analyze, design & develop engineering problems related to Industry & Society.

Actions to be taken during the next A. Y. (2022-23):

1. YouTube Videos/ Demo Videos to be demonstrated related to the Courses Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II.
2. Expert lecture of Industry Personnel to be delivered related to the Course Chemical Engineering Design.
3. Demo Videos to be demonstrated and Extra Lectures to be taken related to the Courses Process Modeling & Simulation.

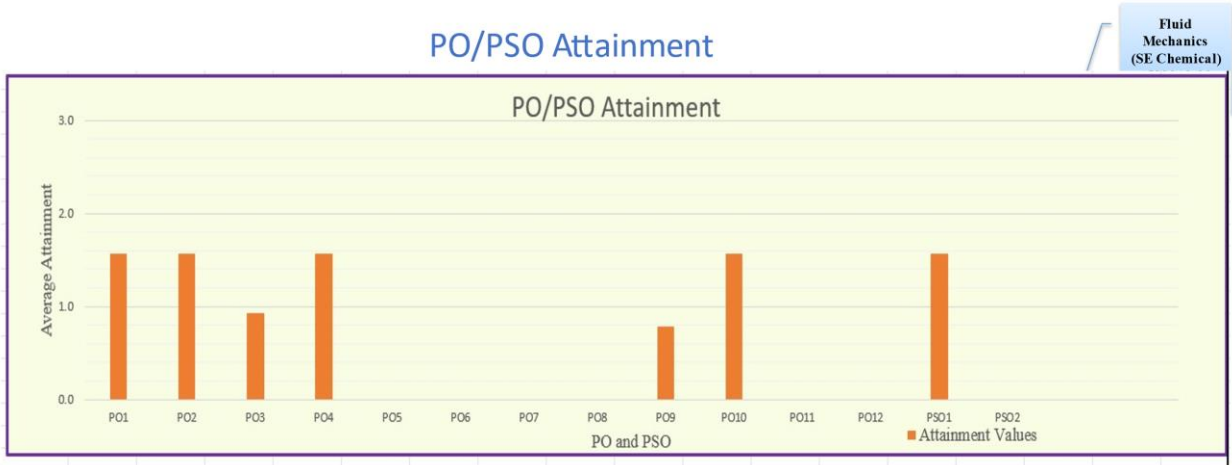
PSOs	Target Level	Attainment Level	Observations why there is a gap?

PSO2: Demonstrate sound understanding of Chemical Engineering fundamentals to solve problems through the use of modern experimental methods, computer aided design and simulation software.

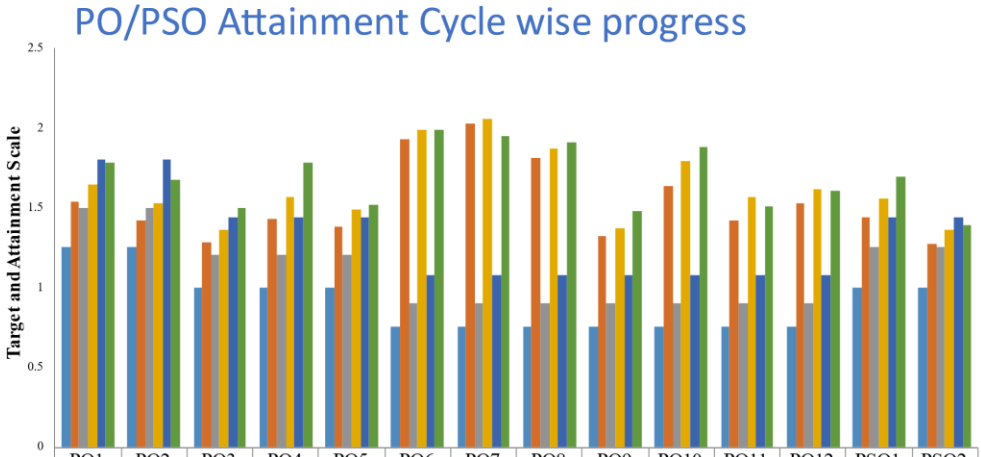
PSO2	1.44	1.39	Course outcomes of Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II, Chemical Engineering Design II and Process Modeling & Simulation did not attain the target levels due to lack of sufficient practice of students to use computer aided design and simulation software.

Actions to be taken during the next A. Y.:

1. YouTube Videos/ Demo Videos to be demonstrated related to the Courses Chemistry I, Process Calculations, Introduction to Chemical Engineering, Heat Transfer, Workshop Practices, Seminar, Industrial Training Evaluation I, Computer Aided Chemical Engineering 1 & 2, Process Dynamics & Control, Chemical Reaction Engineering II.
2. Expert lecture of Industry Personnel to be delivered related to the Course Chemical Engineering Design
3. Demo Videos to be demonstrated and Extra Lectures to be taken related to the Courses Process Modeling & Simulation.



	Program Outcomes												Program Specific Outcomes			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
Attainment	1.57	1.57	0.93	1.57					0.78	1.57			1.57			



	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
2019-2020 Target	1.25	1.25	1	1	1	0.75	0.75	0.75	0.75	0.75	0.75	0.75	1	1
2019-2020 Attainment	1.54	1.42	1.28	1.43	1.38	1.93	2.03	1.81	1.32	1.64	1.42	1.53	1.44	1.27
2020-2021 Target	1.5	1.5	1.2	1.2	1.2	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.25	1.25
2020-2021 Attainment	1.65	1.53	1.36	1.57	1.49	1.99	2.06	1.87	1.37	1.79	1.57	1.62	1.56	1.36
2021-2022 Target	1.80	1.80	1.44	1.44	1.44	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.44	1.44
2021-2022 Attainment	1.78	1.67	1.50	1.78	1.52	1.99	1.95	1.91	1.48	1.88	1.51	1.61	1.69	1.39

7.2. Academic Audit and actions taken thereof during the period of Assessment (10)

(Academic Audit system/process and its implementation in relation to Continuous Improvement)

Policy for Academic and Administrative Audit (AAA)

AISSMS COE has established well defined Internal Quality Assurance System and every effort has been taken to address all the quality attributes of technical education for the overall professional and holistic development of students. Varity of academic, administrative, co-curricular and extra-curricular activities are carried out at institute and department level which helps in improving the quality of education imparted.

For the sustenance and continuous improvement in quality for achieving academic excellence, institute has adopted certain quality management strategies and has developed methodology for auditing different academic and administrative quality aspects.

Academic and administrative audit (AAA) is one of the major quality aspect of internal quality assurance system developed by the institute.

Major objectives of AAA

1. To understand the existing system and assess the strengths and weaknesses of the Departments and Administrative Units and to suggest the methods for improvement and for overcoming the weaknesses.
2. To identify the bottlenecks in the existing administrative mechanisms and to identify the opportunities for academic reforms, administrative reforms and examination reforms etc.
3. To evaluate the optimum utilization of financial and other resources.
4. To suggest the methods for continuous improvement of quality

Guidelines for carrying out AAA

1. AAA of shall be carried out internally and externally.
2. Internal AAA carried out annually by IQAC and External AAA to be carried out once in three years.
3. AAA is to be carried out department wise by developing departmental evaluation form and referring annual report prepared by the department.
4. All the supporting documents as per the annual report are to be verified by committee during audit visit.
5. In administrate AAA, policies and effectiveness of all administrative bodies is reviewed and evaluated.
6. Outcome of AAA is to be placed before IQAC.
7. Action taken report (SWOC analysis) is prepared by IQAC based on report submitted by audit panel.

Methodology for carrying out AAA

1. Presentation of annual report by the department and discussion on the same.
2. Review of summary of annual report. Discussion and critical comments on annual report.
3. Verification of supporting documents as per annual report submitted by departments.
4. Review of action taken report submitted by department for the initiatives taken by IQAC
5. Review of academic records, records maintained for verification of course files and personal files of faculty.
6. Review of updated department website.
7. Record maintained by office of department
8. Academic records maintained by department
9. Visit to laboratories

Through effective conduction of AAA of all the departments, it is ensured that AAA provides highest level of assurance. Also, it helps in controlling quality on regular basis, helps in benchmarking (setting of short- and long-term goals).

Conduction of AAA has become an institutionalized practice developing quality culture in the institute.

1. Review of CO Attainment

Corrective Actions based on attainment values.

a) If, all COs have been attained: <u>Increase target level</u> in next academic year.

b) If, all COs have been attained at Maximum Level (nearly 3): <u>Modifiy</u> Target Value/ Attainment Levels.

c) If, all or some COs have not been attained: Keep <u>Target same</u> for next academic year.

2. Review of PO/PSO Attainment

Corrective Actions based on attainment values.

a) If, POs/PSOs have been attained: **<u>Increase PO/PSO target</u>** for the next cycle.

b) If, POs/PSOs have not been attained: Keep PO/PSO **<u>Target same</u>** for the next cycle.

Members for Academic monitoring:

The concerned faculty member delivering theory lectures and practical during the semester, Academic Co-ordinator and GFM of the class for academic audit of the following (frequency: two weeks): --

1) Number of **theory lectures** delivered and syllabus covered as per the teaching plan.

2) Number of **practical** conducted following the CAS as per the practical plan

   CAS: Continuous assessment of experiments carried out by each student in the week. 25 Marks are allotted to each experiment as: 5 marks for attendance + 10 marks for write-up + 10 marks for viva based on the understanding and performance of the experiment.

3) Number of **Class Tests** conducted (six class tests on six units planned in each subject of 15 marks each) to improve the performance of students in the In-sem. (30 marks) & End-sem. (70 marks) University Examinations.

4) Number of **Assignments** given to students and record of submission of those in terms of marks out of 10 to each assignment.

5) Number of **Remedial classes** conducted during the semester on difficult topics of each subject to improve the performance of **slow learner students**.

6) Number **Educational Visits** to **Industries** of students conducted to Chemical and allied industries in each subject during the semester for improvement in viva of subjects to understand the engineering aspects and applications of Unit Operations and Unit Processes in practice.

During A. Y. (2018-19):

Number of Visits conducted= **09**

During A. Y. (2019- 2020):

Number of Visits conducted = **10**

During 2020-21:

Number of Visits conducted**: 01 (Online)**

During 2021-22:

Number of Visits conducted: **11 (Actual 09 and Virtual 02)**

During 2022-23:

Number of Visits conducted: **07**

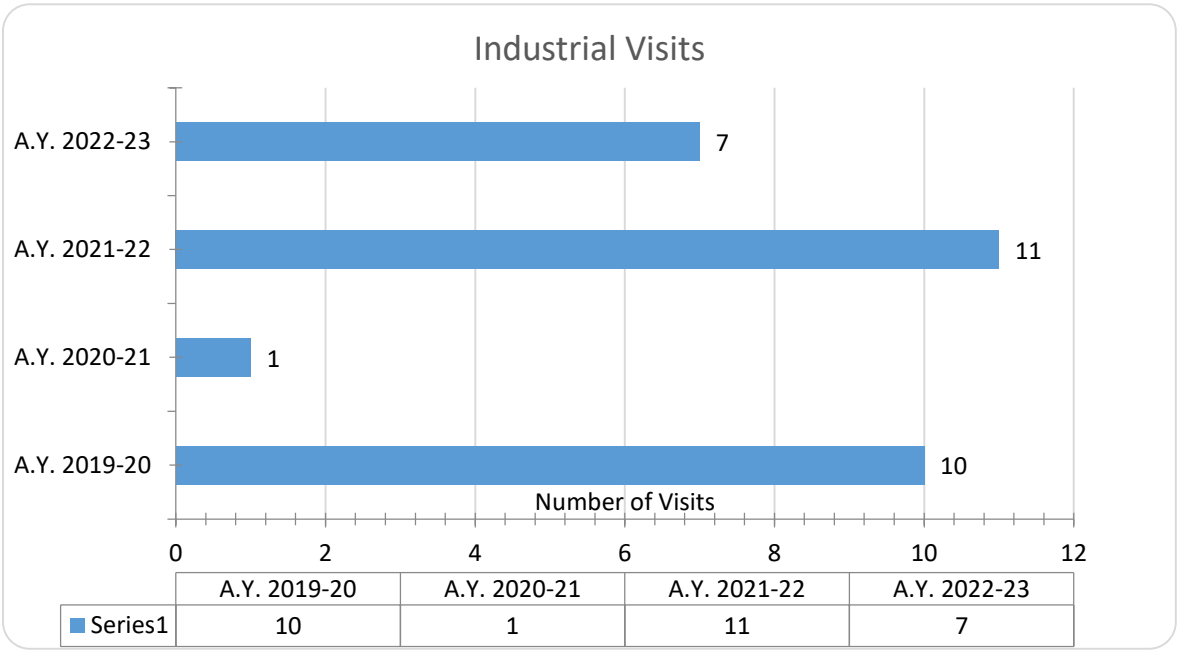


Fig.7.1.1: Number of Industrial Visits Vs Academic Year



Photo of an Industrial Visit of TE Chemical to Clean Science & Technology Ltd., MIDC Kurkumbh, Taluka Daund, District Pune on 20/04/2023.

7) Number of **Webinars**/ **Expert Lectures** delivered on specific topics in each subject by Industry Personnel for improvement in performance of students in theory examinations.

During A. Y. 2018-19, No. of lectures delivered = **1During A. Y. 2019- 2020,** No. of lectures delivered = **10** + online **Webinars** (from May 16, 2020 - till June 14, 2020 end of the A. Y.) during the lockdown period

During A.Y. 2020-21, Number of Expert lectures delivered (online) = **18**

During A.Y. 2021-22, Number of Expert lectures delivered (online & Offline) = **23**

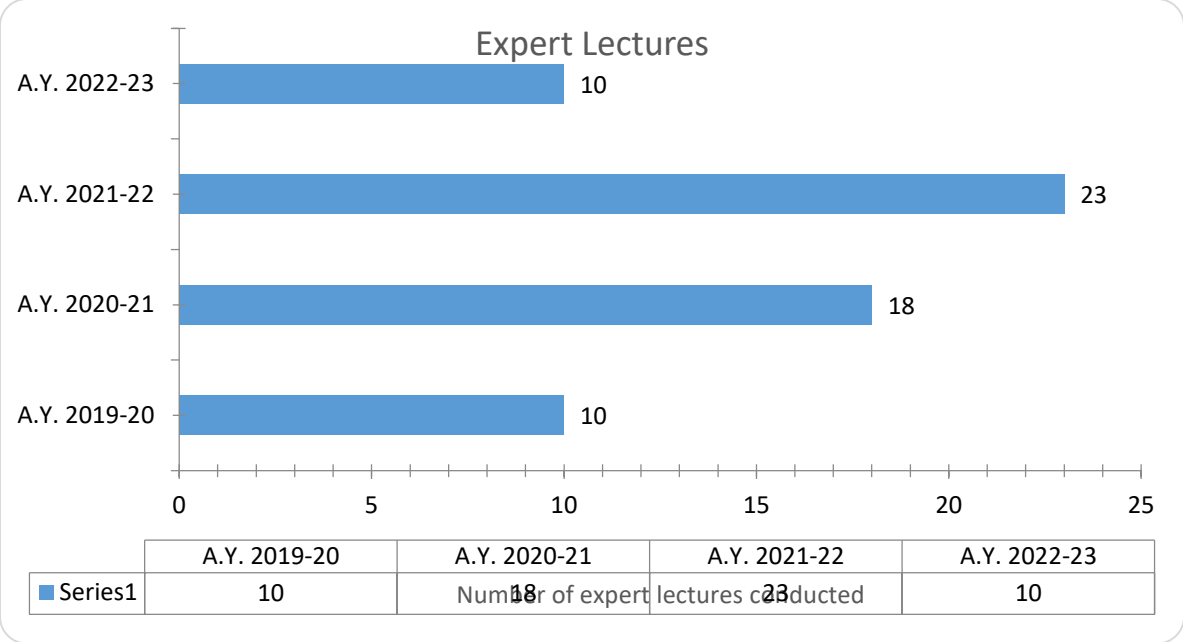


Fig. 7.1.2: Number of Webinars/ Expert lectures V^s Academic Year

Photos of an Expert Lecture on 'Corporate Ready' by Rtn. Col Uday Jagavakar on 24/03/2023





Academic Audit

Academic audit is carried out to ensure both quality of academic practices in the department and attainment of target-achievement. The audit report is reviewed in the department and necessary corrective measures are recommended to improve further.Table 7.1 gives list of audit attributes comprising of academic activities, associated practices, responsible person for carrying out audit, and frequency of audit.

Table 7.1 List of Audit attributes				
S. No	**Academic Activities**	**Associated practices**	**Responsible persons to carry out audit**	**Frequency of Audit**
1	Teaching Plan and execution	Adherence to academic Calendar, Course Files, Quality of assignment, Curriculum delivery progress	Academic coordinators and HOD	At the start and end of the semester
2	Student performance	Result analysis, Identification of slow and quick learners.	Faculty members and HOD	After declaration of result by the University.

3	Co-curricular and extra-curricular activities	Events organized by the Department and Student's participation in Conference W/S./ Semina rs Engineering Today technical events and cultural fest, Industrial visits	Coordinato rs and HOD	Sem. I and Sem. II
4	Attendance monitoring	Monthly attendance report, Communication to parents regarding poor attendance, Actions for improving the attendance of the students	GFMs, Academic coordinator and HOD	Once in a month
5	Academic surveys	Course exit survey	concerned Subject teachers	Once in a Semester
6	Laboratory Audit	Equipment status, Software status	Lab In-charges and Lab. Assistant	Once in a semester
7	Student Counseling	Mentoring the group of students	Mentors	Every fortnight

8	Outcome based practices	Course Outcomes (COs) for each course in the program. COs are the statements that help the learners to understand the reason for pursuing the course and help him to identify what he will be able to do at the end of each course.	Subject teachers & Examination Coordinator	Once in a semester
9	Feedback system	Midterm and end term feedbacks by the students, Analysis of the feedback and corrective actions.	GFMs and HOD	Once in a semester

10	Course Files	Vision- Mission statement, Academic calendar, Syllabus, CO-PO Attainment, Teaching plan, Unit wise notes, Assignments, Unit Tests, Set of Question papers, Samples of Q. paper solution, Attendance sheets, CAS record, Expert lectures record, Industrial Visits record, Result analysis of last 03 years.	Internal and External Committee - PAQIC	Once in a semester
11	Good practices	Department conducts Meeting with DAB Members.	Faculty members HOD and DAB Members	Once in year

12	Industry-Institute Interaction	One Faculty – One Industry, Industrial Visits, Expert Lectures, MOUs with Industries.	Faculty Members, Coordinator – I^3, HOD and IQAC	Once in a semester

Table 7.2 Audit report and its corrective action:

S. No	**Academic Activities**	**Associated practices**	**Audit Report**	**Corrective Action**
		Adherence to academic calendar and Course File Preparation	All course files and teaching plans are prepared before commencement of the semester by respective subject teacher. All these files are verified and approved by HOD.	If any of the faculty member is unable to complete files, necessary action is taken and re- auditing will be done.

1	Teaching Plan and execution	Quality of assignment, unit tests	Quality of assignments, unit tests are checked by module Coordinators	If the quality is not being met, the respective faculty member has been asked to improve it.
		Curriculum delivery Progress	Curriculum delivery progress is monitored by Academic Coordinator and HOD every month.	If any subject is lagging in the coverage of syllabus as per the teaching plan, the respective faculty will be personally called and suggestions have been given to him/her by HOD. They are also advised to take extra classes to complete the syllabus within time.

2	Student Performance	Result Analysis	Subject wise (Th. & PR, TW/OR) Results are analyzed in each semester	Based on the result analysis, the students are divided into two categories: Slow and Fast learners.
		Identification of slow and Fast learners	Identify students' learning capability based on previous semester's result analysis	For the identified slow learners, remedial classes are conducted to improve their performance.
				Fast learners are motivated for getting higher score to achieve the University rank.

		Activities done towards slow and fast learners	Improve the performance of slow learners and encourage fast learners	For slow learners, simple assignments are given. It helps to enhance the knowledge of slow learners.
				The remedial classes are conducted
				For quick learners, they are encouraged to read research papers.

3	Co-curricular and extra-curricular activities	Events organized by the Department and Students 'participation in Conference, Workshops/Seminars, Technical events and Cultural Fest, Industrial visits.	The data of students who have participated in seminars, workshops, symposiums Inside and outside the campus, is recorded. The industrial visits are planned in order to provide exposure on real time industry working environment.	Inactive Students are motivated by explaining the importance of the programs and provided with necessary suggestions and guidelines.

4	Attendance monitoring	Monthly attendance Report, Communication to parents, regarding short attendance, Actions for improving the attendance of the students.	Students' attendance records are verified monthly by Subject Teachers, GFMs, Academic Coordinator & HOD.	Students who got less than 75% attendance are counseled and informed to the parents through phones calls. Students with poor (<65%) attendance is counseled and informed to the parents through letter. In Special cases the parents are called and intimated personally about their ward attendance.

5	Internal examination Process	Quality of question Paper of Unit Tests	PAQIC checks question papers with the relevance of questions to COs.	Course instructor refines the question paper based on the suggestions given by moderation committee
				Submit for Program Coordinator' s approval
		Quality of evaluation of answer sheets	After the Unit Tests, answers sheets are evaluated. analyzed. Record of marks obtained	Quality is maintained in evaluating answer scripts
		Actions taken on the Analysis		

6	Course End Surveys	Student surveys are useful tools which provide good understanding modification, planning or redesigning a course. Course End survey has been taken at the end of each course. Since we are following outcome-based education system this survey helps us to understand how much we have attained the COs indirectly.	Survey are collected through Google sheets and aggregated	Make sure that the survey forms are properly filled.
7	Laboratory Audit	Status of Equipment and Software and availability of Chemicals.	Laboratory manuals and Evaluation scheme are prepared before commencem ent of the Semester by respective Subject Teachers and Lab. Assistants All these files are verified and approved by HOD.	Submission of Audit to the Principal through the HOD.

			Laboratory Audit is done once in a semester by lab assistant, lab in-charge and HOD. Lab in-charges and lab assistants check the equipment, instruments and software status periodically.	If any apparatus, equipment or instruments and Chemicals are in shortage, the concerned lab in- charge checks the list and recommends to purchase. If any equipment is Damaged or not working properly, it must be serviced by lab technicians or service agencies or make write-off and new one is purchased through the proper procedure.

8	Student Counseling	Mentoring the Students	Every student is counseled by the respective mentors. Faculty Members are the mentors who constantly monitor all activities and academics of students.	. The reports are verified by mentor coordinator and HOD

Table 7.2.3: PAQIC meeting schedule

Sem	Meeting 1	Meeting 2
Sem I (2021-2022)	At the start of semester - Action taken for **Sem I (2020-2021)** analysis - Decide action plan for the **Sem I - 2021-2022**	In the mid of Sem I (Current Year) - Monitoring of action suggested and effective implementation at course level. **Sem I /2021-2022**
Sem II (2021-2022)	At the start of semester - Action taken for **Sem II (2020-2021)** analysis - Decide action plan for the **Sem II - 2021-2022**	In the mid of Sem II (Current Year) - Monitoring of action suggested and effective implementation at course level. **Sem II /2021-2022**

FORMAT: Minutes of PAQIC Meeting

AY.& Sem.I/II**:** **Assessment Year** & Sem.I/II:

Two Meetings for planning and review to be taken semester wise regarding actions to be taken during the next A. **Y.**

1) Program wise POs & PSOs attainment analysis on the basis of Sem.I & II courses to be discussed.
2) Course (subject) wise CO- POs/PSOs attainment analysis to be carried out for all courses related to SE/TE/BE Classes.
3) List the courses which are weaker. Evaluate the Gap.
4) PO/PSO wise actions/ planning in the format of Actions Taken Report. Actions to be implemented during the respective semester of the Assessment Year.
5) CO- PO- PSO Mapping to be discussed among Module Coordinators.
6) Course Files, Personal Files, Question Paper assessments, Examination reports & other academic initiatives at the Department level to be discussed for checking and making reports about the same.
7) Planning for the next meeting to be noted.

Signatures of PAQIC Members (Module Coordinators) at the conclusion of the meeting

7.3. Improvement in Placement, Higher Studies and Entrepreneurship (10)

Assessment is based on improvement in:

Placement: number, quality placement, core industry, pay packages etc.

Higher studies: performance in GATE, GRE, GMAT, CAT etc., and admissions in premier institutions

Entrepreneurs

During A. Y. 2018-19:

Number of Placements / Higher studies / Entrepreneurship = **44**

During A. Y. 2019- 2020:

Number of Placements / Higher studies / Entrepreneurship = **52**

During A. Y. 2020- 2021:

Number of Placements / Higher studies / Entrepreneurship = **53**

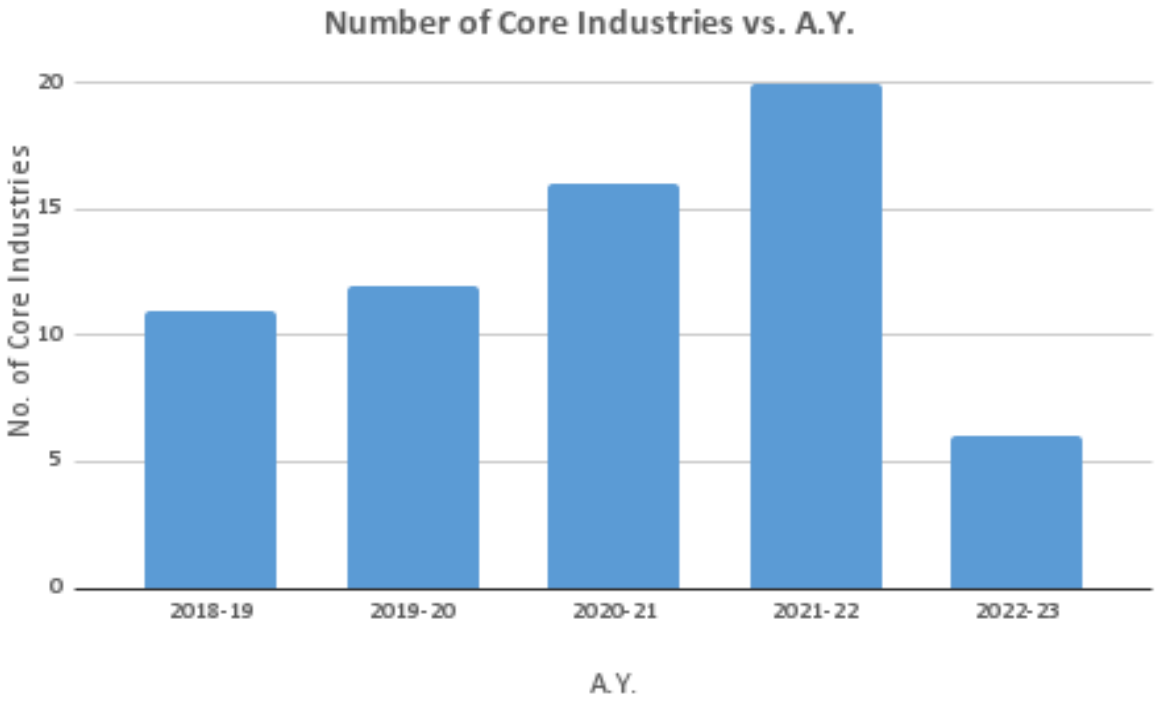
During A. Y. 2021- 2022:

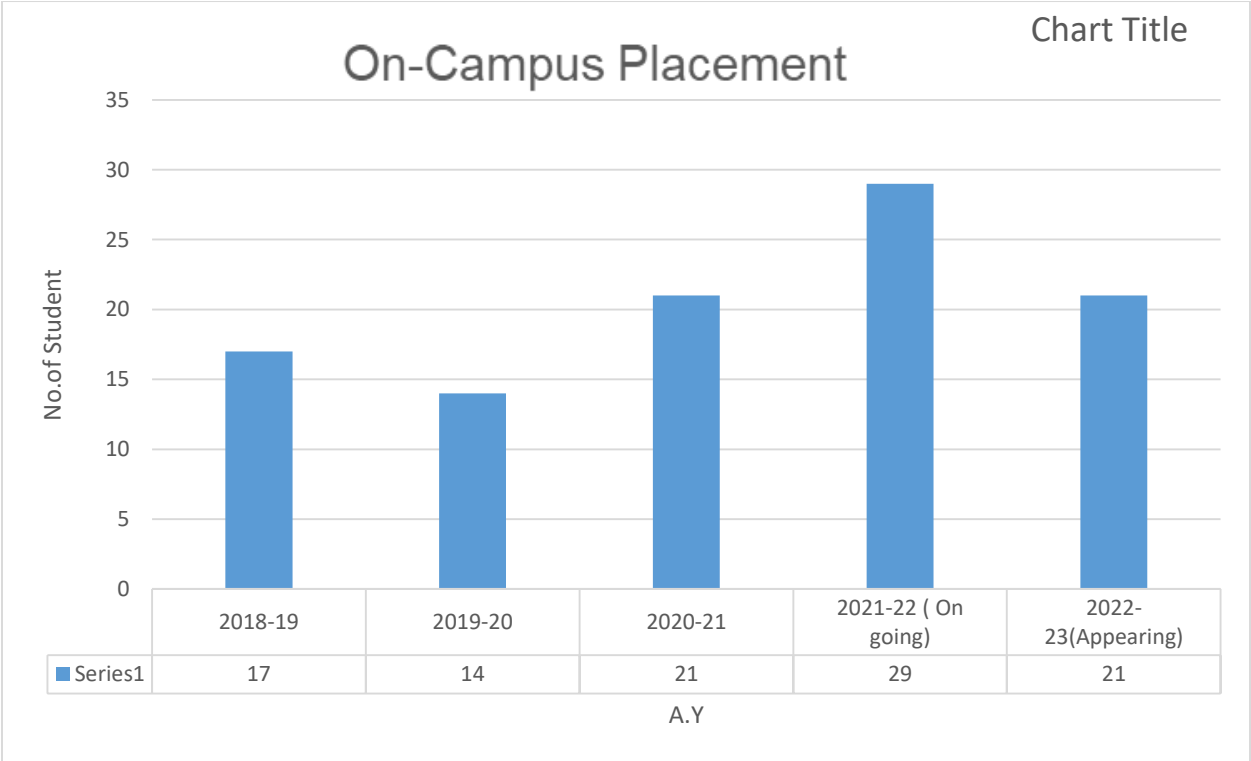
Number of Placements / Higher studies / Entrepreneurship = **42 (Ongoing)**

During A. Y. 2022- 2023:

Number of Placements = **21 (Appearing batch)**

Item	2021-22 (on going)	2020-2021	2019-2020	2018-19
Total No. of Final Year Students (N)	55	63	61	56
No. of students placed in companies or Government Sector (x)	36	50	38	40
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	06	02	14	04
No. of students turned entrepreneur in engineering/technology (z)	---	01	----	----
x + y + z =	42	53	52	44
Placement Index: (x + y + z)/N	0.76	0.84	0.85	0.79
Average placement= (P1 + P2 + P3)/3		0.82		
Assessment Points = 30 × average placement		24.6		


Number of Core Industries vs. A.Y.
No. of Core Industries
20
15
10
5
0
2018-19
2019-20
2020-21
2021-22
2022-23
A.Y.


Chart Title
On-Campus Placement
No.of Student
35
30
25
20
15
10
5
0
2018-19
2019-20
2020-21
2021-22 (On going)
2022-23(Appearing)
Series1
17
14
21
29
21
A.Y

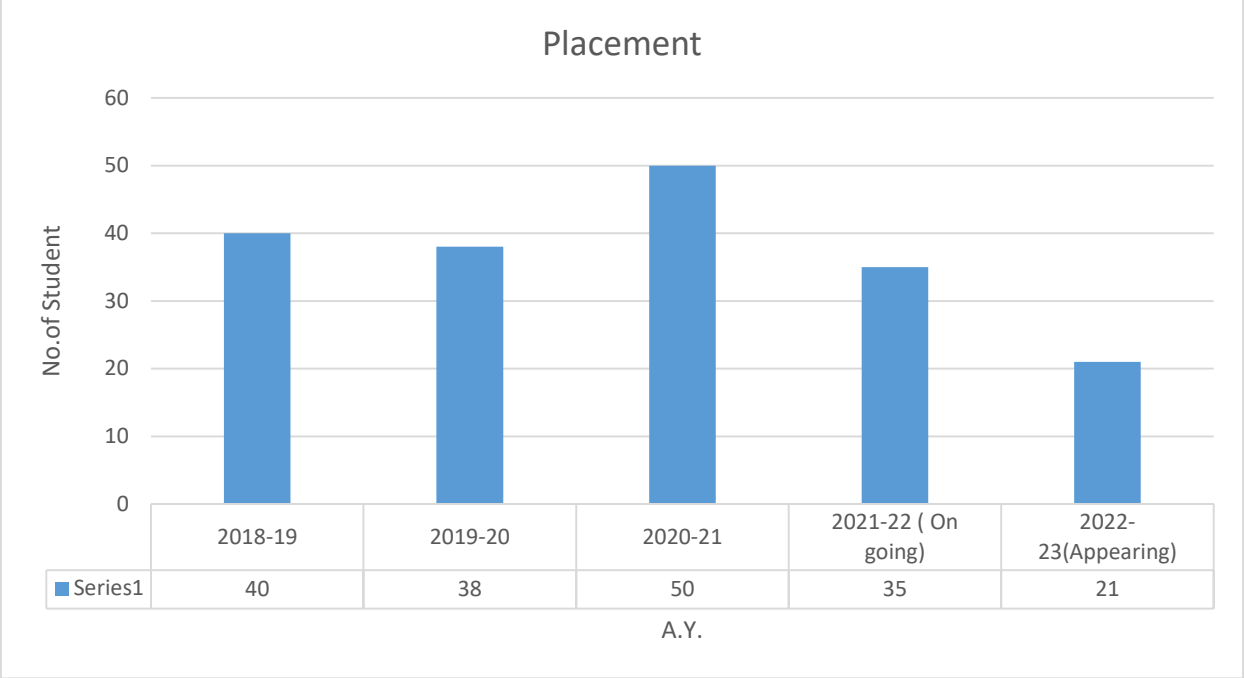
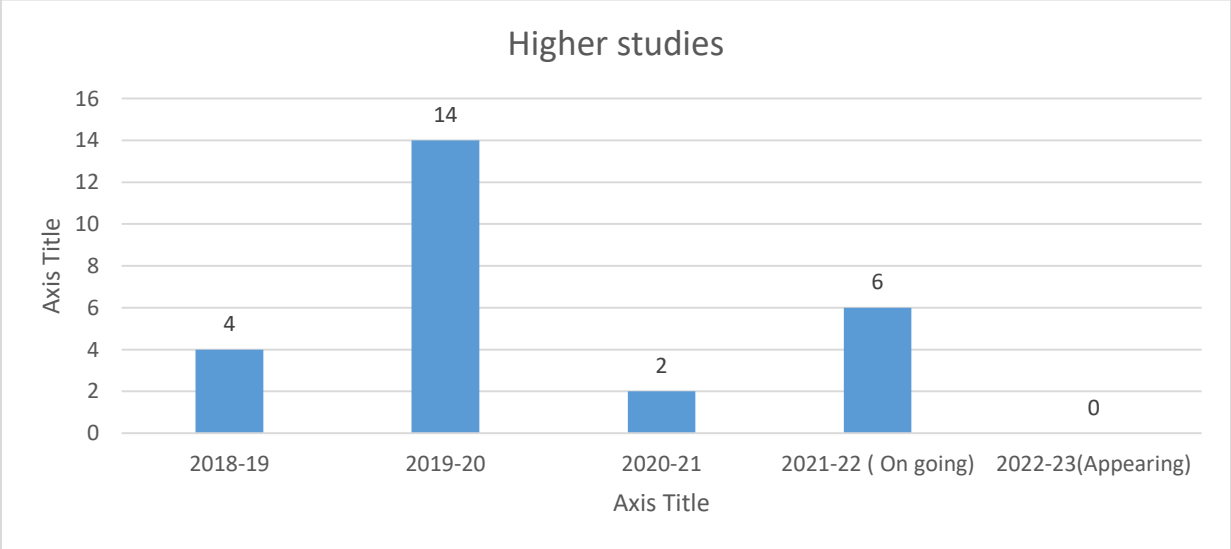
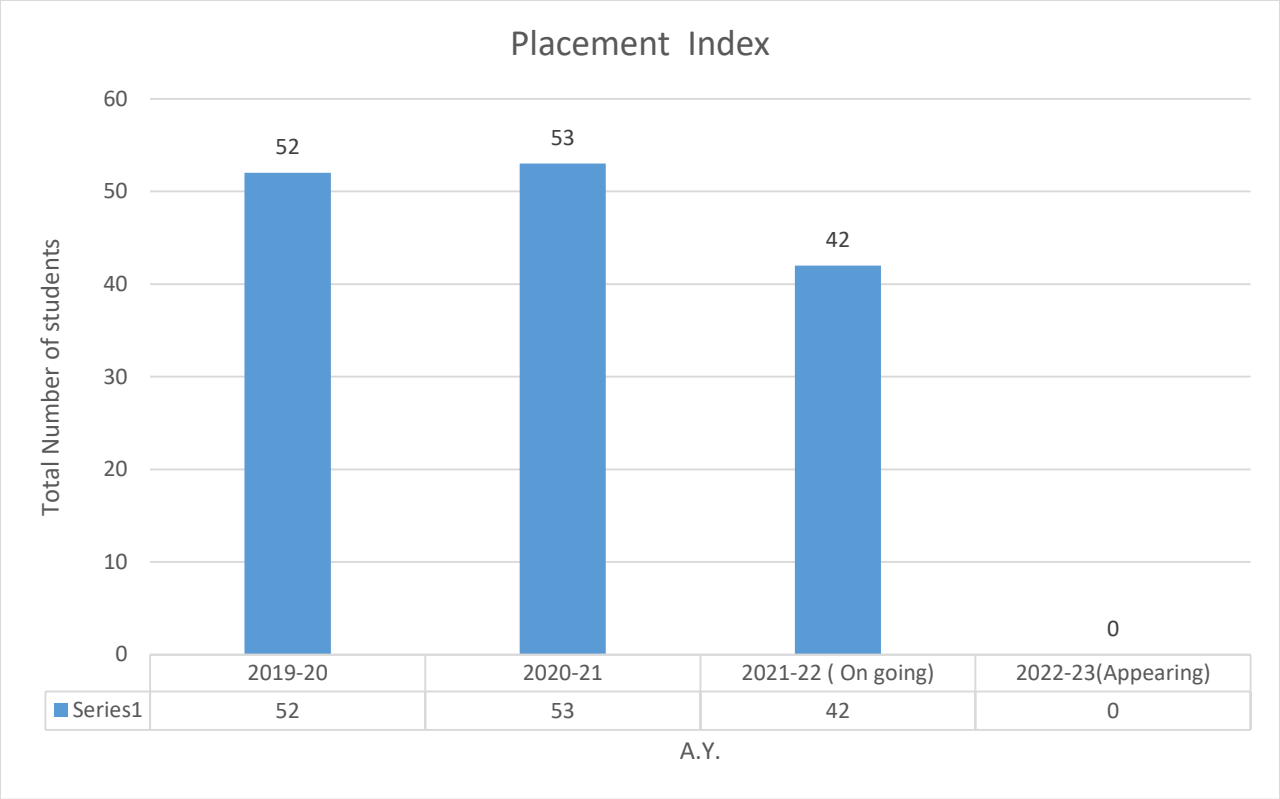


Fig. 7.3 Plots regarding Placement during current year & last 04 years (2018-2023)





Photos of some Campus Recruitment Drives during (2021-22)



Campus Placement by toyaM Technologies Pvt. Ltd. Pune on 05/04/2022



Campus Placement by NOCIL Ltd. Dahej on 20/05/2022



Campus Placement by Praj Industries Ltd. Pune on 19/04/2023



Campus Placement by Laxmi Organics Industries Ltd. on 24/03/2023

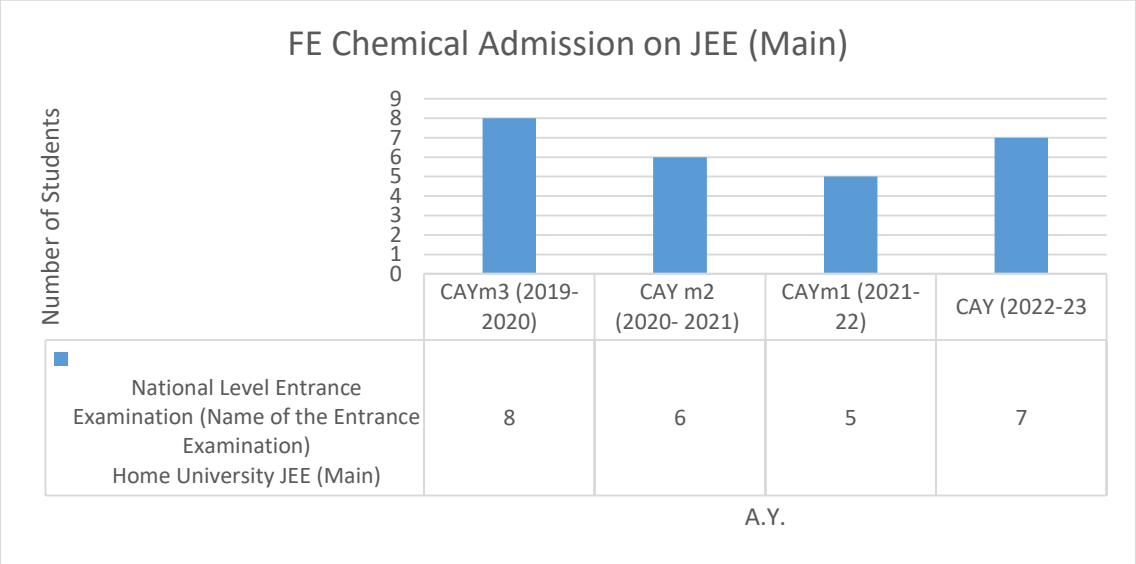
7.4. Improvement in the quality of students admitted to the program (10)

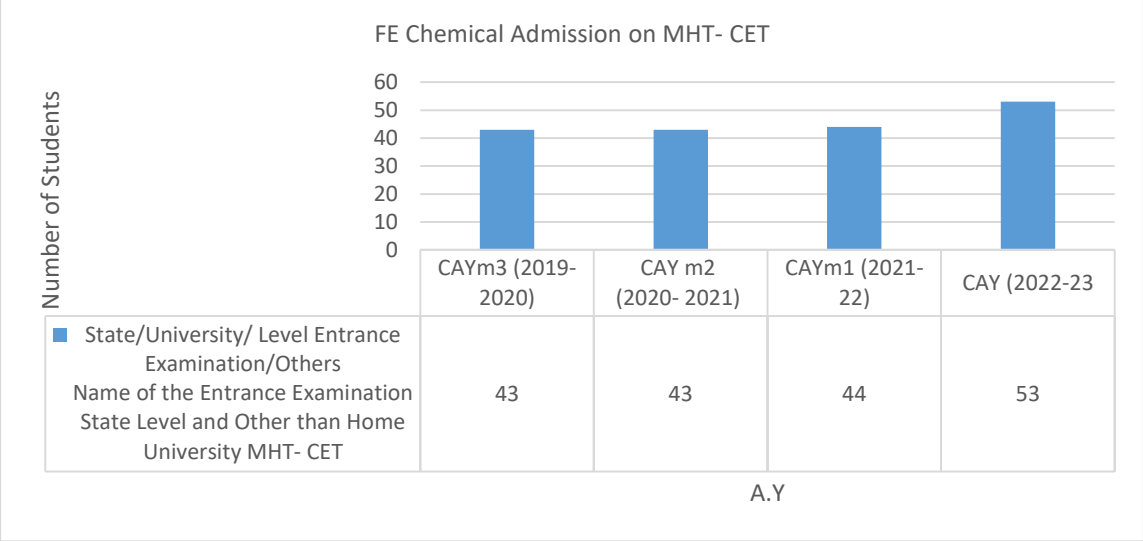
Assessment is based on improvement in terms of ranks/score in qualifying state level/national level entrances tests, percentage marks in Physics, Chemistry and Mathematics in 12th Standard and percentage marks of the lateral entry students.

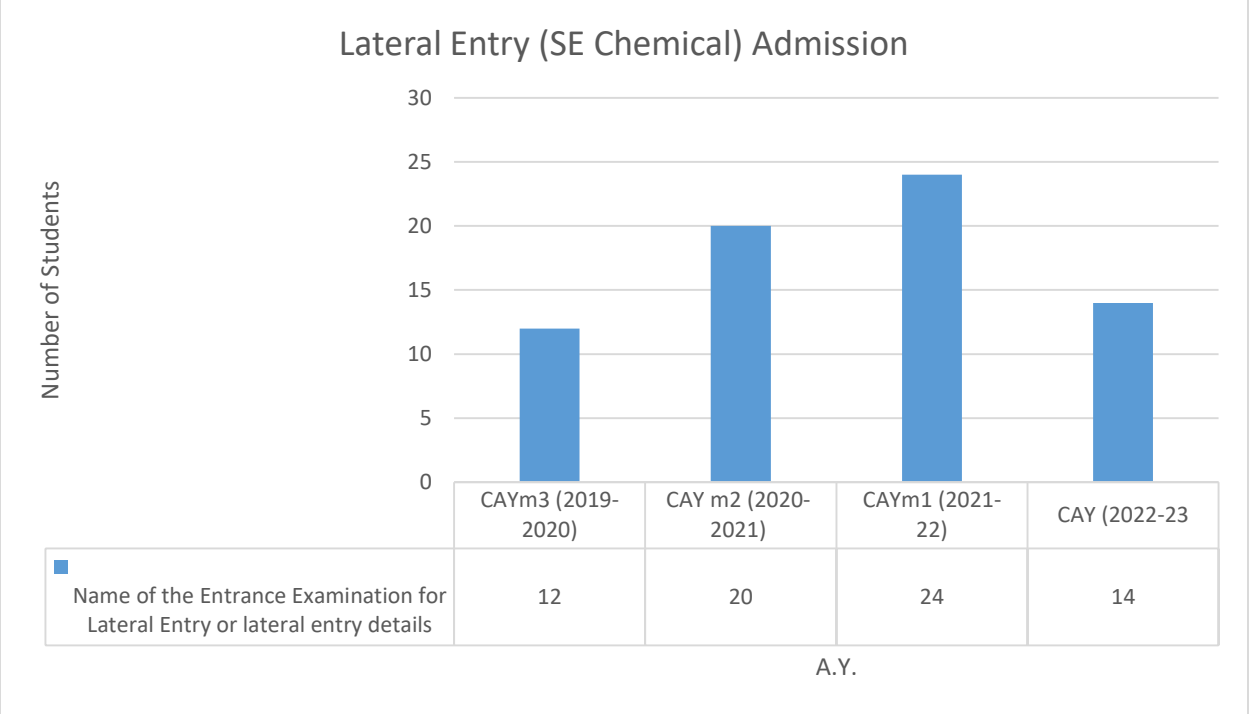
Table B.7.4 quality of students admitted to the program

Item		CAY (2022-23)	CAY (2021-22)	CAY m1 (2020-2021)	CAY*m*2 (2019-2020)	CAY*m*3 (2018-19)
National Level Entrance Examination (Name of the	**No. of Students admitted**	07	05	06	08	29
	Opening Score/Rank	58.814 (Male) (Type A-SRTMU)	69.286 (Male) (Type A)	82.513 (Male) (Type A)	88.499 (Male) (Type A)	124
Entrance Examination) Home University JEE (Main)	**Closing Score/Rank**	16.620 (Male) (Type A-SVJU)	58.141 (Male) (Type A)	68.713 (Male) (Type A)	83.05 (SPPU)	41
State/University / Level Entrance Examination/Others Name of the Entrance Examination State Level and Other than Home University MHT- CET	**No. of Students admitted**	53	44	43	43	31
	Opening Score/Rank	92.23 (Female) (Type A)	89.09 (Institute Level)	87.133 Male) (Type A-OBC)	98.063 (Male-Open)	127
	Closing Score/Rank	14.78 (Male) (Type A)	6.18 (Male) (Open – EWS)	12.795 Male) (Type A-LOBCH)	3.1018 (Male) (Type A)	43
Name of the Entrance Examination for Lateral Entry or lateral entry details	**No. of Students admitted**	14	24	20	12	22
	Opening Score/Rank	93.70	90.44	86.17	88.67	83

	Closing Score/Rank	60.00	70.78	52.67	54.48	48.24
Average CBSE/Any other Board Result of admitted students (Physics, Chemistry & Maths)		52.1096	80.2687	67.2328	64.2415	71.8665







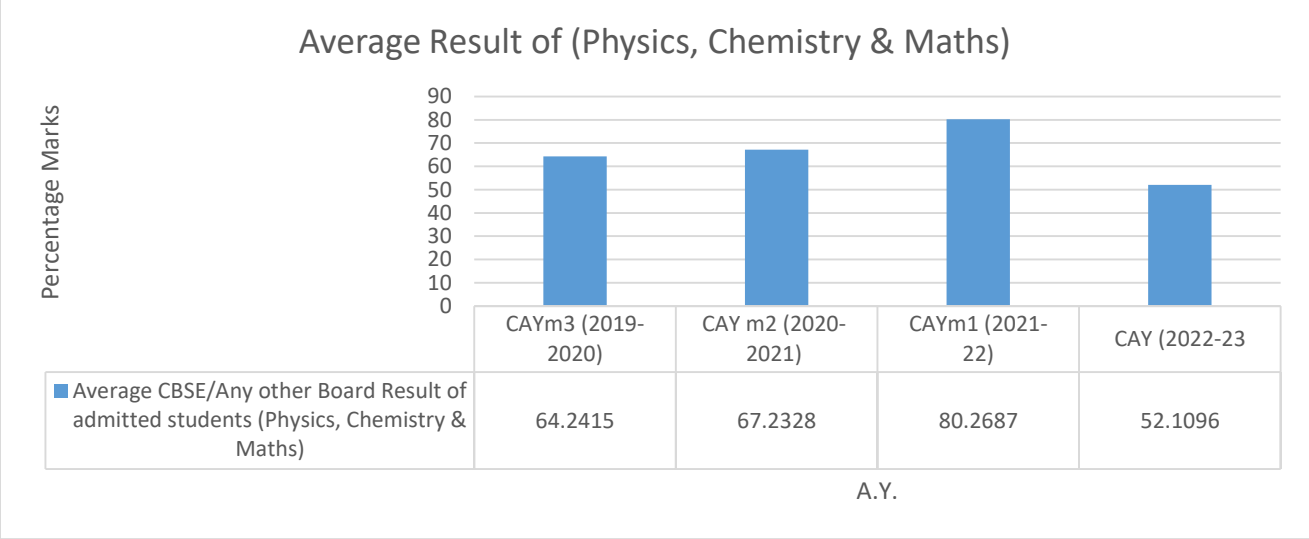
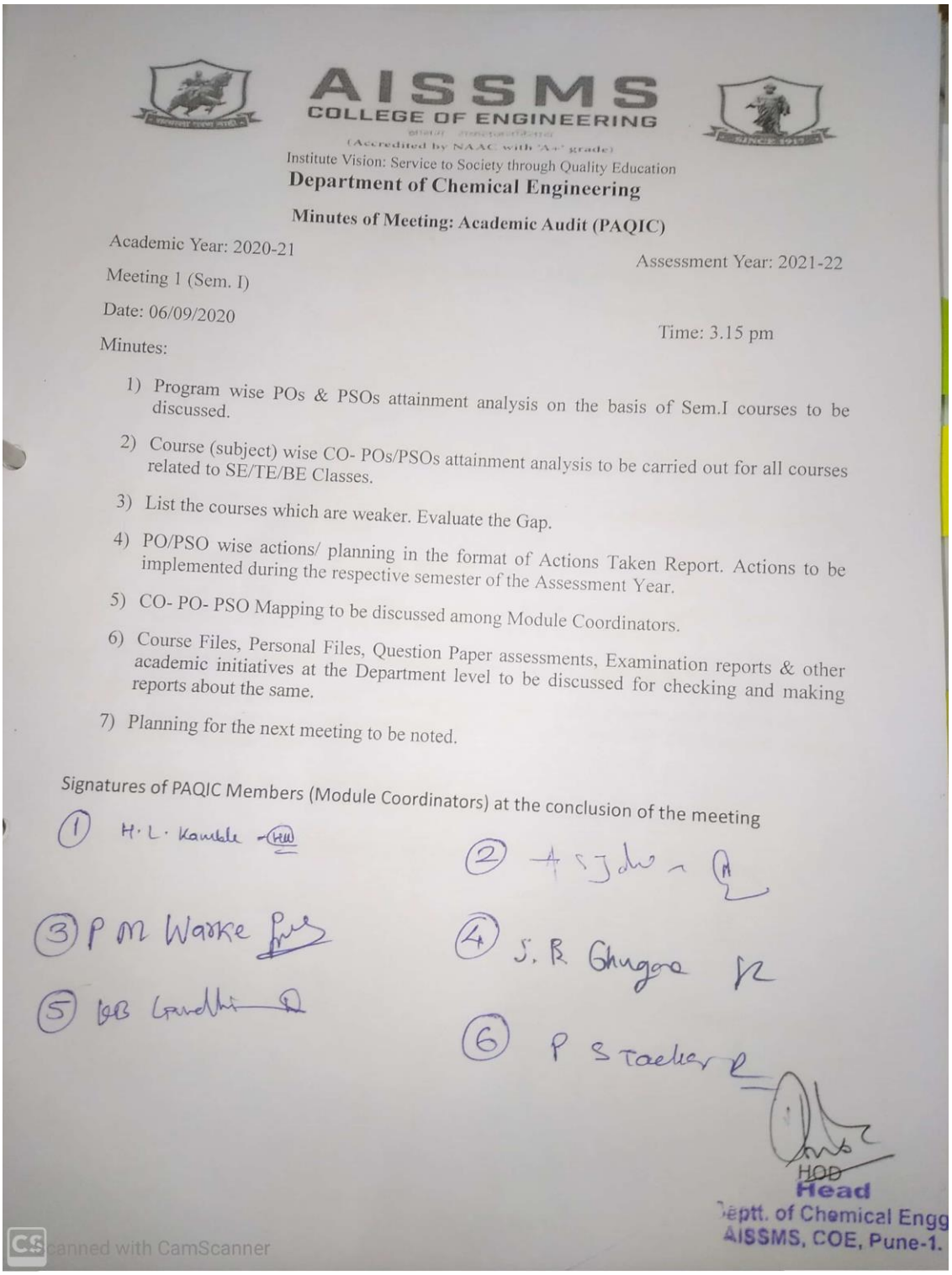


Fig. 7.4 Plots regarding improvement in the quality of students admitted to the program

Annexure 1: Academic audit (PAQIC) Meeting I at the start of Sem. I and II



AISSMS
COLLEGE OF ENGINEERING
(Accredited by NAAC with 'A++' grade)
Institute Vision: Service to Society through Quality Education
Department of Chemical Engineering

Minutes of Meeting: Academic Audit (PAQIC)

Academic Year: 2020-21 Assessment Year: 2021-22

Meeting 1 (Sem. I)

Date: 06/09/2020 Time: 3.15 pm

Minutes:

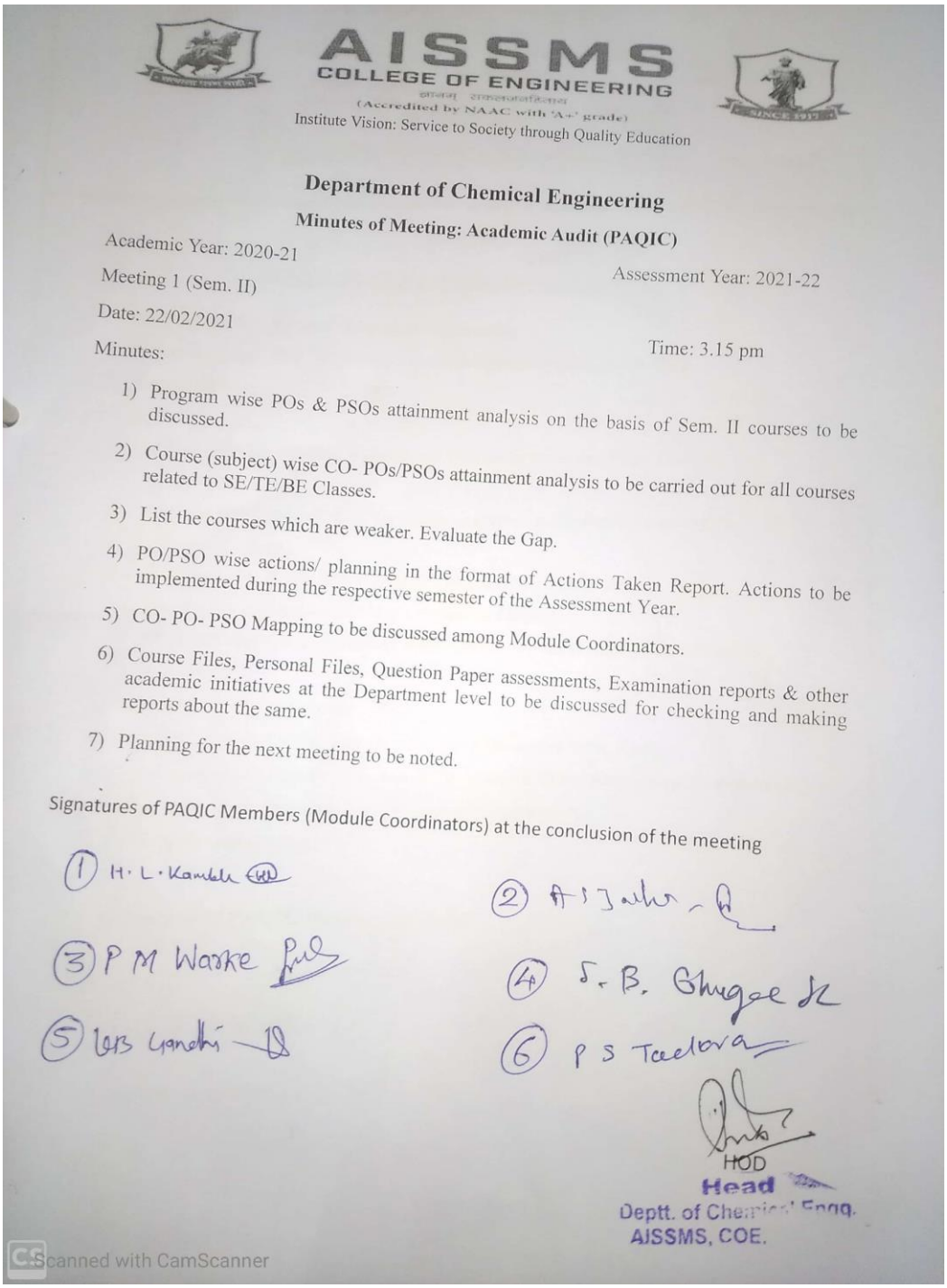
1) Program wise POs & PSOs attainment analysis on the basis of Sem.I courses to be discussed.
2) Course (subject) wise CO- POs/PSOs attainment analysis to be carried out for all courses related to SE/TE/BE Classes.
3) List the courses which are weaker. Evaluate the Gap.
4) PO/PSO wise actions/ planning in the format of Actions Taken Report. Actions to be implemented during the respective semester of the Assessment Year.
5) CO- PO- PSO Mapping to be discussed among Module Coordinators.
6) Course Files, Personal Files, Question Paper assessments, Examination reports & other academic initiatives at the Department level to be discussed for checking and making reports about the same.
7) Planning for the next meeting to be noted.

Signatures of PAQIC Members (Module Coordinators) at the conclusion of the meeting

(1) H. L. Kamble (2) (3) P M Warke (4) S. R. Ghugare (5) (6) P S Taeker

HOD
Head
Deptt. of Chemical Engg
AISSMS, COE, Pune-1.

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AISSMS
COLLEGE OF ENGINEERING
(Accredited by NAAC with 'A+' grade)
Institute Vision: Service to Society through Quality Education

Department of Chemical Engineering

Minutes of Meeting: Academic Audit (PAQIC)

Academic Year: 2020-21

Meeting 1 (Sem. II)

Assessment Year: 2021-22

Date: 22/02/2021

Minutes:

Time: 3.15 pm

1) Program wise POs & PSOs attainment analysis on the basis of Sem. II courses to be discussed.
2) Course (subject) wise CO- POs/PSOs attainment analysis to be carried out for all courses related to SE/TE/BE Classes.
3) List the courses which are weaker. Evaluate the Gap.
4) PO/PSO wise actions/ planning in the format of Actions Taken Report. Actions to be implemented during the respective semester of the Assessment Year.
5) CO- PO- PSO Mapping to be discussed among Module Coordinators.
6) Course Files, Personal Files, Question Paper assessments, Examination reports & other academic initiatives at the Department level to be discussed for checking and making reports about the same.
7) Planning for the next meeting to be noted.

Signatures of PAQIC Members (Module Coordinators) at the conclusion of the meeting

(1) H. L. Kamble
(2) A. J. Jadhav
(3) P M Warke
(4) S. B. Ghugare
(5) Vrs Gandhi
(6) P S Tambe

HOD
Head
Deptt. of Chemical Engg.
AISSMS, COE.

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CRITERION 8	FIRST YEAR ACADEMICS	50

8.1 First Year Student-Faculty Ratio (FYSFR) (5)

Data for first year courses to calculate the FYSFR:

Year	Number of Students (Approved Intake Strength)	Number of Faculty Members (Considering Fractional Load)	FYSFR	*Assessment = (5 ×20)/ FYSFR (Limited to Max. 5)
2021-22	**660**	**29**	**23**	**4.35**
2020-21	**660**	**31**	**21**	**5**
2019-20	**660**	**33**	**20**	**5**
Average	**660**	**31**	**21**	**4.78**

Table 8.1

***Note:** If FYSFR is greater than 25, then assessment equal to zero.

8.2 Qualification of Faculty Teaching First Year Common Courses (5)

Assessment of qualification = $(5x + 3y)/RF$, x= Number of Regular Faculty with Ph. D, y = Number of Regular Faculty with Post-graduate qualification RF= Number of faculty members required as per SFR of 20:1, Faculty definition as defined in 5.1

Year	x	Y	RF	Assessment of faculty qualification $(5x + 3y)/RF$
2021-22	8	19	33	2.93
2020-21	7	17	33	2.60
2019-20	6	22	33	2.90
			Average Assessment	**2.81**

Table 8.2 Assessment of qualification

8.3 First Year Academic Performance (10)

Academic Performance = ((Mean of 1st Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks in First Year of all successful students/10)) x (number of successful students/number of students appeared in the examination)= Successful students are those who are permitted to proceed to the second year.

Sr. No	A.Y.	Total No. of Appeared Students	Total No. of Clear Pass Students	Total No. of students in ATKT	Total No. of Fail Students	Total No. of successful Students	Mean SGPA	API
1	2020-21	49	47	2	0	49	8.38	8.38
2	2019-20	50	44	6	0	50	7.14	7.14
3	2018-19	58	25	19	14	44	6.69	5.08
							Average API:	6.87

Table 8.3: Average SGPA of all students clear passed and passed with ATKT student

8.4 Attainment of Course Outcomes of first year courses (10)

8.4.1 Describe the assessment processes used to gather the data upon which the evaluation of Course Outcomes of first year is done (5)

(Examples of data collection processes may include, but are not limited to, specific exam questions, laboratory tests, internally developed assessment exams, oral exams assignments, presentations, tutorial sheets etc.)

Process Details: Assessment of Course Outcome

Assessing course outcomes is an important part of evaluating the effectiveness of a course and determining whether it has achieved its intended goals. This process is carried out using following steps:

1. Define the Course outcomes: The first step is to clearly define the course outcomes of the course using Bloom's Taxonomy. This includes identifying the specific knowledge, skills, and abilities that students are expected to gain by the end of the course. For each course six Course Outcome statements are defined.

2. Develop assessment tools: Once the course outcomes have been defined, the next step is to develop assessment tools that measure whether students have achieved those outcomes.
3. Collect data: Collect data from students' performance on the assessment tools. This is done by grading exams, quizzes etc.
4. Analyse data: Once data has been collected, it is analysed to determine how well students have achieved the course outcomes.
5. Use data to improve the course: Finally, the data collected is used to identify areas where the course could be improved.

Assessing course outcomes is an iterative process that involves continuous refinement and improvement. By carefully defining course outcomes, developing appropriate assessment tools, and analysing data, course teacher ensure that their courses are effective in achieving their intended goals.

Assessment Tools

Assessment tools are designed to evaluate the attainment of the course outcomes (COs). It is important to select assessment tools that align with the specific COs of the course and to use multiple assessment tools to provide a comprehensive evaluation of student learning. The assessment tools are chosen based on the specific course outcomes being assessed and the teaching methods being used in the course.

The evaluation of the Course Outcome (CO) involves the use of both direct and indirect assessment tools, with greater weightage assigned to the former. Specifically, 80% weightage is given to direct assessment tools, which include both internal assessments (20%) and external assessments (80%). Meanwhile, indirect assessment tools are assigned a weightage of 20%.

The CO is assessed through a combination of direct and indirect methods, with greater emphasis placed on the former. The performance of students in both internal and external assessments is taken into account, with appropriate weightage assigned to each.

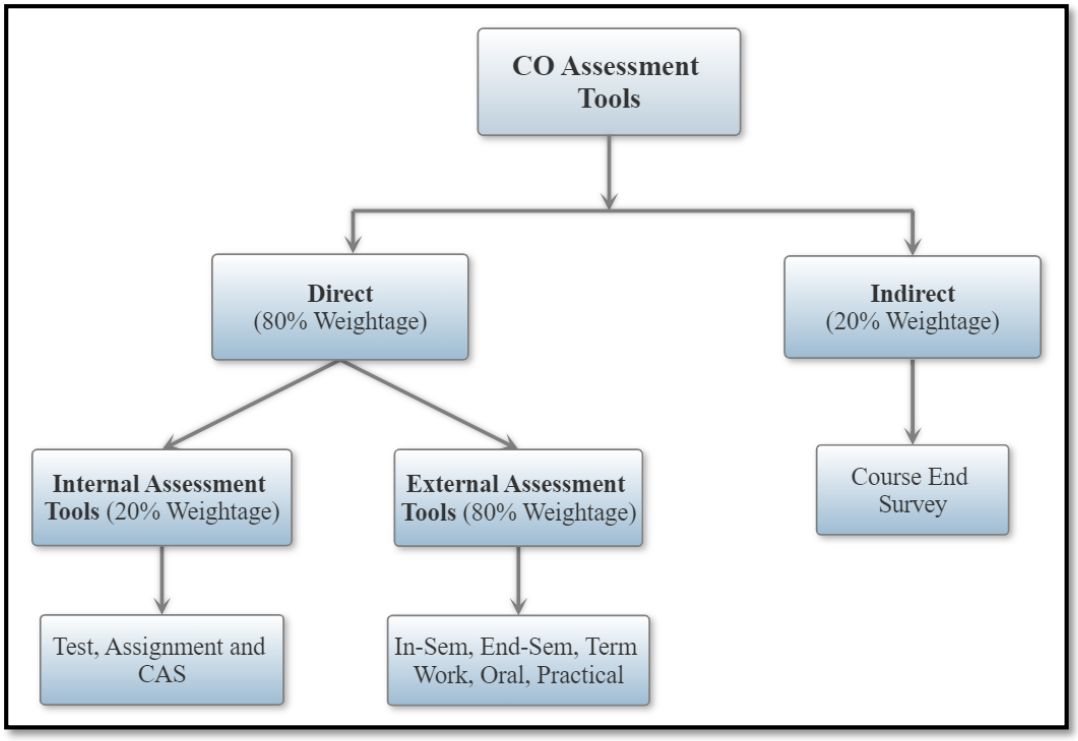


Figure B 8.4.1 a: Assessment tools and its weightage

Direct Assessment Tools:

The assessment of Course Outcomes (COs) is evaluated using direct assessment tools, which include internal and external assessments. Internal assessments contribute 20% and external assessment contributes 80% to the overall assessment of COs.

Theory:

Internal Tests and Assignments: In order to ensure that students are keeping up with the course content, internal tests and assignments are used as effective measures of their progress. The course is divided into six units, each of which is evaluated through a corresponding test. Additionally, three assignments are given, each based on two units of the course. The questions in these assessments are designed in accordance with Bloom's Taxonomy and are mapped to the specific Course Outcomes (COs) of the course. The department sets target level for COs, against which the students' performance is evaluated.

External Assessment:

University Examination: The university conducts both in-semester and end-semester examinations to evaluate students' understanding of the course contents. The in-semester examination covers two units of the course and assesses two specific Course Outcomes (COs), while the end-semester examination covers the next four units and evaluates the remaining four COs. These examinations are designed to test students' knowledge and comprehension of the course contents, as well as their ability to apply that knowledge to real-world situations.

Practical

Internal Assessment: Lab courses offer students a valuable opportunity to gain hands-on experience in applying the concepts they learn in class and to develop the skills necessary for success in their field of study. To assess students' performance in these practical aspects of the course, a Continuous Assessment Sheet (CAS) is used. This sheet evaluates several parameters, including regularity, quality of experiment write-ups, and overall performance during each experiment. By using the CAS, teachers are able to track students' progress and provide constructive feedback to help them improve their skills and understanding of the lab work.

External Assessment:

Practical courses conclude in an end-semester examination, which are analysed in the form of a term work. Through this examination, students are tested on their ability to apply the knowledge and skills they have acquired throughout the course to practical scenarios. By employing a variety of assessment formats, instructors are able to evaluate students' abilities from multiple perspectives.

To assess the achievement of Course Outcomes (COs), Program Outcomes (POs), and Program Specific Outcomes (PSOs), a range of assessment tools are used at different intervals throughout the course. Table **B 8.4.1 a** presents a comprehensive overview of these assessment tools, including the frequency at which they are administered. By utilizing a variety of methods to evaluate learning outcomes, course teachers are able to gain a more complete understanding of students' knowledge and skills, and ensure that the curriculum is meeting the desired standards.

Sr. No.	Assessment Tool	Description	Evaluation of Course Outcomes	Related POs/PSOs	Frequency of assessment per term
Internal Assessment Tools					
1.	Test	Written examination	Questions in the test are mapped against CO of respective course.	Corresponding mapped POs/PSOs with the CO	Six (One for each CO)
2.	Assignment	Set of question to solve to home. (Open Book)	Questions in the assignment are mapped against two CO of respective course.	Corresponding mapped POs/PSOs with the COs	Three (one for Two COs)
3	Continues Assessment Sheet (CAS)	Assessment of students during practical	Based on the COs mapped with the experiments / assignments	Corresponding mapped POs/PSOs with the COs	For each experiment/ assignment during practical.
External Assessment Tools					
4	In-Sem Exam	Written examination	Questions in the exam are	Corresponding mapped	One (Mid of the Term)

			mapped against COs corresponds to first two units of respective course.	POs/PSOs with the COs	
5	End-Sem Exam	Written examination	Questions in the exam are mapped against Cos corresponds to the next four units of the respective course.	Corresponding mapped POs/PSOs with the remaining four COs	One (End of the Term)
6	Term Work	Based on the continues assessment during practical sessions – CAS is used	Based on the COs mapped with the experiments / Assignments	Corresponding mapped POs/PSOs with the COs	One (End of the Term)

Table – B 8.4.1 a: Mapping of assessment tools to COs, POs/PSOs with frequency

Indirect assessment tool – Course End Survey

A course end survey is a feedback tool used to gather information from students at the conclusion of a course. Its purpose is to assess the effectiveness of the course. Typically administered in the final week of the course, the survey covers course content in the form of CO statements.

To be effective, course end surveys are well-designed and focused on relevant and meaningful questions. Course teacher carefully analyse the results of the survey and make necessary changes to their course design and teaching methods based on the feedback received.

The weightage assigned to the indirect assessment tool in CO attainment highlights its importance in evaluating the effectiveness of the course design and teaching methods. By using this feedback to make informed decisions about course improvements, Course teacher ensure that future iterations of the course are even more effective in helping students achieve their learning goals.

1. 8.4.2 Record the attainment of Course Outcomes of all first year courses (5)

Program shall have set attainment levels for all first year courses.

(The attainment levels shall be set considering average performance levels in the university examination or any higher value set as target for the assessment years. Attainment level is to be measured in terms of student performance in internal assessments with respect the COs of a subject plus the performance in the University examination)

Evaluation of CO Attainment by Direct Assessment Tool

The evaluation of course outcome (CO) attainment by assessment tool involves a systematic process of collecting and analysing data to determine the extent to which the course objectives have been met. The following steps are taken for this evaluation:

a) Choose an appropriate assessment tool: There are various internal and external assessment tools that are used. The choice of tool is aligning with the objectives and course outcomes of the course.
b) Determine assessment criteria: The assessment criteria are clearly defined and communicated to students. This will help to ensure that students understand what is expected of them and how their performance will be evaluated.
c) Administer assessment: The assessment tools are administered in a fair and consistent manner.
d) Analyse results: The results of the assessment should be analysed to determine the extent to which the course objectives have been met. This analysis should take into account the strengths and weaknesses of the students and the course. This analysis can be used to inform future instructional strategies and to improve the course content.
e) Evaluate the effectiveness of the assessment: It is important to evaluate the effectiveness of the assessment to determine if it has been successful in achieving its intended purpose. This evaluation may involve soliciting feedback from students or conducting a review of the assessment process.

Internal assessment tools consist of Test, Assignment, Continuous Assessment Sheet for Practical (CAS) to evaluate CO attainment level.

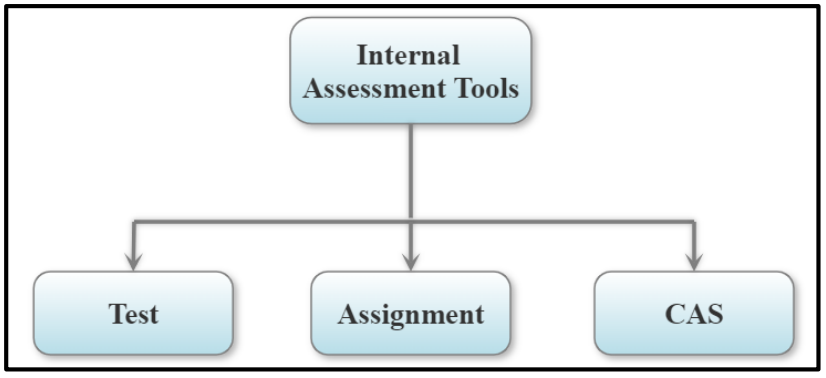


Figure B 8.4.2 a: Internal assessment tools

External assessment tools consist of university examination such as In-Sem Exam, End Semester Exam, Term work.

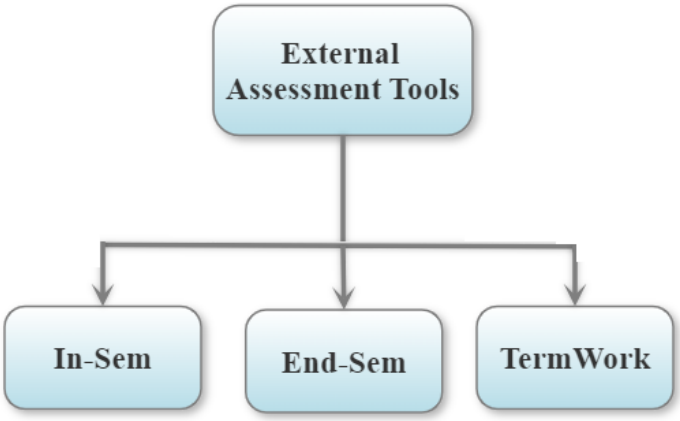


Figure B 8.4.2 b: External assessment tools

Attainment Levels

Attainment levels for Course Outcomes (COs) are a measure of students' achievement in meeting the course objectives. These levels are assessed using a variety of tools, and the attainment level may be stated as a percentage of students expected to achieve a certain threshold of marks. The attainment level is then measured as the actual percentage of students who meet or exceed the set threshold.

The defined attainment levels are;

Attainment Level 1: **20% to less than 60%** students scoring more than **60%** marks out of the relevant maximum marks.

Attainment Level 2: **60% to less than 70%** students scoring more than **60%** marks out of the relevant maximum marks.

Attainment Level 3: More than **70%** students scoring more than **60%** marks out of the relevant maximum marks.

Mapping of Assessment Tools and Cos

Mapping assessment tools and COs is an important part of the assessment process and can help to ensure that student performance is evaluated consistently and effectively.

Mapping of assessment tools and course outcomes (COs) involves identifying which assessment tools are appropriate for evaluating specific COs. This process ensures that the assessment tools align with the intended learning outcomes and measure the desired knowledge, skills, and abilities. This process also helps to ensure that the assessment methods are valid and reliable, and that they provide accurate and meaningful information about student learning.

Weighted average method

The weighted average method is a technique used to calculate the CO attainment from attainment values by tools. To use the weighted average method, weights are assigned to each tool based on maximum marks assigned to it, its relative importance, contribution to the overall attainment.

The steps involved in using the weighted average method to calculate CO attainment are as follows:

i. Decide on the assessment tools to be employed in calculating CO attainment.

ii. Establish the level of attainment for each tool used in the process, which will be measured on a scale of 1 to 3.

iii. Assign weights to each tool based on its Maximum Marks. The weight for each tool will be calculated as the ratio of its Maximum Marks to the total marks assigned to all selected tools for calculating CO attainment.

iv. Multiply each tool's level of attainment by its corresponding weight

v. Sum up the weighted attainment values for all the tools to get CO attainment.

For example, if three tools are used with maximum marks assigned as 20, 30, 40 (Total Maximum Marks = 90), and the CO attainment values for the tools are 2, 1, and 3, weights assigned as (20/90), (30/90) and (40/90), respectively, based on the maximum marks for each tool in measuring the CO attainment.

To calculate the weighted average CO attainment, following formula is used:

Weighted average CO attainment = (Tool 1 attainment * Weight 1) + (Tool 2 attainment * Weight 2) + (Tool 3 attainment * Weight 3) + ...

In the example above, the weighted average CO attainment would be:

Weighted average CO attainment = (2 * 20/90) + (1 * 30/90) + (3 * 40/90) = 2.11

Therefore, the weighted average CO attainment for the three tools is 2.11.

Let's take an another example of a course that has six Course Outcomes (CO.1 to CO.6), and for each CO, specific assessment tools are used along with their corresponding maximum marks (Mi), as shown in the table below. Based on the performance of students and target values, CO attainment levels can be determined for each assessment tool as Ai.

Assessment Tool	Internal				External		
	Test-1	Test-2	Assignment	CAS	In-Sem	End Sem	Term Work
COs Mapped	***CO.1***	*CO.2*	*CO.1 & 2*	*All COs*	*CO.1 & 2*	*All COs*	*All COs*
Maximum Marks	*M1*	*M2*	*M3*	*M4*	*M5*	*M6*	*M7*
CO Attainment Level	*A1*	*A2*	*A3*	*A4*	*A5*	*A6*	*A7*

Table B 8.4.2 a: Mapping of Cos with Assessment Tools

Since different assessment tools are used to evaluate each Course Outcome, the average attainment of each CO will depend on the attainment level obtained from each tool. For instance, the average attainment level of CO.1 will depend on the attainment levels obtained through various internal assessment tools, such as Test 1, Assignment 1, and CAS, as well as external assessment tools, such as In-Sem, End Sem, and Term work. If an assessment tool is used for multiple COs, the maximum marks can be distributed equally among those COs.

For example, if Assignment 1 is used as an assessment tool for CO.1 and CO.2, the maximum mark can be distributed equally between both COs, i.e., M3/2 for each CO. When calculating the attainment levels for external tools, such as End Sem Exam, CO-wise mark distribution should be considered. Additionally, the average CO attainment for internal tools and external tools should be calculated separately.

Average CO Attainment for particular CO using multiple assessment tools can be calculated as $\Sigma\, weightage * CO\ attainment$

Average CO Attainment by Internal Assessment Tools				
CO	**Assessment Tool, Weightage and Attainment Level**			**Total**
CO.1	Test-1	Assig.-1	CAS	
Marks for CO.1	M1/1	M1/2	M4/6	**Mint1**
Weightage	WT1 = M1 / (1*Mint1)	WA1 = M1 / (2*Mint1)	WCS = M4 / (6*Mint1)	**1**
CO Attainment	A1	A3	A4	
Average CO Attainment (Aint)	**= WT1*A1 + WA1*A3 + WCS*A4**			

Table B 8.4.2 b: CO Attainment calculations for Internal Assessment Tools

Average CO Attainment by External Assessment Tools				
CO	**Assessment Tool, Weightage and Attainment Level**			**Total**
CO.1	In-Sem	End Sem	Term Work	
Marks for CO.1	M5/2	M6/6	M7/6	**Mext1**
Weightage	WI1 = M5 / (2*Mext1)	WE1 = M6 / (6*Mext1)	WTW = M7 / (6*Mext1)	**1**
CO Attainment	A5	A6	A7	
Average CO Attainment (Aext)	**= WI1*A5 + WE1*A6 + WTW*A7**			

Table B 8.4.2 c: CO Attainment calculations for External Assessment Tools

The CO attainment level by direct tools is calculated by giving 20% weightage to the average CO attainment level obtained from internal assessment tools and 80% weightage to the average CO attainment level obtained from external assessment tools.

CO attainment for CO1 = 0.2 X Aint + 0.8 X Aext

CO Attainment Level by Indirect Assessment Tool

Mapping the survey questions to the COs enables course teacher to better understand the degree to which students have achieved the desired course outcomes. Standardizing the survey form ensures consistency across different courses, while a rating scale allows for a more nuanced and detailed assessment of student performance.

At the end of each course, a customized survey form is created with questions directly linked to the Course Outcomes (COs). Responses to these questions are collected through forms that typically use a 1-3 scale (with low to high ratings). Average of all the responses to respective CO is consider as CO attainment. The data is then used to compute the indirect CO attainment, which is given a weightage of 20% in the overall CO attainment assessment.

Overall CO Attainment Level for Course

To evaluate and assess COs, multiple tools are used, including direct assessment tools such as internal assessment and external assessment tools (university exams). When calculating CO attainment using direct assessment tools, 20% weightage is given to internal assessment tools, and 80% weightage is given to external assessment tools.

The weightage for CO attainment by direct assessment tools is 80%, while the weightage for the indirect assessment tool (Course End Survey) is 20%.

Thus, CO attainment using all the tools is



Figure B 8.4.2 c: External assessment tools

Target for CO attainment

Target for CO attainment refers to the desired level of achievement or proficiency that a student is expected to reach for a particular course outcome (CO). It is should be set by the department offering the course, and it serves as a benchmark for evaluating the effectiveness of the course in achieving its intended learning outcomes.

By setting clear targets for CO attainment, course teacher and institutions can monitor student progress and make adjustments to the course as needed to ensure that students are meeting the desired learning outcomes.

Action upon CO attainment values

- **All of CO targets are not attained**

Corrective actions are taken based on the CO attainment values in order to improve the quality of education provided. If the attainment value for all COs is consistently low, it indicates that students are not achieving the expected learning outcomes for COs. In this case, the following corrective actions can be taken:

a) Teaching methodology: Teaching methodology can be evaluated and revised to ensure that it is effective and aligns with the COs. This could involve adopting new instructional methods or revising existing ones to better support student learning.

b) Assessment tools: Assessment tools can be reviewed and revised to ensure they accurately measure student learning and achievement of the COs. This could involve creating new assessment tools or revising existing ones to better align with the COs.

c) Faculty development: Faculty can be provided with professional development opportunities to enhance their teaching skills and keep up with the latest pedagogical techniques and strategies.

d) Learning resources: The availability and accessibility of learning resources can be improved to better support student learning and achievement of the COs.

e) Student support services: Student support services can be improved to provide additional assistance to students who may be struggling to achieve the COs.

By taking these corrective actions, the attainment of COs is improved, and the overall quality of education provided can be enhanced. In this case maintain the same CO targets.

- **Some of CO targets are not attained**

When deciding whether to change CO targets for the next academic year based on the attainment values, it is important to consider multiple factors. Here are some suggestions for improving this approach:

a) Analyze the distribution of CO attainment values: It's important to analyze the distribution of CO attainment values to identify any gaps or areas of improvement. For example, if some COs are consistently below the target value while others are above it, it may be more effective to focus on improving the performance in the weaker areas before changing the target value for COs.

b) Consider the difficulty level of COs: The difficulty level of COs can vary, and some COs may be more challenging than others. Therefore, it's important to consider the difficulty level of COs when deciding whether to increase the target value. COs that are already at a high level of attainment may not require an increase in the target level, whereas those that are below the target level and have higher difficulty levels may require more attention.

c) Align CO targets with program and industry standards: CO targets should be aligned with the program and industry standards to ensure that students are adequately prepared for their future careers.

By taking these factors into consideration, course teacher can make informed decisions about whether to increase the CO target values based on attainment values, and if so, how much to increase them. This approach can help ensure that CO targets are tailored to the needs of the learners and the demands of the industry, while also providing students with the necessary skills and competencies.

- **All of CO targets are attained**

When all CO targets are attained, it is important to reassess the CO targets and set new targets for the next academic year. Here are some suggestions to improve this process:

a) Analyze the CO attainment values: Before setting new CO targets, it is important to analyze the CO attainment values to identify areas of strength and areas for improvement. This analysis can help inform the setting of new targets that are challenging and realistic.

b) Consider industry and program standards: CO targets should be aligned with industry and program standards to ensure that students are well-prepared for their future careers. Therefore, it is important to consider these standards when setting new CO targets.

d) Use a data-driven approach: Setting new CO targets based on the average of all CO attainment values may be the one of the approaches. Instead, a data-driven approach that takes into account the distribution of CO attainment values and the difficulty level of each CO can help ensure that new targets are appropriately challenging and achievable.

By following these suggestions, educators can set new CO targets that are tailored to the needs of the learners and the demands of the industry. This can help ensure that students are well-prepared for their future careers and have the necessary skills and competencies to succeed.

- **CO attainment values at Maximum Level (nearly equal to 3.00)**

When CO attainment values are already at the maximum level, further improvements can still be made to the course outcomes by adopting the following strategies:

a) Increase the level of challenge: When the attainment level is already at the maximum, one way to improve the COs is to increase the level of challenge for the students. This can be achieved by adding more complex and advanced course content, assessments, and/or projects. By doing this, students can continue to learn and grow even if they have already reached the maximum attainment level.

b) Update the criteria for attainment level: When the attainment level is already at the maximum, it may be necessary to update the criteria for the attainment level to ensure that it remains challenging and relevant.

For example, new target value and criteria can be,

Attainment Level 1: 20% to 60% students scoring more than **65% marks** out of the relevant maximum marks.

Attainment Level 1: **40% to 70%** students scoring more than 60% marks out of the relevant maximum marks.

By adopting these strategies, course teacher continues to improve the course outcomes even when the attainment level is already at the maximum. It is important to remember that course outcomes should be designed to provide students with the knowledge, skills, and competencies.

Course Outcome of all FE courses are listed in table below:

Attainment of Course Outcomes of all first year courses

ACADEMIC YEAR 2020-21

Course Code	Subjects	CO 1	CO 2	CO 3	CO 4	CO 5	CO 6
107001	Engineering Mathematics - I	2.31	2.29	1.55	1.56	2.59	2.75
107002	Engineering Physics	1.71	1.71	2.71	2.71	2.71	2.95
102003	SME	2.81	2.92	2.92	2.92	2.6	2.76
103004	Basic Electrical Engineering	2.95	2.71	2.95	2.71	2.59	2.83
110005	PPS	2.92	2.92	2.92	2.92	2.92	2.92
111006	Workshop Practices	2.93	2.93	2.93	2.93		
107008	Engineering Mathematics II	2.81	2.97	2.65	2.65	2.65	2.81
107009	Engineering Chemistry	2.38	2.39	2.91	2.91	2.91	2.91
104010	Basic Electronics Engineering	2.93	2.93	2.93	2.93	2.93	2.93
101011	Engineering Mechanics	2.96	2.96	2.96	2.96	1.04	1.04
102012	Engineering Graphics	2.94	2.94	2.94	2.94	2.94	2.94
110013	PBL	2.95	2.95	2.95	2.95	2.95	2.95

8.5 Attainment of Program Outcomes from first year courses (20)

8.5.1 Indicate results of evaluation of each relevant PO and/or PSO, if applicable (15)

The relevant program outcomes that are to be addressed at first year need to be identified by the institution. Program Outcome attainment levels shall be set for all relevant POs and/or PSOs through first year courses.

(Describe the assessment processes that demonstrate the degree to which the Program Outcomes are attained through first year courses and document the attainment levels. Also include information on assessment processes used to gather the data upon which the evaluation of each Program Outcome is based indicating the frequency with which these processes are carried out)

Assessment of program outcomes (POs) and program-specific outcomes (PSOs) is an essential part of the evaluation and improvement of academic programs.

In outcome-based education, program outcomes (POs) serve as a guide for curriculum design, delivery, and assessment of student learning. To ensure alignment, a "design down" process is employed, where outcomes are cascaded from POs to Course Outcomes (COs) and outcomes for individual learning experiences.

To connect high-level learning outcomes (POs) with course content, course outcomes, and assessment, there is a need to bring further clarity and specificity to the program outcomes. This can be achieved through a two-step process of identifying competencies and defining performance indicators (PIs). Competencies are different abilities implied by program outcome statements, while PIs are explicit statements of expectations of student learning.

Once the competencies and PIs are identified, the assessment of COs for all courses is designed by connecting assessment questions to the PIs. By following this process, where examination questions map with PIs, there is better resolution for the assessment of COs and POs. Ultimately, the achievement of POs is crucial for the effectiveness of the program and needs to be proven through accurate and reliable assessments.

Assessing POs and PSOs typically involves gathering evidence of student learning, analysing that evidence, and using it to improve teaching and learning. The key steps involved in the assessment process:

1. Develop assessment criteria: Develop criteria for assessing program outcomes and PSOs. The criteria are measurable, observable, and achievable. This includes developing rubrics or other assessment tools that allow for objective and consistent evaluation.
2. Collect data: Collect data on student performance related to program outcomes and PSOs. This includes assessments of student work, surveys of student.
3. Analyse data: Analyse the data to assess how well the program is meeting its outcomes and PSOs. This include comparing student performance to the established criteria and identifying areas of strength and weakness.
4. Use results for improvement: Use the results of the assessment to identify areas where improvement is needed and develop strategies to address these areas. This involves changes teaching methods, or assessment methods or providing additional resources to students to help them meet the Program Outcomes and PSOs.

PO and PSO Assessment tools

PO (Program Outcomes) and PSO (Program Specific Outcomes) assessment tools are used to evaluate the overall effectiveness of a program and to ensure that it meets the required standards.

There are various tools and techniques that can be used to assess POs and PSOs, some of which include:

a) Direct assessment tools: These tools assess the students' achievement of POs/PSOs through internal and external assessment. Internal assessment tools include assignments, test, CAS, etc. whereas external assessment tools include university theory exams, Project etc. Direct assessment tools are used to measure students' performance against the pre-defined performance indicators.
b) Indirect assessment tools: These tools evaluate the effectiveness of the program in terms of student satisfaction, feedback, and perception. Indirect assessment tools include surveys. Exit surveys are conducted with graduating students to evaluate the overall effectiveness of the program. Exit surveys can provide feedback on areas of strength and areas for improvement.

The tools used for assessment of POs/PSOs are same which are used for assessment of COs. These tools are defined in **Table – B 8.4.1 a**.

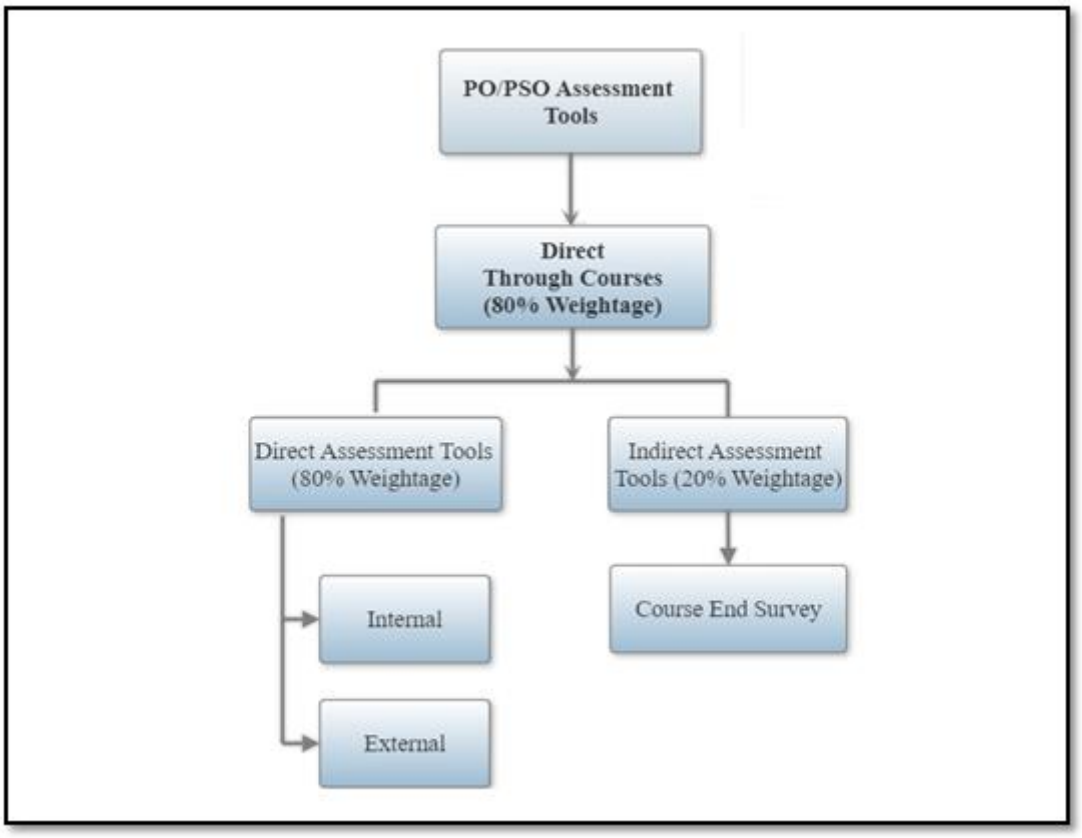


Figure B 8.5.1 a: PO/PSO assessment tools

The steps taken are

a. Weightage Distribution: A balanced distribution of weightage is used for direct and indirect assessment methods. A suggested distribution is 80% weightage for direct assessment and 20% weightage for indirect assessment, as both methods have their own strengths and limitations.
b. Direct Assessment: Direct assessment of POs and PSOs is based on the attainment of COs, where COs are mapped to POs and PSOs.
c. Indirect Assessment: Indirect assessment of POs and PSOs is conducted through surveys targeting different stakeholders. These surveys include graduate exit survey, employer survey, parent survey, and alumni survey. The weightage for each survey is equal.

Attainment Levels of POs/PSOs

The various direct assessment tools used to evaluate COs, PO/PSOs and the frequency with which the assessment processes are carried out are listed in **Table – B 8.4.1 a**.

Tools used to evaluate PO/PSO attainment are same as that of CO attainment. Attainment Levels for internal as well as external assessment tools are also same for PO/PSO attainment and defined as;

Attainment Level 1: 20% to 60 % students scoring more than **60%** marks out of the relevant maximum marks.

Attainment Level 2: 60% to 70 % students scoring more than **60%** marks out of the relevant maximum marks.

Attainment Level 3: More than **70%** students scoring more than **60%** marks out of the relevant maximum marks.

In order to assess attainment levels of program outcomes (POs) and program-specific outcomes (PSOs), the same tools and criteria used to define course outcomes (COs) attainment levels are applied. As a result, the attainment levels of COs are used to calculate the attainment levels of PSOs and POs. Direct assessment of PSOs and POs is based on the attainment levels of COs and the degree of correlation between them.

Sample calculation for PO/PSO attainment is described in following three steps:

Step – 1

CO Attainment and CO – PO/PSO mapping is defined for course by correlation level low to high (1 to 3).

Course Outcomes	CO Attainment	Program Outcomes			
		PO1	PO2	PO3	PSO1
CO207002.1	2.5	3	1		
CO207002.2	2.8	3	2	1	1
CO207002.3	2.3	2	2		2
CO207002.4	1.5	2	1	1	1
CO207002.5	2.0	1	1		
CO207002.6	3.0	3	3		

Table B 8.5.1 a: CO - PO Mapping

Step – 2

The program-specific outcome (PSO) or program outcome (PO) attainment is based on the level of mapping between the POs and course outcomes (COs) and the CO attainment level.

Direct PO/PSO attainment is calculated using following formula:

PO/PSO attainment = (Level of Mapping of PO with CO X CO attainment Level) / 3

Course Outcomes	CO Attainment	Program Outcomes			
		PO1	PO2	PO3	PSO1
CO207002.1	2.5	=2.5x3/3	=2.5x1/3		
CO207002.2	2.8	=2.8x3/3	=2.8x2/3	=2.8x1/3	=2.8x1/3
CO207002.3	2.3	=2.3x2/3	=2.3x2/3		=2.3x2/3
CO207002.4	1.5	=1.5x2/3	=1.5x1/3	=1.5x1/3	=1.5x1/3
CO207002.5	2.0	=2.0x1/3	=2.0x1/3		
CO207002.6	3.0	=3.0x3/3	=3.0x3/3		

Table B 8.5.1 b: PO/PSO Attainment Calculations

Step – 3

Direct PO/PSO attainment is evaluate by taking average of PO/PSO attainment by each CO attainment.

Course Outcomes	CO Attainment	Program Outcomes			
		PO1	PO2	PO3	PSO1
CO207002.1	2.5	2.50	0.83		
CO207002.2	2.8	2.80	1.87	0.93	0.93
CO207002.3	2.3	1.53	1.53		1.53
CO207002.4	1.5	1.00	0.50	0.50	0.50
CO207002.5	2.0	0.67	0.67		
CO207002.6	3.0	3.00	3.00		
Average PO/PSO Attainment		1.92	1.40	0.72	0.99

Table B 8.5.1 c: Average PO/PSO Attainment by Course

Using direct tools to assess PO/PSO attainment provides objective evidence of students' learning outcomes and helps department to identify areas for improvement in the program. Additionally, it allows for a more accurate evaluation of the effectiveness of the program's curriculum, instructional methods, and teaching strategies.

Attainment of POs/PSOs through Indirect Tools

Indirect tools provide valuable information about students' perceptions of their learning experiences and the extent to which they perceive that they have achieved program outcomes.

While indirect tools have limitations, they can provide valuable insights into students' experiences and perceptions of the program, as well as how well it aligns with the needs of employers and the community.

By combining direct and indirect tools, department gain a more comprehensive understanding of the program's effectiveness in achieving its intended learning outcomes.

Graduate Exit Survey, Employer Survey, Parents Feedback and Alumni Survey are conducted at the end of program and equal weightage is given each.

The department conducts surveys using a relevant questionnaire in order to assess the attainment of Program Outcomes (POs) and Program Specific Outcomes (PSOs). The questionnaire provides 5 response options, namely Excellent, Very Good, Good, Average, and Poor, which are assigned scores of 5, 4, 3, 2, and 1, respectively. The survey results are then tabulated, and the average scores for each PO and PSO are calculated. To determine the attainment level for each PO and PSO, the average score is converted to a scale of 0 to 3.

For indirect PO/PSO attainment 20% weightage is given.

Total PO/PSO attainment is calculated as:

Direct Attainment by all courses X 0.8 + Indirect Attainment X 0.2

ACADEMIC YEAR 2020-21 PO Mapping Matrix																
Sr. No.	**Course**	**Course Title**	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO1**	**PSO2**	**PSO3**
1	107001	Engineering Mathematics - I	3	2	1		1									1	
2	107002	Engineering Physics	2	1			1		1			1			1		
3	102003	SME	2	1					1			1			1	1	
4	103004	Basic Electrical Engineering	1.5	1.5	1		1										
5	110005	PPS	1.25	2	1.6		1			1	1	1		1			
6	111006	Workshop Practices	1	1	1	1		1									
7	107008	Engineering Mathematics II	3	2	1		1								1	1	

8	107009	Engineering Chemistry	2.33	2	1				1		1	1			1	1	
9	104010	Basic Electronics Engineering	2	1	1		1										
10	101011	Engineering Mechanics	2	2			1					1			1		
11	102012	Engineering Graphics	2	1	1		1					1			1		
12	110013	PBL	2.33	1.33	1		2.5	1	1		2	1	1		1	1	
Direct Target*			2.03	1.49	1.07	1.00	1.17	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00	1.00	NA
Contributing Subjects			12	12	9	1	9	2	4	1	3	7	1	1	7	5	NA

Attainment Matrix

A.Y- 2020--21 CO-PO Attainment Matrix																
Sr. No.	**Course**	**Course Title**	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PS O1**	**PS O2**	**PS O3**
1	107001	Engineering Mathematics - I	2.18	1.45	0.73		0.73									0.72	
2	107002	Engineering Physics	1.61	0.57			0.57		0.94			0.71			0.98		
3	102003	SME	1.88	0.96					0.94			0.94			0.95	0.97	
4	103004	Basic Electrical Engineering	1.39	1.39	0.94		0.92										
5	110005	PPS	1.22	1.95	1.56		0.97			0.97	0.97	0.97		0.97			
6	111006	Workshop Practices	0.98	0.98	0.98	0.98		0.98									
7	107008	Engineering Mathematics II	2.76	1.84	0.92		0.92								0.96	0.96	
8	107009	Engineering Chemistry	2.15	1.94	0.97				0.91		0.91	0.91			0.91	0.88	
9	104010	Basic Electronics Engineering	1.95	0.98	0.98		0.98										
10	101011	Engineering Mechanics	1.55	1.55			0.35					0.67			0.35		

11	102012	Engineering Graphics	1.96	0.98	0.98		0.98					0.98			0.98		
12	110013	PBL	2.29	1.31	0.98		2.46	0.98	0.98		1.97	0.98	0.98		0.98	0.98	
Direct Attainment*			1.83	1.33	1.00	0.98	0.99	0.98	0.94	0.97	1.28	0.88	0.98	0.97	0.87	0.90	
Contributing Subjects			12	12	9	1	9	2	4	1	3	7	1	1	7	5	NA

Table 8.5.1

8.5.2 Actions taken based on the results of evaluation of relevant POs (5)

(The attainment levels by direct (student performance) are to be presented through Program level Course-PO matrix as indicated)

2. PO Attainment Levels and Actions for improvement - CAY – Mention for relevant PO's

ACADEMIC YEAR 2020-21			
PO's	**Target Level**	**Attainment Level**	**Observations**
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.03	1.83	Attainment is 89.80% of target value. Subjects shows lower attainment values are PPS, Physics, EM-I. The students faced difficulty to understand basic concepts of the courses.
Action 1	To conduct Expert Lecture & Extra Test/Quiz to enhance basic engineering knowledge.		
Action 2	To provide a question bank to improve engineering knowledge.2		
Action 3	To guide students to choose interdisciplinary problems in Project Based Learning.		
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	1.49	1.33	Attainment is 89.18% of target value. Subjects show lower attainment values are PPS, Physics, EM-I. These courses need better understanding through practical knowledge and sound basics.
Action 1	To give more problems to improve understanding of the subject.		
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	1.07	1.00	Attainment is 94.17% of target value. Subjects shows lower attainment values are PBL, PPS, Physics. These kinds of courses need more practice. Students need to practice on
Action 2	To organize an industrial visit to get familiar with engineering problems.		
Action 3	To guide students to take on projects related to societal and environmental considerations.		
PO4: 4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			
PO4	1.0	0.98	Attained 98%

Action 1	To set higher target.		
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.			
PO5	1.17	0.99	Attainment is 84.57% of target value. Subjects shows lower attainment values are PPS, Physics, EM-I
Action 1	Effective utilization of modern tools like Vlab, Google Quiz, PPT, YouTube Videos, google website, NPTEL video lectures, MS Teams.		
Action 2	To students to use modern online softwares ,Simulation software.		
PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.			
PO6	1	0.98	Attainment is 98 % of target value. PBL is showing a lower attainment value.
Action 1	Motivate students to take Techno-social Projects for Project Based Learning.		
PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.			
PO7	1	0.94	Attainment is 94% of target value. PBL is showing a lower attainment value.
Action 1	To create awareness through Lab Activity and Field Visit to explore the knowledge of Environment & Sustainability.		
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	1	0.97	Attainment is 97% of target value. PPS is showing a lower attainment value.
Action 1	Organize expert lectures/ motivational talk to overcome the above observation.		
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	1.33	1.28	Attainment is 96.25% of target value. Subjects shows lower attainment values are PBL.PPS. Attempts to be made for further enhancement in individual and team work.
Action 1	To conduct more Group activities/presentations to enhance the ability of performing individually and in a team.		
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
PO10	1.0	0.88	Attainment is 88% of target value.

			Subjects shows lower attainment values are PBL, PPS, Physics. Increasing the participation of students in team work activities to boost effective communication.
Action 1	To provide professional training to improve verbal & written communication through practical activities/Group Discussion/Presentations/Reports.		
PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			
PO11	1.0	0.98	Attainment Level is 98% target level.
Action 1	To create awareness among the students through project management principles while writing project reports.		
PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
PO12	1.0	0.97	Attainment Level is 97% target level. Students need to encourage to participate in professional chapters for overall development.
Action 1	More number of self learning assignments to be given.		
Action 2	To conduct relevant activities under various student professional chapters and NSS.		

Table B.8.5.2

ACADEMIC YEAR 2020-21			
PSO's	**Target Level**	**Attainment Level**	**Observations**
PSO1: Identify, analyze, design and develop solutions to Chemical Engineering problems of practical importance to industry and society.			
PSO 1	1.00	0.87	Attainment is 87.29% of target value.
Action 1	More numerical problems in the indicated subjects to be undertaken.		
Action 2	Technical quiz is to be conducted to reduce the gap between the target and attainment of PSO1		

PSO2: Demonstrate sound understanding of Chemical Engineering fundamentals to solve problems through the use of modern experimental methods, computer aided design and simulation software.			
PSO 2	1.00	0.90	Attainment Level is 90.20% target level.
Action 1	Microsoft Excel/ Other software to be used by the students to solve the problem of EM-I		

ANNEXURE I:

PROGRAM OUTCOMES (POs): Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

***

CRITERION 9	STUDENT SUPPORT SYSTEMS	50

9.1 Mentoring system to help at individual level

Counselling and Mentoring encompass broad set of skills, approaches and techniques that are essentially aimed at helping students with problem solving, problem management, resolving past issues, working towards developmental aims and goals for the future, which include improving performance and meeting career and personal aspirations.

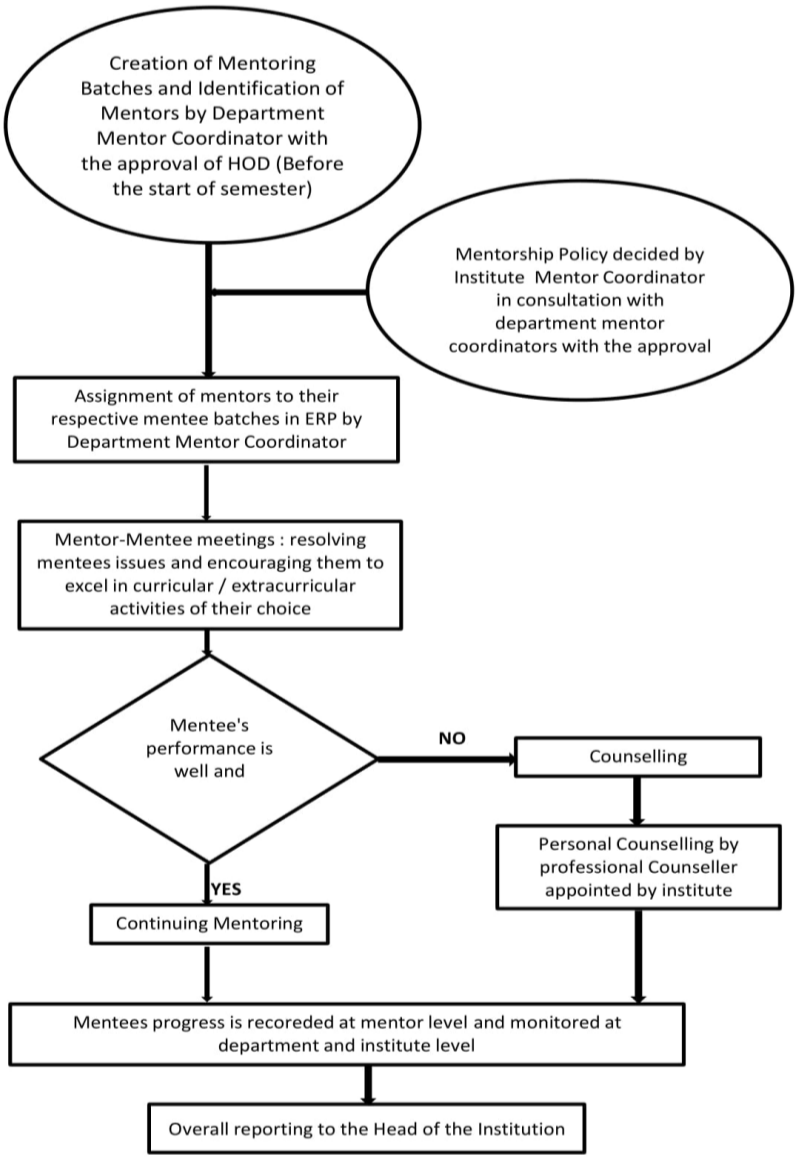


Fig. 9.1.1. Mentoring Process

The counselling and mentoring process is developed to

1. help students overcome emotional challenges,

2. assist a student to know him/herself better his/her interest, abilities, attitudes and opportunities,
3. work out a plan (behavioural therapy) for solving his difficulties. assist students in planning for career choices.

Functioning:

- Each faculty member acts as a mentor in the counselling & mentoring process.
- A mentor is responsible for guiding about 20 students of a class.
- The mentor listens to the problems of the mentee, both academic and personal which hinder their learning abilities.
- In the mentoring sessions, students raise their difficulties/problems regarding academics/general facilities/hostel facilities with their respective mentors.
- If the mentor/course-coordinator/GFM/HOD observes or finds a student who needs professional counselling, his case is forwarded to the Professional Counselling agency through the Counselling & Mentoring Coordinator.

Post Counselling:

- Feedback and Behavioural improvements are observed from the student seeking professional counselling.
- Record of a case study report is asked from the mentor mentioning the positive changes and improvement observed for the student.

Role of Department Mentor Coordinator:

- To distribute required formats to the department mentors.
- To maintain the list of the students and respective mentors.
- To monitor the records of mentors on a regular basis and report to the HOD.
- To collect the records from all the mentors at the end of every semester & retain in the department.
- To handover the mentor records of earlier semester to next mentors at the beginning of semester through HOD
- To conduct the meeting once in the month within department and maintain the minutes.

Roles and Responsibilities of Mentors:

- To collect the list of allotted students and formats for updating the students' records.
- To collect the "Student Information" from the respective GFM.

- To establish contact with the parents through telephonic discussion, appraise them about the development of their ward.
- Conduct meetings with students fortnightly.
- To act as a Counsellor, Guide and Philosopher of the student.
- To encourage the student to have open dialogue.
- To record the observations about student viz. achievements, doubts, fears, grievances, etc.
- To evaluate the student's ability, strengths and weaknesses.
- To help the students overcome their weaknesses and strengthen their abilities to excel in his/her defined objectives.
- To submit the files completed in all respect to HOD at the end of term.
- To update students' information on ERP.
- To report the weak cases to the Students Counselling Cell, as well as those cases wherever special assistance is required, through HOD.

A sample of Mentor-Mentee Allotment has been shown here:

Table 9.1.1. Mentor-Mentee Allotment

AISSMS
COLLEGE OF ENGINEERING

ज्ञानम् सकलजनहिताय

Accredited by NAAC with "A+" Grade

DEPARTMENT OF CHEMICAL ENGINEERING

Academic Year 2021-2022

Ref. No.: AISSMSCOE/CHEM/ /2021-22

Date: 08/10/2021

Following Faculty are appointed as mentors for SE/TE/BE (Chemical).

Sr. No	Class	Bach	Name of Faculty
1	SE	A	Mr K B GANDHI
2		B	Dr M S DESHPANDE
3		C	Mr P S TADKAR
4	TE	A	Dr A S JADHAV
5		B	Dr M Y NANIWADEKAR
6		C	Ms K N BAWANKAR
7		D	Dr K A DATIR
8	BE	A	Mr P M WARKE
9		B	Dr MAHENDRA BAINGNE
10		C	Dr S B GHUGARE
11		D	Ms H L KAMBLE

K N Bawankar

Dept Mentor Coordinator

Dr P N Dange

Head

Head
Deptt. of Chemical Engg
AISSMS, COE, Pune-1

Successful Mentoring: Sample Case

1. One of our TE Chemical students Kartik Joshi had to face unusual circumstances last year (November 2021) which have impacted him deeply. Whatever Kartik has gone through or

suffered, has imparted long-lasting consequences on his mental and emotional state. During that phase, horrible thoughts used to come into his mind. He had gone into depression and needed counselling badly. He was in TE Chemical at the time of this worst phase of his life. He talked to his then mentor Dr. M. Y. Naniwadekar who understood immediately that if proper counselling was not provided to Kartik, he might enter into an unrecoverable mental state. Without making any delay, Dr. M. Y. Naniwadekar brought this into the notice of central mentor coordinator and professional counselling was arranged. Kartik has undergone several sessions over the time. In order to monitor the efficiency of our mentoring practice and efforts, we asked Kartik for a feedback in June 2022 and this is what he had to say:

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COLLEGE OF ENGINEERING

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Department of Chemical Engineering

Academic Year: 2021-22

Mentoring Feedback

My name is Kartik Joshi and I am a student of TE Chemical. Last few months turned out to be unusual to me. Ups and downs are a part of life but I have gone through some horrible stuff, situations I never imagined would happen to me. Something happened in my life back in November 2021 that shook me deeply (well I can't tell you what exactly happened since I want to protect my private life). I tried to handle this trauma on my own and did not seek any help from a counsellor. But the problem was intensifying day by day.

March 2022 was the time when everything started tumbling and shattering into pieces in my life. I had no hope of living and was only thinking of either getting killed, suicide or kill and take revenge. Literally, there was no one I could talk to and make my close ones understand what I was going through.

Everything was intoxicating and devastating back then.

The problem we face in our Indian society is that we have ill mentalities and wrong beliefs. The one who approaches the counsellor is considered weak and especially men are not supposed to show emotions is what is taught to us.

Which is not the case, men have equal emotions as compared to any gender or age group, it's just that we are not taught how to cultivate and handle emotions in our society.

Not many are aware that how much counselling and talking to someone who could understand you from beneath could help you drastically where you are being judged of what you did or what horrendous things happened to you!

Me, after battling my thoughts and my societal pressure, I finally decided to approach a counsellor because that was the only option I had. I interacted with my mentor Dr. M. Y. Naniwadekar and frankly shared whatever I was going through. He then arranged conselling for me. Later I realized how easy it is to contact a counsellor who is specialized in this area and has a lot of experience doing so.

Quickly within a day all arrangements were made and I was called in a private cabin where no one could walk, there we met and the therapy began!

I loved the fact that how calm and professional they were. They understood every bit of my emotions and the situation which was haunting me, they didn't sugarcoat anything and gave me a reality check which snapped me back into the real world! This is what I wanted and helped me cope with my depression and Post-traumatic stress disorder (PTSD).

I was being counselled on a regular basis. I did not feel relief immediately but after few sessions, I started feeling better. The counsellor recommended several activities to keep myself busy. These activities also helped me improve my morale and stimulate small happy moments. I was recovering slowly from depression and I could feel the change in my mental state.

I wish no one gets depression or PTSD like me, I will always wish for others' well-being but if something like this happens please don't even hesitate to contact your mentor and ask him/her if you need a counsellor! It could be like changing forever for you and you will never know until you do it!

Kartik
15/6/2022

Kartik Joshi

Roll no. 19CH022

TE Chemical (Batch-B)

Fig. 9.1.2. Sample of Feedback on Mentoring on Personal Level

2. Mentors are always ready and prepared to assist the respective mentees in all matters, be it personal or professional. Students who aspire to pursue higher education (M.S. or M.Tech.), get thorough guidance from their mentors. Few of our students qualified GATE-2022 and have secured admission in premier institutes. These students were very happy to share their experiences about how mentoring helped them achieve their goal. One such sample of mentoring feedback has been shared here. The following feedback had been taken from our student Dhananjay (passing year 2021-22) before End-Sem Exam 21-22 (Term-2). When this feedback was taken, Dhananjay had been applying to different IITs for PG program. Few days later when his admission got confirmed, it was communicated by his BE mentor Mr. P. M.

Warke that he has joined IIT Roorkee in the Department of Chemical Engineering and is now pursuing M.Tech. We wish him success in all of his future endeavours.

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Department of Chemical Engineering

Academic Year: 2021-22

Mentoring Feedback

My name is Dhananjay Kumar Singh and I am a student of BE Chemical. I appeared in GATE-2022 last February. The result of the same has been declared on march 16, 2022. I am delighted to mention that I was able to qualify the exam with a good score. I expect that this score will secure my admission in M.Tech. program in one of IITs. I have worked really hard to achieve this target. But it was not only my efforts that led me to this achievement. The whole teaching and non-teaching staff of the Department of Chemical Engineering stood behind me, extending all the maximum possible support. Of all the various factors to which my achievement is attributed, I believe it is the mentoring practice adapted by our institute that contributed the most. Therefore, in this letter, I would like to share my experience specifically about mentoring, and emphasize its significance in molding my personality over the years.

Dr. S. B. Ghugare sir had been assigned as my mentor in SE Chemical (academic year 2019-20). As soon as our SE classes began, Ghugare sir had made it clear that SE and TE subjects cover almost 70% of GATE syllabus. Sir enlightened us on the importance of attending classes regularly and sincerely. I used to be an under confident student and always hesitated to ask doubts to subject teachers. But Ghugare sir used to make us feel comfortable during mentor-mentee meetings. He used to motivate us to share and discuss any personal or professional problem we are going through. If a student was not comfortable in sharing his/her issue in joint meeting, sir used to conduct one to one meeting separately. Once I told sir that even if I had a doubt during any lecture, I could not build up the confidence to ask the subject teacher. Sir attracted my attention towards the fact that it is the duty of teachers to address students' doubts, so it is never wrong to ask, even again and again. We must live with the curiosity that we used to have once when we were too young. From the very next day, I tried to come out of the fear and started asking questions during classes. I could feel a gradual improvement in my confidence level. In the same academic year, we faced the COVID-19 pandemic. When the first lockdown was imposed, our study almost came to a halt as the whole system was unfamiliar with online teaching mode. It took us some time to familiarize ourselves with the

online mode and then, our studies resumed once again. But Sir never lost contact with his mentees, he kept interacting through online platforms. He had always been concerned about the wellbeing of mentees and their families, particularly during the pandemic period. Sir used to motivate us not to waste time and to continue the exam preparation.

When I entered third year of engineering (academic year 2020-21), Dr. A. S. Jadhav were assigned as our new mentor. Lockdown was still in force then, though several relaxations were given. So the online mode had been continued for teaching learning process. Jadhav sir gave us some highlights regarding subjects which we were going to face in TE chemical. He guided us about the subject-wise marks distribution in GATE. Tips and tricks suggested by Jadhav sir turned out to be very useful. Sometimes we used to get demotivated due to the elongated lockdown and it became too hard to continue preparation, but Sir never gave up on his mentees and tried his best to keep us encouraged and stimulated. However busy sir might be, but he never refused to give time when any such request was made from our side. We have witnessed the worst COVID wave in April-May 2021. Sir used to be concerned too much for the well-being of his mentees and their families.

Somehow we survived the second COVID wave and subsequently, got promoted to the final year of engineering (academic year 2021-22). The mentoring responsibility of our batch was handed over to Warke sir. Our classes in seventh semester had started on online mode only. However, the second wave became almost ineffective by the end of October 2021 and then, the teaching-learning process had been conducted on hybrid mode (both online and offline simultaneously). Warke sir also holds the portfolio of department placement coordinator. Sir made us aware of the importance of soft skills in professional life. One more COVID wave struck us in January 2022, however, this third wave turned out to be mild. So our classes of final semester began on fully offline mode in February 2022. Warke sir were a guardian to us, always ready to address our issues.

I would like to conclude by expressing gratitude towards every member of AISSMS family, who contributed directly or indirectly in transforming me into a better person.

DK Singh
10/06/22

Dhananjay Kumar Singh

Roll no. 18CH016

BE Chemical (Batch-A)

Fig. 9.1.3. Sample of Feedback on Mentoring in Career Guidance

Sample of Mentor-Mentee Meeting Attendance:

Following is the sample of mentee attendance record updated on ERP for the Academic Year 2021-22, Term-2:

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Accredited by NAAC with 'A+' Grade
Kennedy Road, Pune 411001, Maharashtra, India. Tel: +91 - 20 - 26058587, 26057660, 26058342 Email: contact@aissmscoe.com, principal@aissmscoe.com
www.aissmscoe.com

Academic Year : 2021-2022 Semester : SEMESTER 8

MENTOR - MENTEE SESSIONS ATTENDANCE RECORD

COURSE : Chemical Engineering **BATCH :** Batch B **MENTOR NAME :** DR. MAHENDRA BAINGNE

Roll No	EnrollmentNo	Student Name	Session No	4	5	6	7	8	9	10	11	12
			Date	14/1	28/1	11/2	25/2	11/3	25/3	8/4	22/4	6/5
18CH020	CH-18029	GANDHI VIRAJ RAJENDRA		P	P	P	P	P	P	P	P	P
18CH021	CH-18030	GARADE PRIYANKA SAMIR		P	A	P	P	P	P	P	P	P
18CH019	CH-18031	GHADLE PRATIKSHA PRAVIN		P	P	P	P	P	A	P	P	P
18CH022	CH-18032	HANNURE SAIF RAJU		P	P	A	P	P	P	P	P	P
18CH024	CH-18033	INGALE ABHISHEK VIJAY		P	P	P	P	P	P	P	A	P
18CH026	CH-18034	JADHAV VARUKODAR SUNIL		P	P	P	P	P	P	P	P	P
18CH027	CH-18035	KAKADE ASHISH ALANKAR		A	P	P	P	P	P	P	P	P
18CH028	CH-18036	KAKADE BHUMIKA SAGAR		P	P	P	P	P	P	P	P	P
18CH030	CH-18037	KANADE TEJAS DEEPAK		P	P	P	P	P	P	P	P	P
18CH033	CH-18038	KOLHAPURE RITESHKUMAR RAJENDRA		P	P	P	P	P	P	P	P	P
18CH034	CH-18039	KUMBHARDE ABHISHEK BHASKARRAO		P	P	P	P	P	P	A	P	A
13CH030	CH-13004	Kuwar Karishma Bapurao		A	A	A	A	A	A	A	A	P
18CH036	CH-18040	MEHTA DIKSHITA KAMLESH		P	P	P	P	P	P	P	P	P
18CH037	CH-19069	MORE DEVENDRA AMAR		P	P	P	A	A	P	P	A	P
18CH038	CH-18041	NINAL SHIVANI RAJENDRA		P	P	P	P	P	P	P	P	P
18CH039	CH-18042	PATEL DHAIRYA JAYESH		P	P	P	P	P	P	P	P	P
18CH040	CH-18043	PATIL ABHIJEET MARUTI		P	P	P	P	P	P	P	P	A

Fig. 9.1.4. Sample of Mentee Attendance Record updated on ERP

Following is the sample of minutes of Mentor-Mentee meeting updated on ERP for the Academic Year 2021-22, Term-2:

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Affiliated to Savitribai Phule Pune University and recognized 2(f) and 12(B) by UGC(Id. No. PU/PN/Engg/093(1992)
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www.aissmscoe.com

Academic Year : 2021-2022 Semester : SEMESTER 8

MENTOR - MENTEE SESSIONS WEEKLY REPORT

COURSE : Chemical Engineering **BATCH :** Batch B **MENTOR NAME :** DR. MAHENDRA BAINGNE

Week No	Session Date & Time	No. of Students Present	Points Discussed
4	14/01/2022 [3:00 PM - 4:00 PM]	15	1. Wellbeing of mentees and their family members 2. How to take care of ourselves and family members during the ongoing COVID third wave. 3. As the classes for new semester have begun, mentees were motivated to maintain good attendance.
5	28/01/2022 [3:00 PM - 4:00 PM]	15	1. Possibility of reopening of college offline as the COVID third wave weakens 2. Collected updated vaccination status
6	11/02/2022 [3:00 PM - 4:00 PM]	15	1. Resumption of offline classes 2. Motivating students to attend offline classes as the attendance is poor 3. Preparation for End-Sem Exam 21-22 Term-1
7	25/02/2022 [3:00 PM - 4:00 PM]	15	1. Performance of mentees in End-Sem Exam 21-22 Term-1 2. Motivating mentees to attend classes physically
8	11/03/2022 [3:00 PM - 4:00 PM]	15	1. Status of progress in the syllabus 2. Motivating students to attend offline classes
9	25/03/2022 [3:00 PM - 4:00 PM]	15	1. Status of syllabus in view of In-Sem Exam 21-22 Term-2 2. Final admission status 3. Discussed with mentees (who failed to pay full fee) if they are undergoing any type of financial crisis
10	08/04/2022 [3:00 PM - 4:00 PM]	15	1. Progress of the project work 2. Intimated students who failed to submit their scholarship forms.
11	22/04/2022 [3:00 PM - 4:00 PM]	14	1. Preparation for In-Sem Exam 21-22 Term-2 2. Filling of No-dues forms before the start of In-Sem exam
12	06/05/2022 [3:00 PM - 4:00 PM]	15	1. Project completion status 2. Subject-wise completion of syllabus 3. Discussed regarding preparation for offline End-sem exam

Figure 9.1.5. Sample of Minutes of Mentor-Mentee Meeting updated on ERP

9.2. Feedback analysis and reward /corrective measures taken, if any

Students' feedback about teaching a course is collected twice a semester through the ERP system. Mid-Term feedback is taken after the first 30 to 40 days of teaching. If found unsatisfactory, the concerned subject teacher is intimated by Head of Department and corrective measures are discussed. The subject teacher is then instructed to implement the measures so that the final feedback can be improved. End-Term (or final) feedback is taken at the end of the semester. If the trend remains same and the End-Term feedback is also unsatisfactory, then it is brought into Principal's notice. Corrective measures are then discussed to be implemented in the next academic session. The following procedure is followed for feedback analysis:

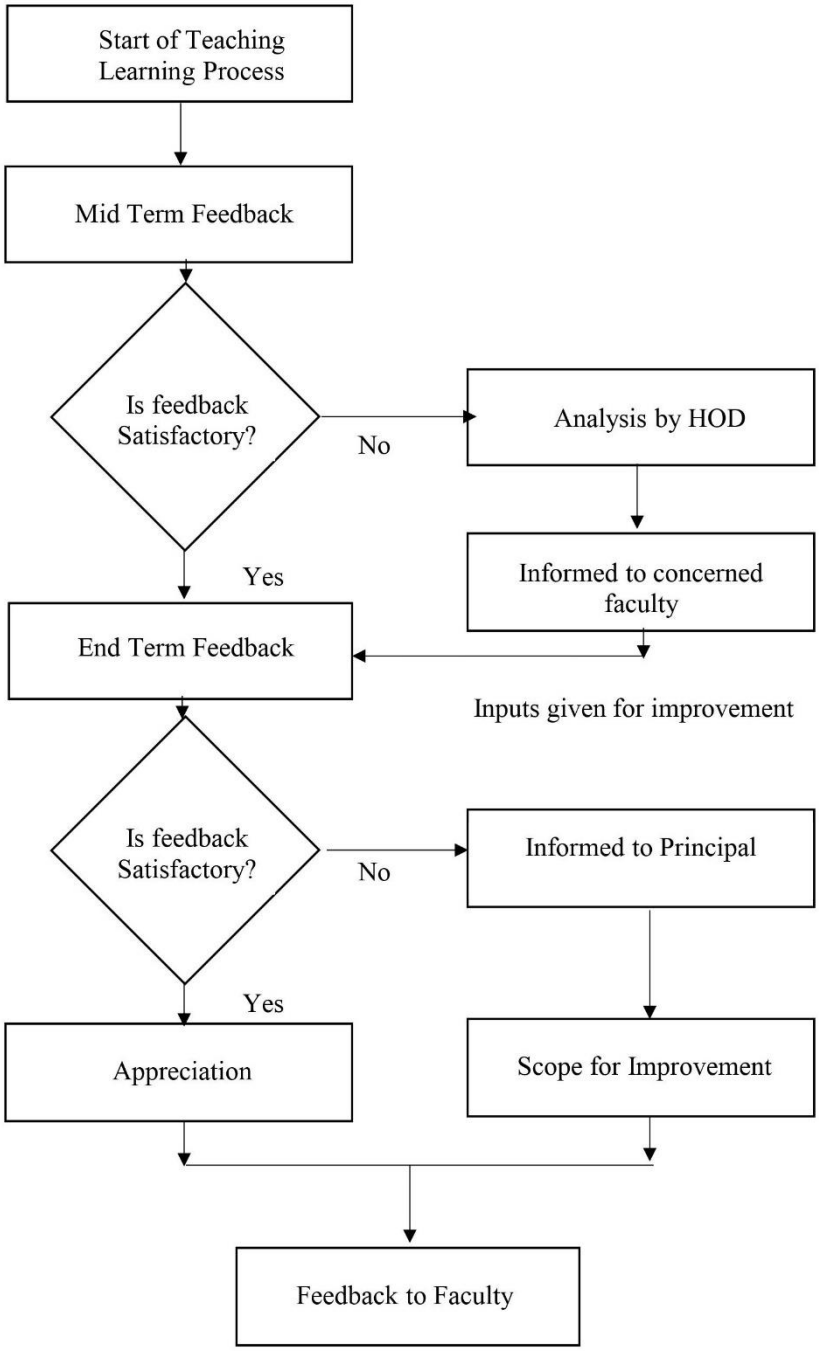


Fig. 9.2.1. Feedback Analysis Process

Following questionnaire is set for feedback:

1. Has the teacher covered the entire syllabus as prescribed by university, college, board?
2. Has the teacher covered relevant topics beyond syllabus?
3. Pace on which contents were covered.
4. Motivation and inspiration for students to learn.
5. Clarity of expectations of students.

6. Feedback provided on students' progress.
7. Effectiveness of teacher in terms of technical e-course content, communucation skills and teaching aids.
8. Support for the development of students skill practical demonstration through V-Lab, video demonstration, Youtube video.
9. Support from teacher during pandemic for addressing students issue.

A rubric is followed to access the syllabus covered by the faculty, pace of teaching, topic covered etc., is shared with students through ERP for evaluation of the faculty. Each question is assessed on a 5 to 1 scale. (5- Excellent, 4- Very Good, 3- Good, 2- Satisfactory and 1- Non-satisfactory). At the end of the feedback collection process, reports are generated in ERP showing a performance index. The method of obtaining feedback performance index is as follows.

Let total N students in a class participate in the feedback process and n_1, n_2, n_3, n_4 and n_5 be the number of students giving feedback as Excellent, Very Good, Good, Satisfactory and Non-satisfactory, respectively. Each question in the questionnaire is assessed on a 5 to 1 scale (5- Excellent, 4- Very Good, 3- Good, 2- Satisfactory and 1- Non-satisfactory). The method of obtaining feedback performance index is as follows.

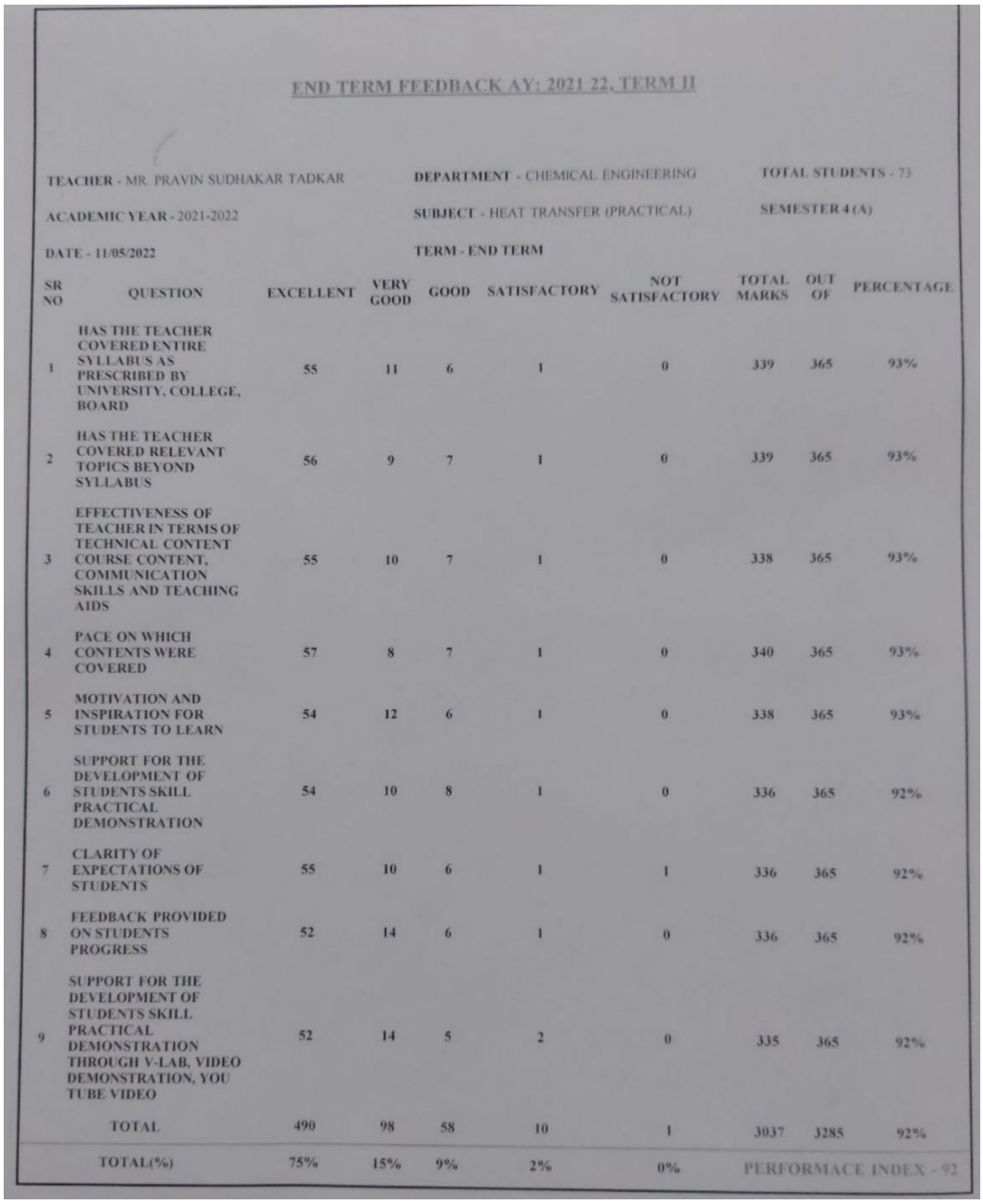
$$N=n_1+ n_2+ n_3+ n_4 + n_5$$

Total marks obtained for a question = $5\times n_1+ 4\times n_2+ 3\times n_3+ 2\times n_4 +1\times n_5$

Maximum marks = $5\times N$

Feedback obtained = (Total marks obtained for a question/ Maximum marks) *100%

The procedure is repeated to get feedback obtained for all questions in the questionnaire. The performance index is simply an average of the percentage feedbacks thus obtained. This index is mentioned in the feedback report. This is a sample of faculty feedback for the academic year 2021-22, Term-II taken through ERP:



END TERM FEEDBACK AY: 2021 22, TERM II

TEACHER - MR. PRAVIN SUDHAKAR TADKAR | DEPARTMENT - CHEMICAL ENGINEERING | TOTAL STUDENTS - 73

ACADEMIC YEAR - 2021-2022 | SUBJECT - HEAT TRANSFER (PRACTICAL) | SEMESTER 4 (A)

DATE - 11/05/2022 | TERM - END TERM

SR NO	QUESTION	EXCELLENT	VERY GOOD	GOOD	SATISFACTORY	NOT SATISFACTORY	TOTAL MARKS	OUT OF	PERCENTAGE
1	HAS THE TEACHER COVERED ENTIRE SYLLABUS AS PRESCRIBED BY UNIVERSITY, COLLEGE, BOARD	55	11	6	1	0	339	365	93%
2	HAS THE TEACHER COVERED RELEVANT TOPICS BEYOND SYLLABUS	56	9	7	1	0	339	365	93%
3	EFFECTIVENESS OF TEACHER IN TERMS OF TECHNICAL CONTENT COURSE CONTENT, COMMUNICATION SKILLS AND TEACHING AIDS	55	10	7	1	0	338	365	93%
4	PACE ON WHICH CONTENTS WERE COVERED	57	8	7	1	0	340	365	93%
5	MOTIVATION AND INSPIRATION FOR STUDENTS TO LEARN	54	12	6	1	0	338	365	93%
6	SUPPORT FOR THE DEVELOPMENT OF STUDENTS SKILL PRACTICAL DEMONSTRATION	54	10	8	1	0	336	365	92%
7	CLARITY OF EXPECTATIONS OF STUDENTS	55	10	6	1	1	336	365	92%
8	FEEDBACK PROVIDED ON STUDENTS PROGRESS	52	14	6	1	0	336	365	92%
9	SUPPORT FOR THE DEVELOPMENT OF STUDENTS SKILL PRACTICAL DEMONSTRATION THROUGH V-LAB, VIDEO DEMONSTRATION, YOU TUBE VIDEO	52	14	5	2	0	335	365	92%
	TOTAL	490	98	58	10	1	3037	3285	92%
	TOTAL(%)	75%	15%	9%	2%	0%	PERFORMACE INDEX - 92		

Fig. 9.2.2. Feedback Report

Faculty members are provided with letters of appreciation or improvement based on performance index. This index is used for measuring the quality of teaching & learning. For the performance index of 75 and more, appreciation letters are issued by the Head of the Department. For a lower index, the Head of the Department issues improvement letter.

Following is a sample of feedback analysis for the academic year 2021-22, Term-II.

Table 9.2.1. Sample of Feedback Analysis

A.Y. 2021-2022, Term II

	Name of faculty	Class		Subject	Feedback	

S. N.			Division		Mid-Term	End-Term	Average Feedback
1	Mr. A. V. Bawiskar	SE	A	Industrial Chemistry-II	81	91	86
2	Mr. P. S. Tadkar	SE	A	Heat Transfer	84	93	88.5
3	Dr. S. B. Ghugare	SE	A	Principles of Design	70	88	79
4	Dr. A. S. Jadhav	SE	A	Chemical Technology - I	76	89	82.5
5	Mrs. K. N. Bawankar	SE	A	Mechanical Operations	80	88	84
6	Mrs. K. N. Bawankar	TE	A	Chemical Reaction Engineering - I	81	75	78
7	Mrs. H. L. Kamble	TE	A	Mass Transfer - II	81	83	82
8	Dr. M. Baingne	TE	A	Transport Phenomena	86	91	88.5
9	Mr. K. B. Gandhi	TE	A	Process Instrumentation and Control	86	84	85
10	Dr. P. N. Dange	BE	A	Process Modelling and Simulation	91	95	93
11	Dr. M. Y. Naniwadekar	BE	A	Process Engineering Costing & Plant Design	91	96	93.5
12	Mr. P. M. Warke	BE	A	Chemical Process Safety	91	94	92.5
13	Dr. K. A. Datir	BE	A	Petrochemical Engineering	90	94	92

Following table shows the number and percentage of students who participated in above feedback:

Table 9.2.2. Percentage of students who participated in above feedback

A.Y. 2021-2022, Term II

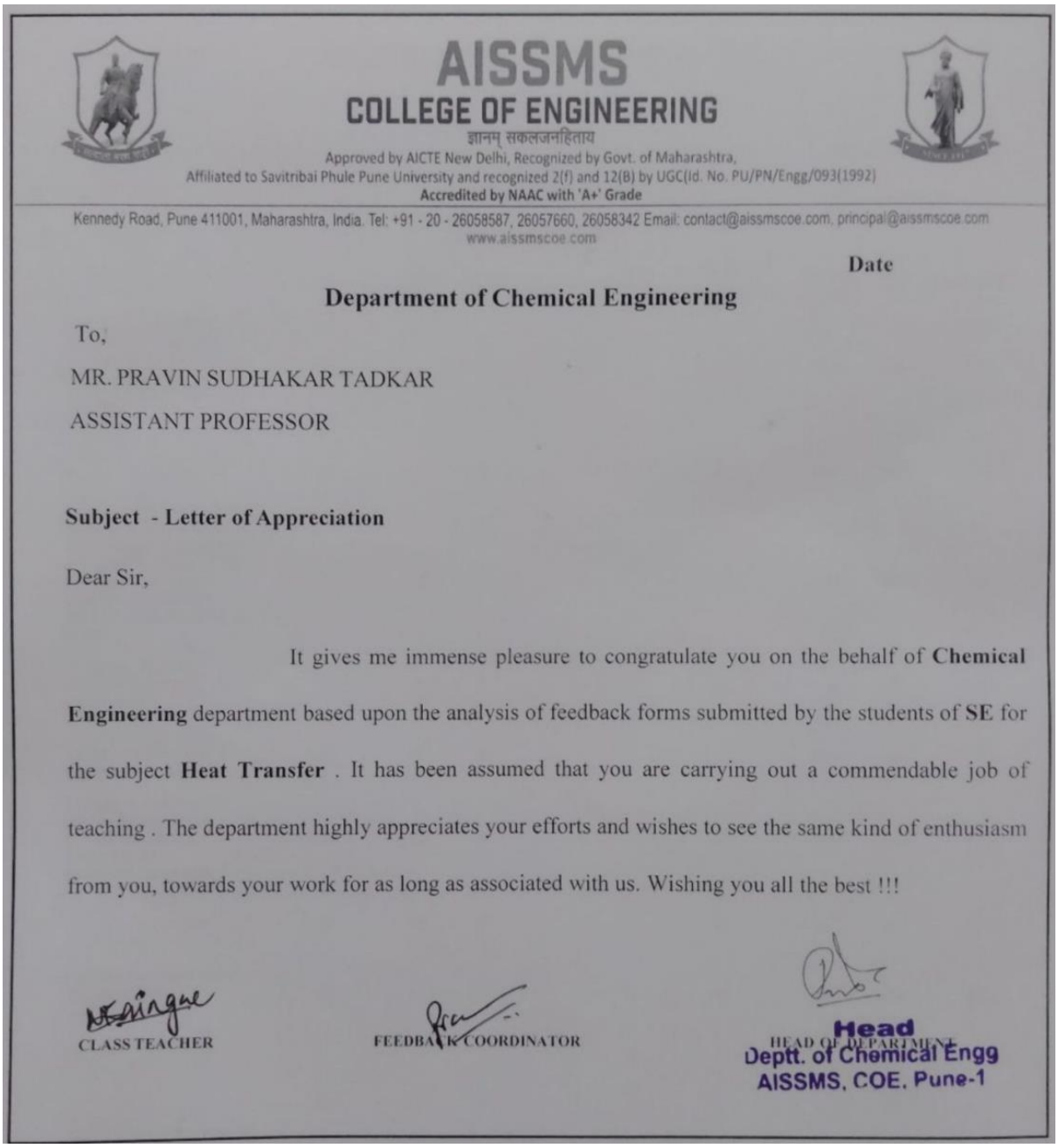
S. N.	Name of faculty	Subject	Strength of Class	Number of students participated in feedback		Percentage of students participated in feedback	
				Mid-Term	End-Term	Mid-Term	End-Term
1	Mr. A. V. Bawiskar	Industrial Chemistry-II	73	61	73	83.56	100
2	Mr. P. S. Tadkar	Heat Transfer	73	63	73	86.30	100
3	Dr. S. B. Ghugare	Principles of Design	73	61	73	83.56	100
4	Dr. A. S. Jadhav	Chemical Technology - I	73	62	73	84.93	100
5	Mrs. K. N. Bawankar	Mechanical Operations	73	63	73	86.30	100
6	Mrs. K. N. Bawankar	Chemical Reaction Engineering - I	80	61	80	76.25	100
7	Mrs. H. L. Kamble	Mass Transfer - II	80	61	80	76.25	100
8	Dr. M. Baingne	Transport Phenomena	80	62	79	77.50	98
9	Mr. K. B. Gandhi	Process Instrumentation and Control	80	61	80	76.25	100
10	Dr. P. N. Dange	Process Modelling and Simulation	67	46	67	68.66	100
11	Dr. M. Y. Naniwadekar	Process Engineering Costing & Plant Design	67	46	67	68.66	100
12	Mr. P. M. Warke	Chemical Process Safety	67	38	67	56.72	100

13	Dr. K. A. Datir	Petrochemical Engineering	67	46	67	68.66	100

Reward / Corrective measures:

1. Faculty members with more than 75% feedback were motivated to continue their hard work and explore the scope of further improvement. A letter of appreciation has also been handed over to respective faculty members.
2. Faculty members with less than 75% feedback were asked to discuss any kind of problem or issue being faced by them in subject content, preparation and delivery of lecture. They were motivated to attend faculty development programs in order to improve modes of teaching. They were also advised to go through video lectures available online from sources like NPTEL. A letter of improvement has also been handed over to respective faculty members.

This is a sample of Letter of Appreciation issued to the faculty member for the academic year 2021-22 Term-2.



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www.aissmscoe.com

Date

Department of Chemical Engineering

To,
MR. PRAVIN SUDHAKAR TADKAR
ASSISTANT PROFESSOR

Subject - Letter of Appreciation

Dear Sir,

It gives me immense pleasure to congratulate you on the behalf of **Chemical Engineering** department based upon the analysis of feedback forms submitted by the students of **SE** for the subject **Heat Transfer** . It has been assumed that you are carrying out a commendable job of teaching . The department highly appreciates your efforts and wishes to see the same kind of enthusiasm from you, towards your work for as long as associated with us. Wishing you all the best !!!

CLASS TEACHER
FEEDBACK COORDINATOR
HEAD OF DEPARTMENT
Head
Deptt. of Chemical Engg
AISSMS, COE, Pune-1

Fig. 9.2.3. Sample of Letter of Appreciation

9.3. Feedback on facilities

Different facilities are provided to the students to enhance their overall development. A few of them are cultural, sports, and technical events consisting of workshops, seminars, etc. Very good infrastructure facilities are also provided to the students. Every year at the end of the second semester, i.e. in the months of March and April, a feedback form is delivered to the students through ERP, and the students fill it out. The feedback form questions are structured in such a way that the institute can receive clear feedback on how to enhance the facilities. Corrective actions are being made to ensure that students have adequate facilities for the coming academic year.

Questionnaire of the feedback is based on the following components:

1. Class room infrastructure (boards, internet, LCD projector, etc.) and overall ambience
2. Laboratory facilities (boards, internet, computer, equipment, etc.)
3. Cleanliness and ambience of campus
4. Library, reading room and other library facilities
5. Sports, Cultural and Extra-curricular activities facilities (NSS, Annual functions, etc.)
6. Parking, security and proctorial services in the campus
7. Mentoring, Counselling, Redressal of grievances and support to students for admissions, examinations, etc.)
8. Support to training, placements and internships
9. Overall impression about infrastructure and facilities provided in the institute
10. Canteen facility and availability of drinking water

Following is a sample of feedback on Infrastructure and Facilities given by TE Chemical students in the academic year 2021-22 through ERP:

Table 9.3.1. Sample of Feedback on Infrastructure and Facilities collected through ERP

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www.aissmscoe.com

COURSE : CHEMICAL ENGINEERING YEAR : TE

ONLINE STUDENTS FEEDBACK ON INFRASTRUCTURE AND FACILITIES FOR A.Y. 2021-2022

SR NO	INFRASTRUCTURE AND FACILITIES	5 (EXCELLENT)	4 (VERY GOOD)	3 (GOOD)	2 (AVERAGE)	1 (POOR)	TOTAL
1	CLASS ROOM INFRASTRUCTURE (BOARDS, INTERNET, LCD PROJECTOR, ETC.) AND OVERALL AMBIENCE	16	13	16	3	3	51
2	LABORATORY FACILITIES (BOARDS, INTERNET, COMPUTER, EQUIPMENT, ETC.)	16	17	14	4	0	51
3	CLEANLINESS AND AMBIENCE OF CAMPUS	22	12	15	1	1	51
4	LIBRARY, READING ROOM AND OTHER LIBRARY FACILITIES	21	15	15	0	0	51
5	SPORTS, CULTURAL AND EXTRA-CURRICULAR ACTIVITIES FACILITIES (NSS, ANNUAL FUNCTIONS, ETC.)	19	18	9	2	3	51
6	PARKING, SECURITY AND PROCTORIAL SERVICES IN THE CAMPUS	22	12	13	3	1	51
7	MENTORING, COUNSELING, REDRESSAL OF GRIEVANCES AND SUPPORT TO STUDENTS FOR ADMISSIONS, EXAMINATIONS, ETC.)	16	14	17	2	2	51
8	SUPPORT TO TRAINING, PLACEMENTS AND INTERNSHIPS	18	13	9	10	1	51
9	OVERALL IMPRESSION ABOUT INFRASTRUCTURE AND FACILITIES PROVIDED IN THE INSTITUTE	16	17	15	3	0	51
10	CANTEEN FACILITY AND AVAILABILITY OF DRINKING WATER	18	6	9	4	14	51
TOTAL		184	137	132	32	25	510

Based on the feedback, various corrective actions have been taken such as improvement in canteen facility, purified water supply, internet bandwidth, cleanliness, stationary availability, facility for co-curricular and extra-curricular facilities.

9.4. Self-Learning

Institute has provided a large scope to students to learn on their own as per their interest. This is in the form of online and offline, on campus and off campus. AICTE's NPTEL platform has attracted students a lot at par with regular courses. Students can register online and learn at their pace. Online platforms such as Coursera, edX, IIRS are made available to students. Subscribed E-resources are IEEE, ASCE, ASME, J-GATE, McGraw Hill and Science Direct.

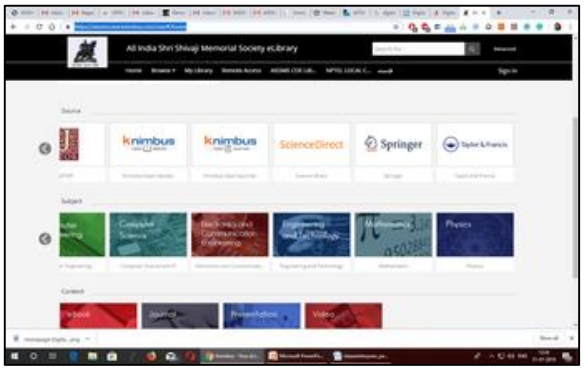
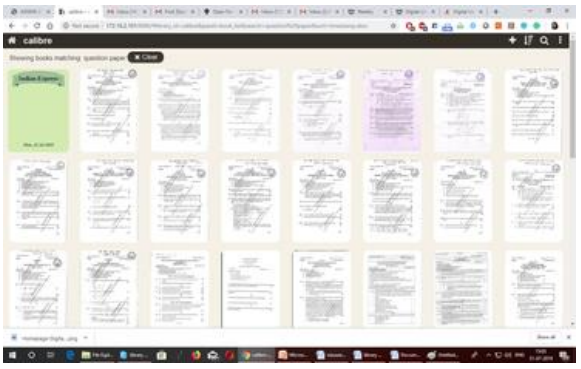
	**Knimbus Digital Library and Remote Access** - https://aissms.new.knimbus.com/user#/home The AISSMS COE Library has subscribed to Digital Library. Remote Access to E resources facility is available under the platform.
Faculty Publications Repository -- http://172.16.0.71:8080/jspui/ Faculty Publications are archived under Dspace Repository. Department wise faculty publications can accessed through this link in College LAN Ki	K 
	**Calibre Digital Library - http://172.16.2.101:8080/** The Calibre Digital Library has been set up for E books and previous year question papers students.

Fig. 9.4.1. Self-Learning facilities: Details of Digital Library/Remote Access

Link for DELNET Service - http://www.delnet.in/# http://164.100.247.26/

Facilities available:

1. InterLibraryLoan - Required books /Articles can be borrowed from member Library

2. Free access to digital resources ebooks
3. Remote access is available

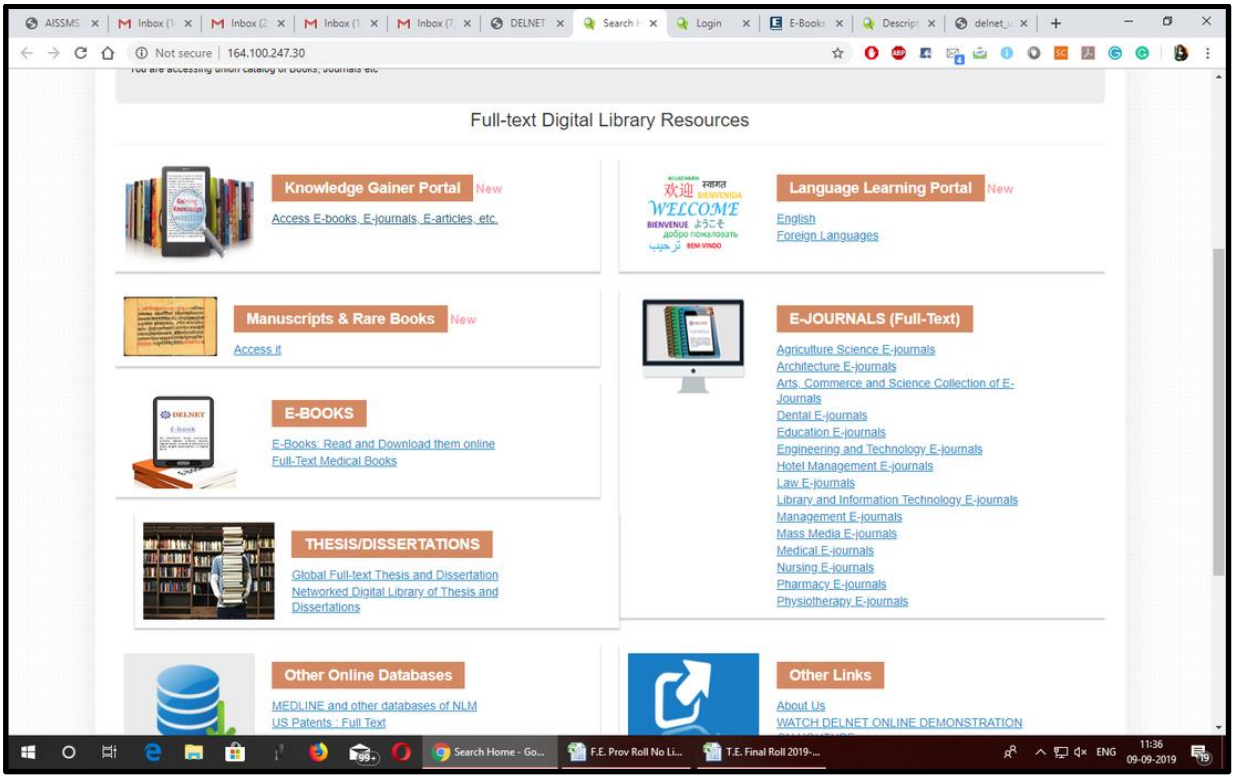


Fig. 9.4.2. Digital Library

Table 9.4.1. NPTEL RESULTS

Course Run	Present	Gold	Elite	Silver	Successful	Participation	Topper
Jan-Apr 2022	137	02	13	03	17	137	9

Table 9.4.2. edX Courses, Jan 2021

Invitations sent	Learners joined	Enrolled learners (at least one course)	Active learners	Course completion
930	535	210	80	22

Table 9.4.3. Coursera E learning Platform- Usage and enrolment record

Invitations sent	Learners joined	Enrolled learners	Total learning hours	Lesson taken	Course rating
2924	2019	1870	40126	71410	4.7

Table 9.4.4. IIRS Training Program

Invitations sent	Learners joined	Enrolled learners	Total learning hours	Lesson taken	Course rating
2924	2019	1870	40126	71410	4.7

Table 9.4.5. Details of students who completed the courses

	No. of Students registered			No of students successfully completed		
	2019-20	**2020-21**	**2021-22**	**2019-20**	**2020-21**	**2021-22**
Webinar/Seminar	4866	2219		4866	2219	-
Swayam/NPTEL Courses	2195	3178	2554	161	107	169
edX Courses	-	210	-	-	22	-

Following is a sample of certificate received by a TE Chemical student after completing NPTEL course successfully:

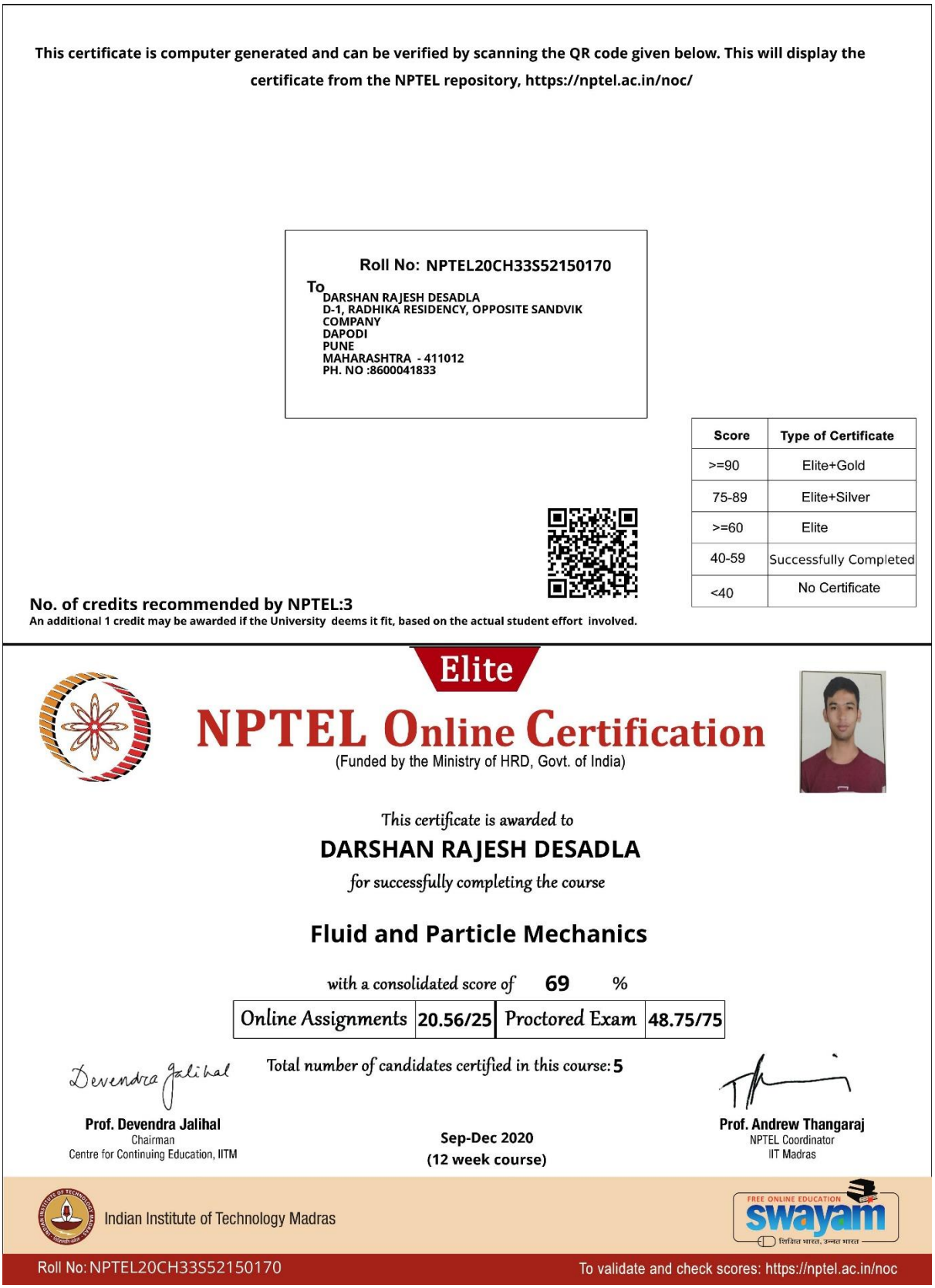


Fig. 9.4.3. Sample of NPTEL Certificate

Chemical Engineering students attend seminars, webinars and invited lectures on regular basis in order to keep themselves updated with the latest trends in technology and also for self improvement.

Table 9.4.6. Seminar/Webinar and invited lectures (AY 2020-2021)

Sr. No.	Type of Activity	Title of Activity	No. of Students Registered	Successfully completed
1	Certificate/Online course	Mind control: managing your mental health during COVID-19	28	28
2	Certificate/Online course	Programming for everybody-Getting started with Python	02	02
3	Certificate/Online course	Python basics for data science	03	03
4	Certificate/Online course	Artificial intelligence with Python by CS50	01	01
5	Certificate/Online course	Python Data Structures	01	01
6	Certificate/Online course	Introduction to HTML	02	02
7	Certificate/Online course	Machine Learning With Jupitor Notebook In Amazon AWS	01	01
8	Certificate/Online course	Qt widgets for beginners with C++	02	02
9	Seminar/Webinar	Air pollution - a global threat to our health	01	01
10	Certificate/Online course	Introduction to Chemistry: Reactions and Ratios	02	02
11	Certificate/Online course	Internshala training captain	01	01
12	Seminar/Webinar	Our Earth's Future	02	02
13	Certificate/Online course	Content Marketing Basics	01	01

14	Seminar/Webinar	How to apply for Japanese universities	01	01
15	Certificate/Online course	American museum of natural history	01	01
16	Certificate/Online course	Natural gas engineering	01	01
17	Certificate/Online course	Fluid and particle Mechanics	01	01
18	Certificate/Online course	Data structure using C programming	01	01
19	Certificate/Online course	Triz and design for patentabilty	01	01
20	Certificate/Online course	Unit Operations In Chemical Engineering	01	01
21	Certificate/Online course	JavaScript by Net Ninja	01	01
22	Certificate/Online course	Software testing tutorials by STT	01	01
23	Certificate/Online course	The Bits and Bytes of Computer Networking	01	01
24	Certificate/Online course	Drinking water treatment	05	05
25	Certificate/Online course	AI For Everyone: Master The Basics	17	17
26	Certificate/Online course	Introduction to Amazon Elastic Compute Cloud	01	01
27	Certificate/Online course	Marketing innovative Products and Services	03	03

28	Certificate/Online course	Natural Gas Engineering	04	04
29	Certificate/Online course	Excel Skills for Business: Essentials	03	03
30	Certificate/Online course	An Introduction to Managing Process Safety Hazards	01	01
31	Certificate/Online course	An Introduction to Process Safety	01	01
32	Certificate/Online course	Chemical Process Safety in the Chemical Process Industries	01	01
33	Certificate/Online course	Oil and Gas Industry Operations and Markets	02	02
34	Certificate/Online course	Introduction to Programming with MATLAB	01	01
35	Certificate/Online course	Safety in the Utility Industry	01	01
36	Certificate/Online course	Introduction to Psychology	01	01
37	Seminar/Webinar	The health effects of climate change	03	03
38	Certificate/Online course	Epidemiology: Basic Science of Health	01	01
39	Certificate/Online course	Covid-19 contact tracing	02	02
40	Certificate/Online course	Cyber security by Packethacks	01	01
41	Certificate/Online course	Human resources management concept by Gregg learning	01	01
42	Certificate/Online	Introduction to probability and data	01	01

	course			
43	Certificate/Online course	How To Learn Online	06	06
44	Certificate/Online course	Solar energy	02	02
45	Webinar	Safety Devices of Process Equipment	64	64
46	Webinar	Engineers as Entrepreneurs	76	76
47	Webinar	Process Intensification	98	98
48	Webinar	How to Prepare for GATE?	105	105
49	Webinar	Career Opportunities in Piping Design	64	64
50	Webinar	Analytical Instruments, Gas Chromatography & HPLC	54	54
51	Webinar	Overview of CFD & it's Application in Today's World	84	84
52	Webinar	Distillation Design & Sizing	64	64
53	Webinar	Pervaporation & Vapour Permeation Processes	53	53
54	Webinar	Six Sigma	66	66
55	Webinar	ASPEN & Simulation	45	45
56	Webinar	K-12 Bits	98	98
57	Webinar	Smart, Clean, and Green Energy Future: Challenges and Opportunities	58	58

Table 9.4.7. Seminar/Webinar and invited lectures (AY 2019-2020)

Sr. No.	Type of Activity	Title of Activity	No. of Students Registered	Successfully completed
1	Certificate/Online course	Phase Equilibrium Thermodynamics	10	10
2	Certificate/Online course	Chemical Reaction Engineering I	01	01
3	Certificate/Online course	Nanotechnology and Nanosensors	01	01
4	Invited lecture	Energy Conservation, Global Warming and New Emerging Technologies	63	63
5	Invited lecture	Simulation of Chemical Reaction	47	47
6	Invited lecture	Physical Chemistry, Colligative Properties	50	50
7	Invited lecture	Distillation Column Design and Control	53	53
8	Invited lecture	Waste Water Treatment	39	39
9	Invited lecture	Polymer Industries and Control	28	28
10	Invited lecture	Industrial Distillation Column Design	29	29

9.5. Career Guidance, Training, Placement (10)

Centre for Information Training and Placement (CITP), a common section has been formed to cater Trainings, Placements and for Career guidance to students by taking help of Alumni strength and interaction with industry. The CITP has a well-established infrastructure to cater the said services. The career guidance to students is done at well-structured one to one mentoring and through

professional counselling. Pre-placement and industry specific trainings are carried out at every stage of their undergraduate studies. Student's inclination towards a career is identified at first year level. In their second year studies, communication and soft skills are honed. Aptitude required for employment in general is prepared at third year level. Company specific training with contemporary knowledge is enhanced in the final year of their study. The CITP respects "One student one job policy".

Innovative TRIZ-based training enables students to improve their performance in terms of understanding the technical concepts (basic as well as advanced) in a deeper and appropriate way. at a higher cognitive level. This prepares them to perform more effectively in interviews (HR and Technical rounds).

The policy is elaborated as follows:

1. The companies visiting the campus are divided into IT/Software companies (product, service based) and Core Companies (Non IT/Software) (Manufacturing, service providers).
2. Companies are invited and scheduled on the basis of following parameters:
    a. Eligibility criteria, opportunities for all.
    b. Job profile and growth prospects.
    c. The package being offered by the company.
    d. Past record of recruitment at AISSMS COE.
    e. Feedback from the students regarding the company.
3. If a company prefers to have a common selection process for our institute students along with nearby Engineering institutes, the selection drive is conducted either by our institute or by the other institute after discussion with participating institutes.
4. If the market situation and job scenario necessitate a revision in the Placement Policy, it will be done in a manner so as to maximize the benefit to the student community as a whole.

Pre-Placement Talks (PPT)

1. Notices of the PPT will be published in the placement website well in advance. Students should be available 15 minutes before the scheduled start of the PPT.
2. Students interested in a particular company, can attend its PPT.
3. Students must go through the complete selection process of a particular company.
4. Any clarification regarding salary break-up, job profile, place of work, bond details, etc. must be sought from the companies during PPT or interview.
5. **Dress Code:** Students must be formally dressed whenever they participate in any interaction with a company. CITP reserves the right to refuse permission to a student to attend the selection process/PPT, if they do not dress up formally.

Placement Procedure:

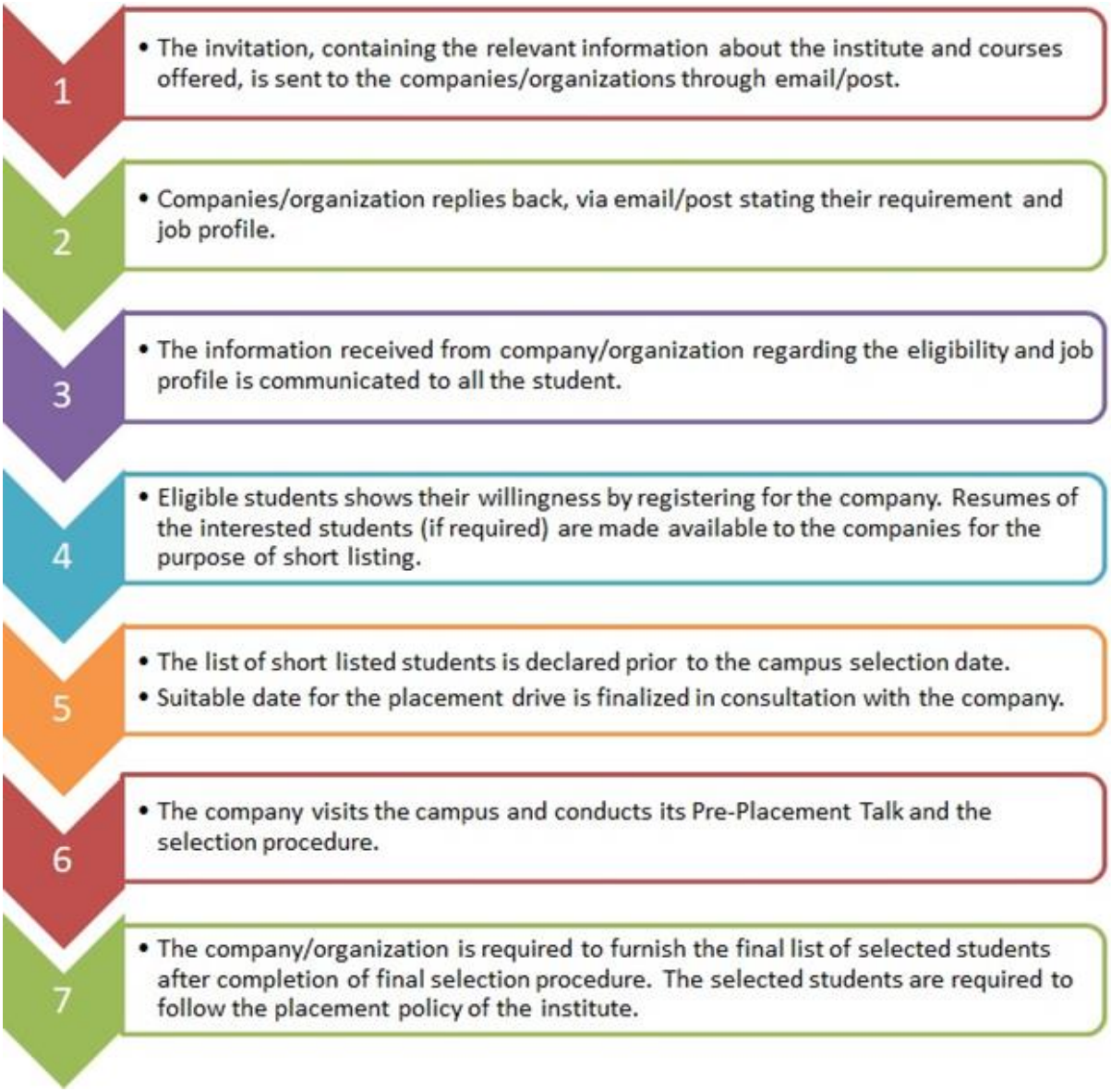


Fig. 9.5.1. Placement Procedure

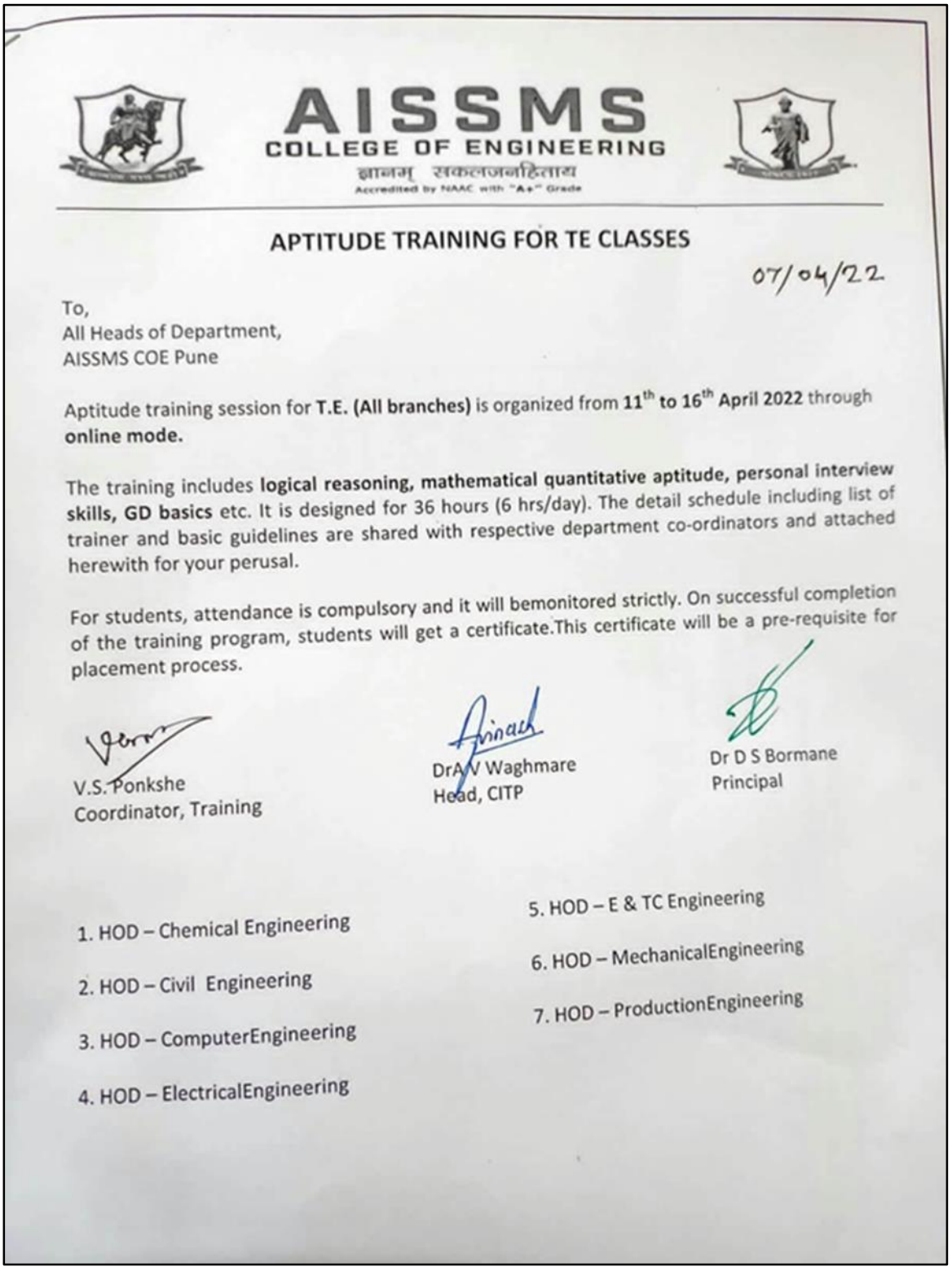
Job Offers:

1. **Pre-Placement Offers**: The following rules are applicable to companies that make PPO through the CITP Office.
   a. The offer of PPO (by the company) and its acceptance (by the student) shall be through CITP office only.
   b. Once a student accepts a PPO, he / she shall be de-registered from placement process.
2. **Multiple Offers**: Each student is eligible for one CORE and one NON-CORE job offer only.

a. If a student receives more than one offer in a session/day and if there is a delay in the announcement of results by some companies, the student is bound to accept/reject the job offers of the company whose results are declared in time.
b. If the results are declared on the same session / day, the student may choose from the offers in hand and inform the CITP office of his/her choice, within 24 hrs of announcement of results.

3. Every student who is selected by a company is out of placement thereafter i.e. deregistered from the placement website.
4. All companies are requested to release the Offer and hand over to CITP office after the completion of the recruitment session.
5. Offer Acceptance: The students should inform the acceptance/rejection of offer within 24 hours (on the day following the release of offer letter/mail). The company shall be intimated of the offer acceptance/rejection within three days of release of offer.
6. In case of those students who are placed and waitlisted by other companies, they will be given 2 days to accept the offer on hand. The Placement Office in the meantime will inform the company where he/she is waitlisted about his present offer. The company that has waitlisted the students is required to release the offer within 24 hours, failing which the name of the student will be removed from the waitlist.
7. Announcement on the website will be considered as firm offer. Offers received from companies must be collected as per timings in circular / notice. The responsibility of going through the offer letter and taking actions therein such as submission of documents lies entirely with the student. All offers (made by the companies) shall be through this office only. This office will not be in a position to resolve problems, if any, that may arise with respect to offers made directly to the student by the company.
8. Second option is given to selected student if forthcoming offer is doubled the existing package or more than 8 LPA.

Soft Skill and Aptitude Training: Soft skill and Aptitude trainings are conducted on regular basis. Pre-placement and industry specific trainings are carried out at every stage of their undergraduate studies. Student's inclination towards a career is identified at first year level. In their second year studies, communication and soft skills are honed. Aptitude required for employment in general is prepared at third year level. Company specific training with contemporary knowledge is enhanced in the final year of their study.



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APTITUDE TRAINING FOR TE CLASSES

07/04/22

To,
All Heads of Department,
AISSMS COE Pune

Aptitude training session for **T.E. (All branches)** is organized from **11th to 16th April 2022** through **online mode.**

The training includes **logical reasoning, mathematical quantitative aptitude, personal interview skills, GD basics** etc. It is designed for 36 hours (6 hrs/day). The detail schedule including list of trainer and basic guidelines are shared with respective department co-ordinators and attached herewith for your perusal.

For students, attendance is compulsory and it will bemonitored strictly. On successful completion of the training program, students will get a certificate.This certificate will be a pre-requisite for placement process.

V.S. Ponkshe
Coordinator, Training

Dr A V Waghmare
Head, CITP

Dr D S Bormane
Principal

1. HOD – Chemical Engineering
2. HOD – Civil Engineering
3. HOD – ComputerEngineering
4. HOD – ElectricalEngineering
5. HOD – E & TC Engineering
6. HOD – MechanicalEngineering
7. HOD – ProductionEngineering

Fig. 9.5.2. Notice for aptitude training classes

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Soft Skill Training Sessions - Online
A.Y. 2021-22 (Term - II)

Class: T.E. **From - 11/04/22 to 16/04/22**

	Department	Division	Faculty Co-ordinator (with mobile no)	Name of GFM (with mobile no)	Name of Trainer	Contact No	Email
1	Chemical		Prof P.M. Warke (9823103089)		Pranav Thorat	7977889404	pr.thorat91@gmail.com
2	Civil	A	Prof V.S. Chavan (9767193755)	S A Chavhan (9960430643)	Pratiksha Tilekar	9604433127	pratikshatilekar85@gmail.com
3		B		Dr D V Wadkar(9730020695)	Chetan Manurkar	7773984154	chetanmanurkar92@gmail.com
4	Computer	A	Prof Monali Deshmukh (7030990816)	Mr. A. P. Kadam (94210 89450)	Shruti Purandare	9422616758	shrutip41@gmail.com
5		B		Mrs. Shikha Phachouly (77688 64108)	Jay Prakash	9542956419	vakatijayaprakash@gmail.com
6	Electrical		Prof V.S. Ponkshe (9284519408)	Prof V.S. Ponkshe (9284519408)	Musharraf	8793327574	mushimh@gmail.com
7	E & TC		Prof S. B. Dhekle (9049996452)		Mangesh Rethrekar	9112880561	mangeshretharekar@gmail.com
8	Mechanical	A	Prof Ansari (8983153332)	DSM (9921618501)	Mohit Mundra	9571091011	mail4mohitmundra@gmail.com
9		B		RAM (9822190513)	Anwar Rashid	7385180479	anwar.rashid0102@gmail.com
10	Mech S/W		Prof M.P. Bauskar (9730923304)	completed			
11	Production		Prof S.S. Kallurkar (8007959797)	Prof S.S. Kallurkar (8007959797)	Sandip Bhoyar	9923106220	sandip_bhoyar@yahoo.co.in

Fig. 9.5.3. Soft skills training schedule

Apart from this, various initiatives have been taken to upskill students. NASSCOM, EDUSKILL, SPRINGBOARD training programs are accessible to students.

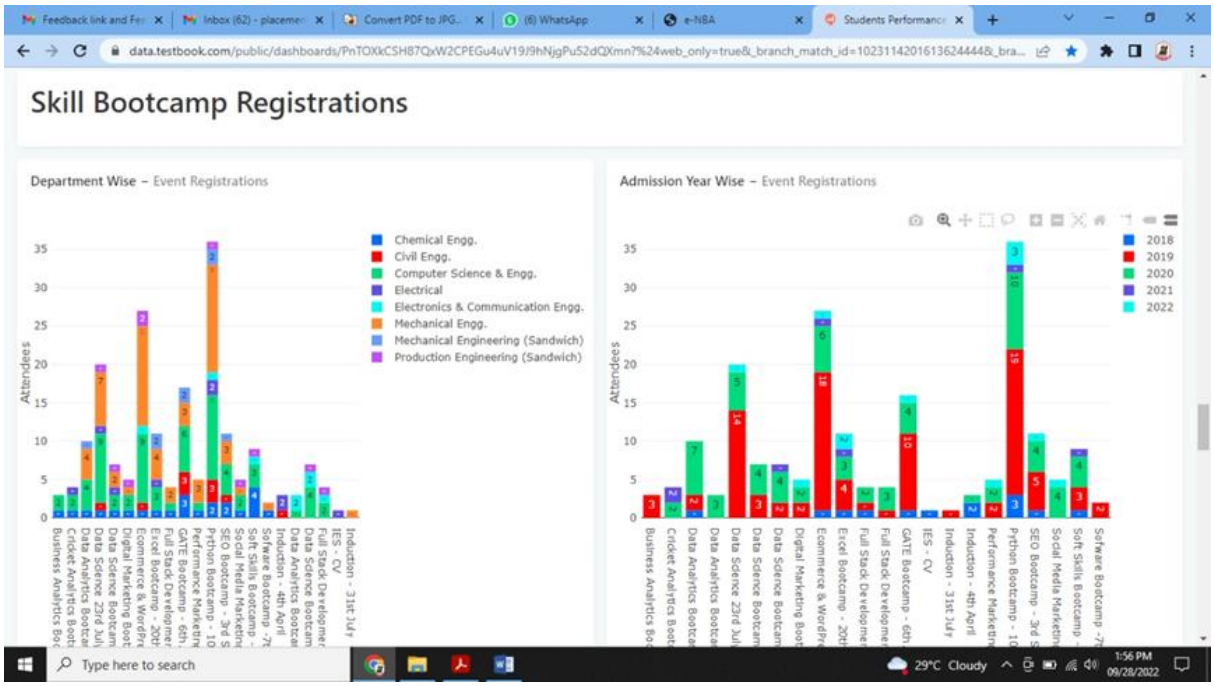


Fig. 9.5.4. Skill Academy's Bootcamp Registration

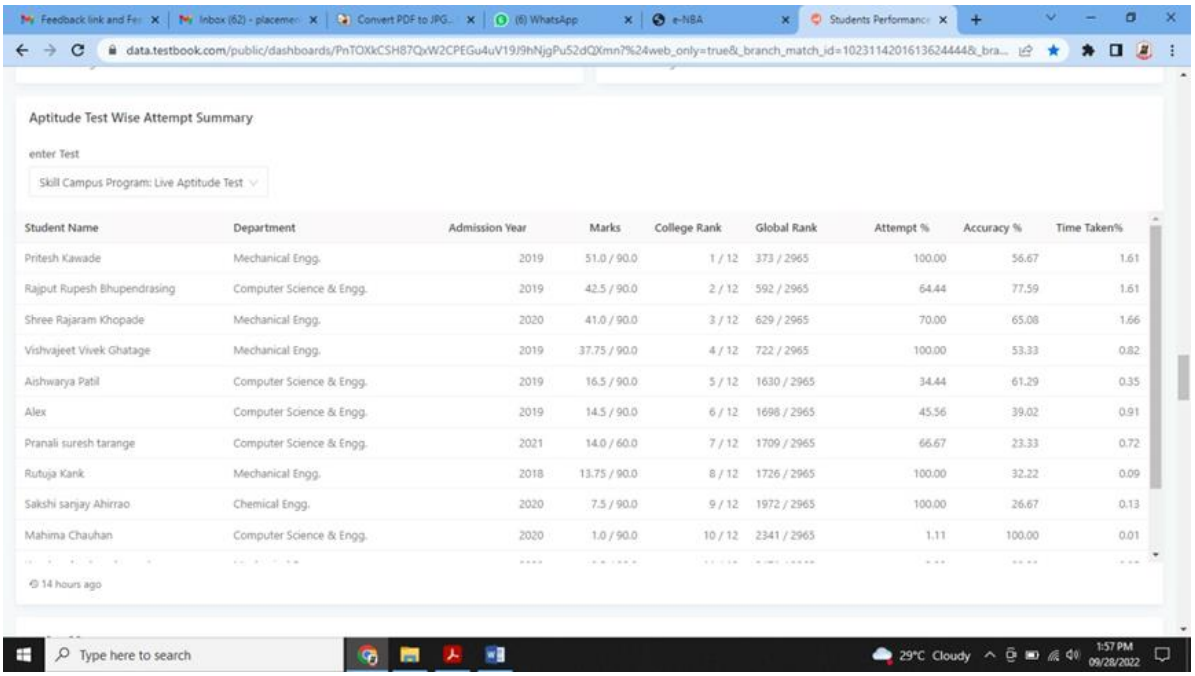


Fig. 9.5.5. Skill Academy's Aptitude Test Summary



Fig. 9.5.6. DTE Maharashtra's Springboard Digital Platform

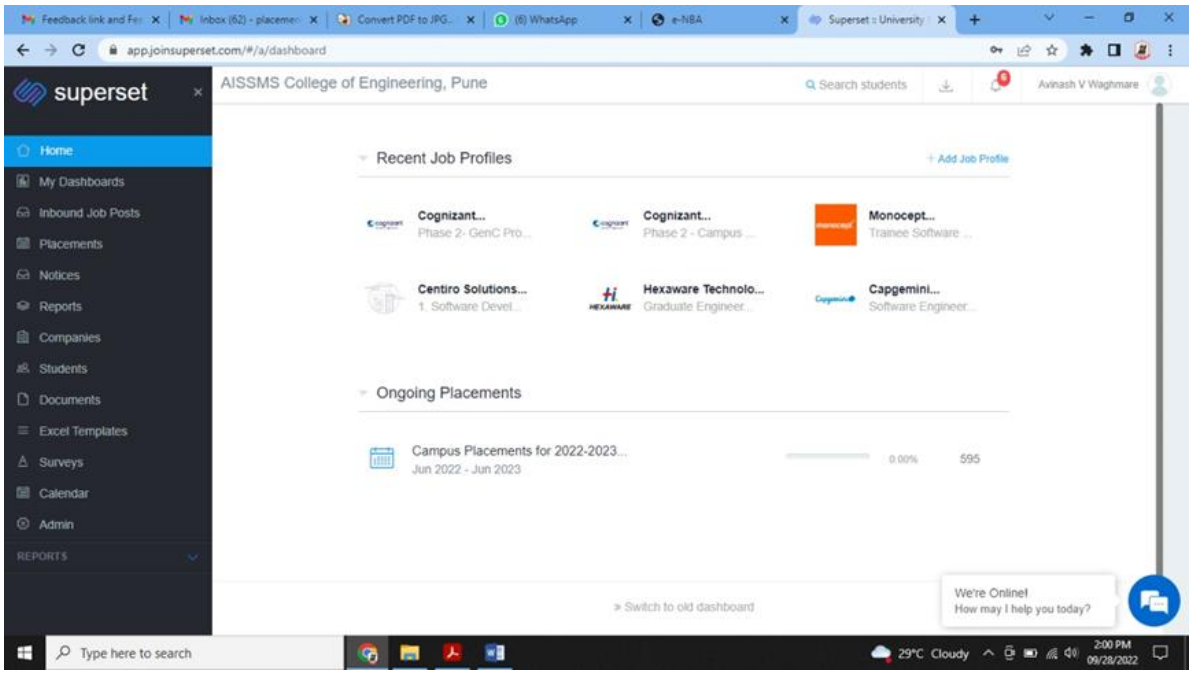


Fig. 9.5.7. SUPERSET, Placement Platform

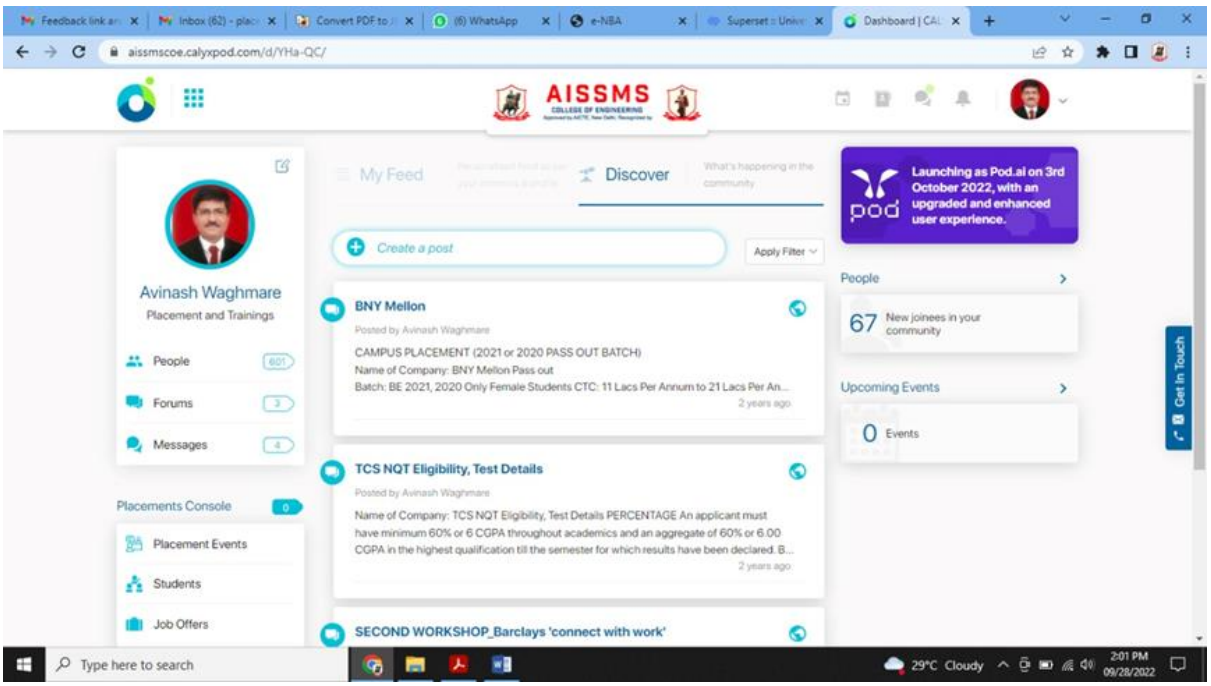
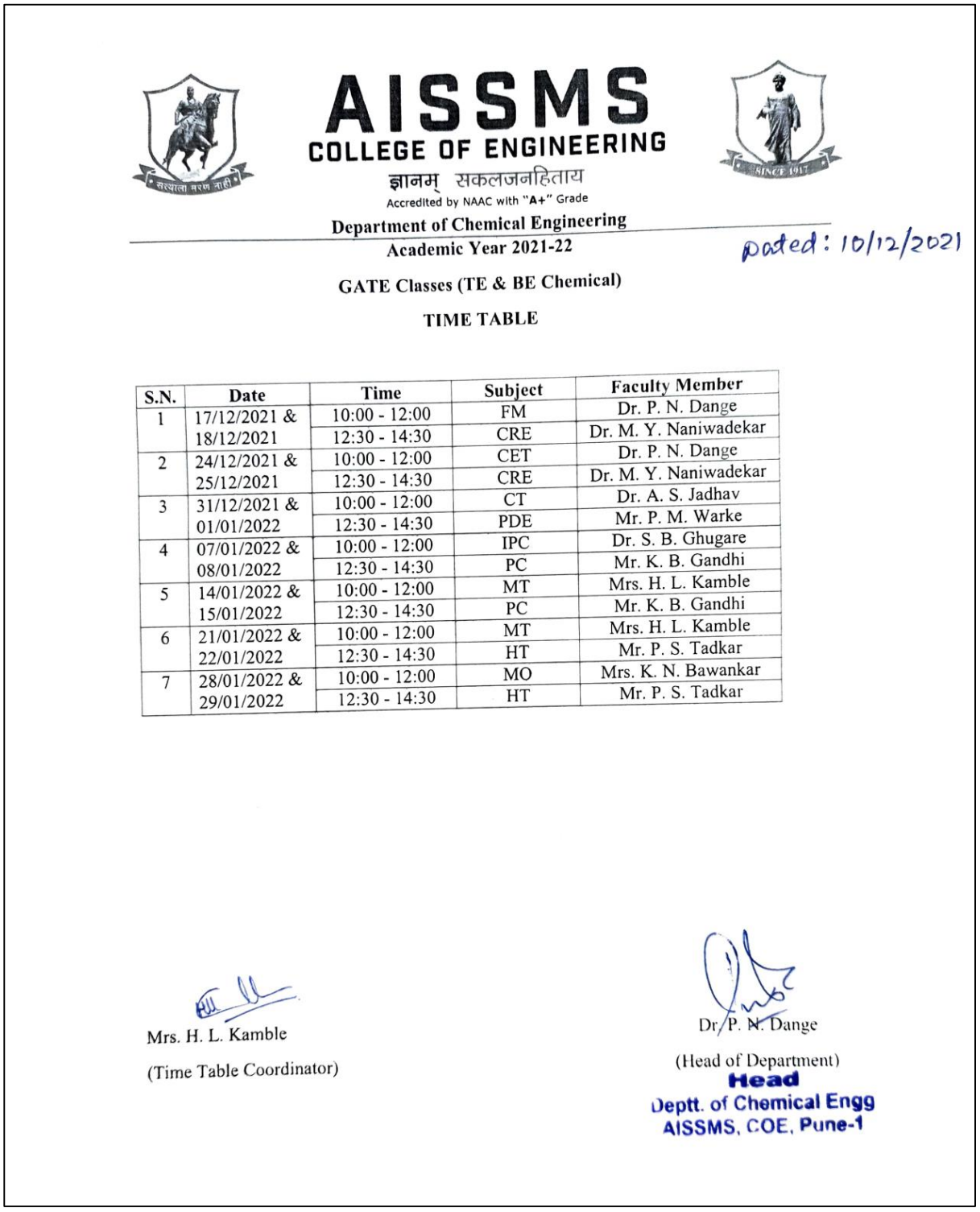


Fig. 9.5.8. CALYXPOD, Placement Platform

Role of Department in Career Guidance to Students

Apart from the efforts taken by CITP, the department also works on its level to provide career guidance to students. Classes for GATE are organized by the department from mid-December to January. This is a sample of time table of GATE classes conducted during the academic year 2021-22 for TE and BE students. Revision of important concepts had been carried out subject-wise. Problems that appeared in previous years' question papers were also discussed and solved.



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Department of Chemical Engineering

Academic Year 2021-22

Dated : 10/12/2021

GATE Classes (TE & BE Chemical)

TIME TABLE

S.N.	Date	Time	Subject	Faculty Member
1	17/12/2021 & 18/12/2021	10:00 - 12:00	FM	Dr. P. N. Dange
		12:30 - 14:30	CRE	Dr. M. Y. Naniwadekar
2	24/12/2021 & 25/12/2021	10:00 - 12:00	CET	Dr. P. N. Dange
		12:30 - 14:30	CRE	Dr. M. Y. Naniwadekar
3	31/12/2021 & 01/01/2022	10:00 - 12:00	CT	Dr. A. S. Jadhav
		12:30 - 14:30	PDE	Mr. P. M. Warke
4	07/01/2022 & 08/01/2022	10:00 - 12:00	IPC	Dr. S. B. Ghugare
		12:30 - 14:30	PC	Mr. K. B. Gandhi
5	14/01/2022 & 15/01/2022	10:00 - 12:00	MT	Mrs. H. L. Kamble
		12:30 - 14:30	PC	Mr. K. B. Gandhi
6	21/01/2022 & 22/01/2022	10:00 - 12:00	MT	Mrs. H. L. Kamble
		12:30 - 14:30	HT	Mr. P. S. Tadkar
7	28/01/2022 & 29/01/2022	10:00 - 12:00	MO	Mrs. K. N. Bawankar
		12:30 - 14:30	HT	Mr. P. S. Tadkar

Mrs. H. L. Kamble
(Time Table Coordinator)

Dr. P. N. Dange
(Head of Department)
Head
Deptt. of Chemical Engg
AISSMS, COE, Pune-1

Fig. 9.5.9. Sample of Time Table for GATE Classes

A sample of attendance sheet has also been attached for the subject Mass Transfer taught by Mrs. H. L. Kamble.

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Department of Chemical Engineering

Academic Year 2021-22

GATE Classes (TE & BE Chemical)

ATTENDANCE SHEET

Subject: Mass Transfer **Faculty Member:** Mrs. H. L. Kamble

Date: 14/01/2022 **Time:** 10:00 TO 12:00

S.N.	Roll No.	Name of Student	Signature
1.	18CH022	Hannure Saif Raju	Saif
2.	18CH038	Nirol Shivani	Shivani
3)	18CH011	Dandekar madhav	Madhav.
4.	18CH046	Pranav Pawar	Pranav.
5	18CH042	Patil Ketan	Ketan
6	18CH016	Dhananjay K. Singh	Dhananjay
7	18CH001	Badhe Sharayu Sevkram	Sharayu
8	18CH012	Darshale Shraddha	Shraddha
9	18CH047	PedamKar Siddhi	Siddhi
10	18CH010	Charan Mahesh Raju.	Mahesh
11	19CH304	Pratiksha More	Pratiksha
12	19CH045	Patil Sarthak	Patil
13	18CH013	Deochake Niranjan Ajay	Deochake
14	18CH004	UMESH BELDAR	umesh
15	19CH007	BORHADE HRUTUJA	HRUTUJA
16	19CH040	Sagar Raut	Raut
17	18CH019	Prathksha Ghadle	Ghadle.
18.	18CH054	Shirsat Vaibhav	Vaibhav
19	18CH059	Vishal Wahunj	Vishal
20.	19CH039	Shivam Rathod	Rathod.
21)	18CH021	Garade priyanka	Priyanka
22)	18CH028	Kakade Bhumika	Bhumika.
23)	18CH033	Kolhapure Ritesh	Ritesh.

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Department of Chemical Engineering

Academic Year 2021-22

GATE Classes (TE & BE Chemical)

ATTENDANCE SHEET

Subject: Mass Transfer **Faculty Member:** Mrs. H.L. Kamble

Date: 14/01/2022 **Time:** 10:00 To 12:00

24	18CH034	Kumbharde abhishek	Akumb.
25	18CH043	Patil Rushikesh	PRuj
26	18CH049	Krunal Rault	KRault
27	18CH055	Shok Phulkar	SP
28	18CH060	Wankhede Rushikesh	Wank
29	18CH315	Deep Patel	DP
30	19CH312	Yadav vishwajeet Bharat	Vishwa
31	18411201	Shep Kaushal Vilas rao	Kaushal
32	18CH054	Shirsat vaibhav	Vaibhav
33	18CH039	Patel Dhairya Jayesh	
34	18CH037	Upadhye Pupoor Ajay	

Subject Teacher

HOD
Head
Deptt. of Chemical Engg
AISSMS, COE, Pune-1

Fig. 9.5.10. Sample of Attendance taken during a GATE Class

Four of our BE (AY 2021-22) students were able to qualify GATE 2022 and three of them secured admission in PG in premier institutes. These students' success is attributed primarily to their hard work, and secondarily, to the sincere efforts made by our faculty members. We wish the students success in all of their future endeavours.

Table 9.5.2. BE Chemical (2021-22) students securing admission in PG

S.N.	Name of student	Course	Institute
1	Vaibhav Shirsat	M. Tech. Chemical	IIT Kharagpur
2	Dhananjay Kumar Singh	M. Tech. Chemical	IIT Roorkee
3	Pranav Pawar	M. Chem.	ICT Mumbai

9.6. Entrepreneurship Cell

The Entrepreneurship & Skill Development Cell at AISSMS College of Engineering has been formed to focus on preparing successful entrepreneurs especially techno-preneurs for the society. The objective is to inculcate Indian cultural values amongst prospective entrepreneurs. The activities are carried out to enhance the eternal spirit of entrepreneurship amongst the students in addition to the basic necessity of academics. The entrepreneurial activities aren't new for the Institute. Many Alumni have established their enterprises and have shown sustainability in business and entrepreneurship. The academic departments have carried out entrepreneurial activities for educating and motivating students in respective areas in techno-entrepreneurship. A dedicated cell was formed as a requirement to inculcate current trends in Entrepreneurship Development in the prospective techno-preneurs. The E&SD Cell has been continually taking efforts to motivate the students to start with entrepreneurial thinking. Cell has conducted

- An Entrepreneurship Awareness Camp sponsored by DST.

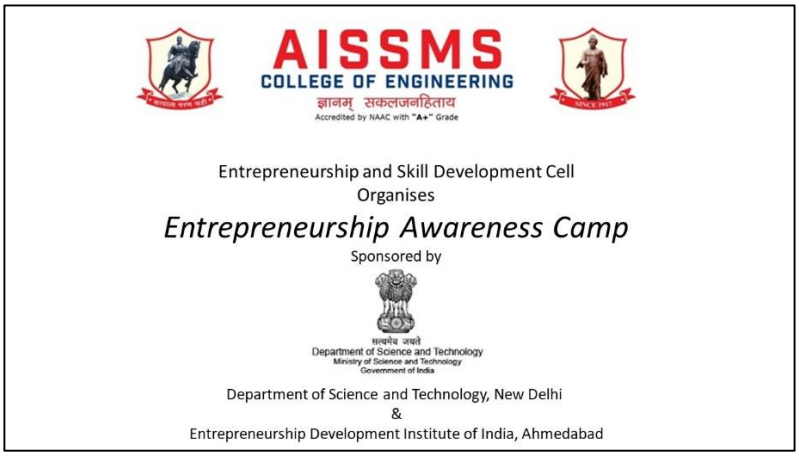
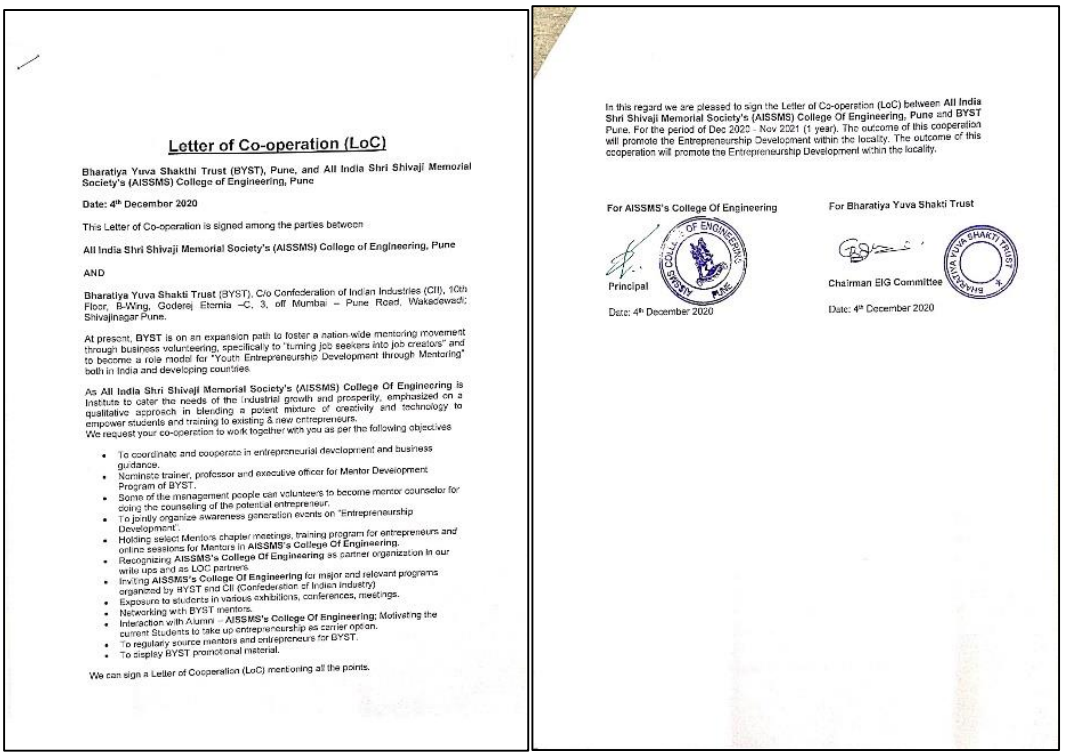


Fig. 9.6.1. Entrepreneurship Awareness Camp

- MoU with Bharatiya Yuva Shakti Trust



Letter of Co-operation (LoC)

Bharatiya Yuva Shakthi Trust (BYST), Pune, and All India Shri Shivaji Memorial Society's (AISSMS) College of Engineering, Pune

Date: 4th December 2020

This Letter of Co-operation is signed among the parties between

All India Shri Shivaji Memorial Society's (AISSMS) College of Engineering, Pune

AND

Bharatiya Yuva Shakti Trust (BYST), C/o Confederation of Indian Industries (CII), 10th Floor, B-Wing, Godrej Eternia –C, 3, off Mumbai – Pune Road, Wakadewadi, Shivajinagar Pune.

At present, **BYST** is on an expansion path to foster a nation-wide mentoring movement through business volunteering, specifically to "turning job seekers into job creators" and to become a role model for "Youth Entrepreneurship Development through Mentoring" both in India and developing countries.

As **All India Shri Shivaji Memorial Society's (AISSMS) College Of Engineering** is institute to cater the needs of the industrial growth and prosperity, emphasized on a qualitative approach in blending a potent mixture of creativity and technology to empower students and training to existing & new entrepreneurs.
We request your co-operation to work together with you as per the following objectives

- To coordinate and cooperate in entrepreneurial development and business guidance.
- Nominate trainer, professor and executive officer for Mentor Development Program of BYST.
- Some of the management people can volunteers to become mentor counselor for doing the counseling of the potential entrepreneur.
- To jointly organize awareness generation events on "Entrepreneurship Development".
- Holding select Mentors chapter meetings, training program for entrepreneurs and online sessions for Mentors in **AISSMS's College Of Engineering.**
- Recognizing **AISSMS's College Of Engineering** as partner organization in our write ups and as LOC partners.
- Inviting **AISSMS's College Of Engineering** for major and relevant programs organized by BYST and CII (Confederation of Indian Industry)
- Exposure to students in various exhibitions, conferences, meetings.
- Networking with BYST mentors.
- Interaction with Alumni – **AISSMS's College Of Engineering;** Motivating the current Students to take up entrepreneurship as carrier option.
- To regularly source mentors and entrepreneurs for BYST.
- To display BYST promotional material.

We can sign a Letter of Cooperation (LoC) mentioning all the points.

In this regard we are pleased to sign the Letter of Co-operation (LoC) between **All India Shri Shivaji Memorial Society's (AISSMS) College Of Engineering, Pune** and **BYST Pune.** For the period of Dec 2020 - Nov 2021 (1 year). The outcome of this cooperation will promote the Entrepreneurship Development within the locality. The outcome of this cooperation will promote the Entrepreneurship Development within the locality.

For AISSMS's College Of Engineering

Principal

Date: 4th December 2020

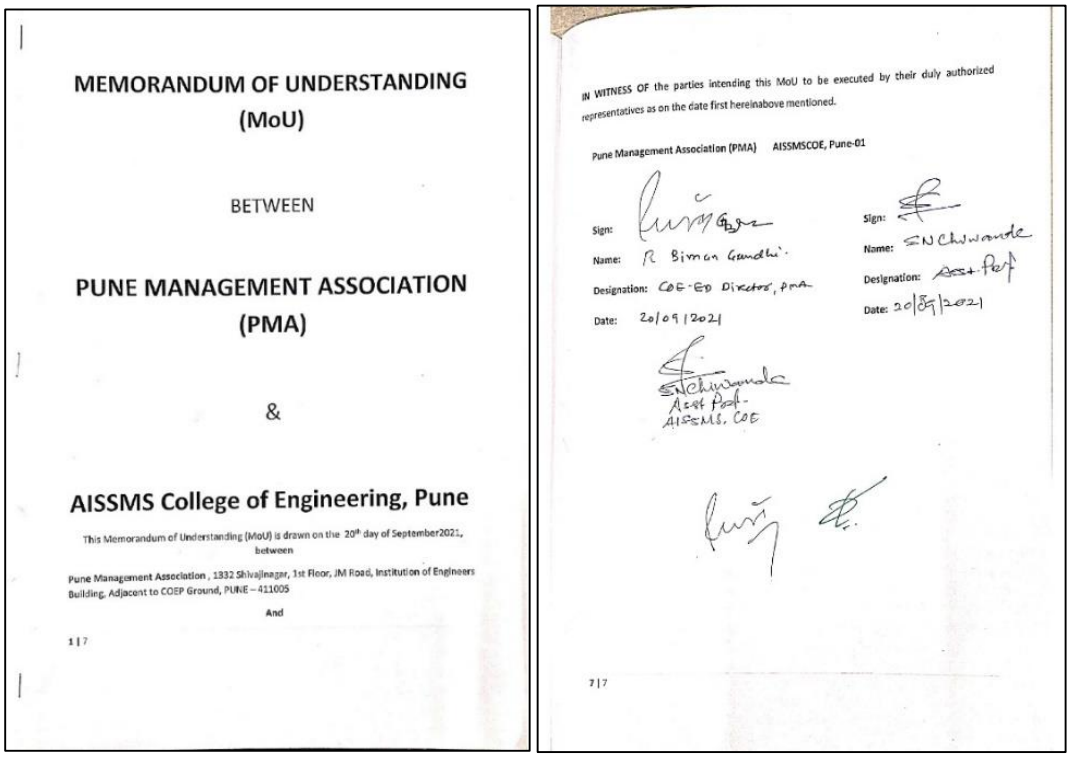
For Bharatiya Yuva Shakti Trust

Chairman EIG Committee

Date: 4th December 2020

Fig. 9.6.2. MoU with Bharatiya Yuva Shakti Trust

- MoU with Pune Management Association



MEMORANDUM OF UNDERSTANDING (MoU)

BETWEEN

PUNE MANAGEMENT ASSOCIATION (PMA)

&

AISSMS College of Engineering, Pune

This Memorandum of Understanding (MoU) is drawn on the 20th day of September2021, between

Pune Management Association , 1332 Shivajinagar, 1st Floor, JM Road, Institution of Engineers Building, Adjacent to COEP Ground, PUNE – 411005

And

1 | 7

IN WITNESS OF the parties intending this MoU to be executed by their duly authorized representatives as on the date first hereinabove mentioned.

Pune Management Association (PMA) AISSMSCOE, Pune-01

Sign:
Name: R Biman Gandhi
Designation: COE-Ed Director, PMA
Date: 20/09/2021

Sign:
Name: SN Chiwande
Designation: Asst Prof
Date: 20/09/2021

SN Chiwande
Asst Prof.
AISSMS, COE

7 | 7

Fig. 9.6.3. MoU with Pune Management Association

- **Activities organized by Entrepreneurship Cell**

Table 9.6.1(a). Activities organized by Entrepreneurship Cell

AISSMS
COLLEGE OF ENGINEERING
ज्ञानम् सकलजनहिताय
Accredited by NAAC with "A+" Grade

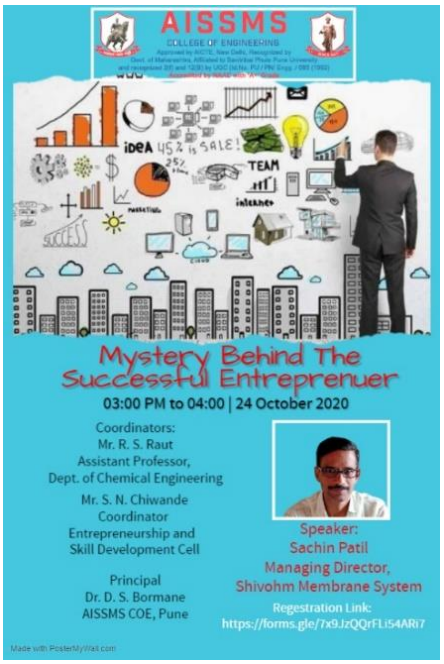
Entrepreneurship and Skill Development Cell

Activities Carried Out With The Cell				
First Half (01 July 2020 to 31 December 2020)				
SN	Details of Activity conducted	Name of Chief guest/ Coordinator	Date and duration	Total Number of Students and faculty involved
1	Mystery behind successful entrepreneur	Mr Sachin Patil	24/10/2020	Students involved 65
2	Webinar on Design Thinking for Entrepreneurs	Ms Garima Gurjar	26/10/2020	Students involved 90
3	Webinar on "Presentation Skills"	Dr. Pragya Bajpai	03/11/2020	Students involved 100
4	Interaction with Entrepreneur	Mr. Sharad Tandle	4/11/2020	Faculties involved 20
5	MoU with BYST	Mr Biman Gandhi	5/12/2020	Faculties involved 08
6	Webinar on "Communication Skills	Dr. Pragya Bajpai	05/11/2020	Students involved 100
7	Webinar on "E-tendering"	Mr. Kiran Ghorpade	06/11/2020	Students involved 150
8	Idea Generation and Evaluation	Mr. Biman Gandhi	31/12/2021	Students involved 56

Table 9.6.1(b). Activities organized by Entrepreneurship Cell

Second Half (01 January 2021 to 30 June 2021)				
Activities Carried Out With The Cell				
S N	**Details of Activity conducted**	**Name of Chief guest/ Coordinator**	**Date and duration**	**Total Number of Students participated**
1	Entrepreneur Online Learning (EOL) Program - BYST	BYST Mentors	27/01/2021 to 28/01/2021 Two Days	14
2	FE Induction – Introduction to Entrepreneur	Mr S N Chiwande & Mr M S Swami	04/02/2021 to 05/02/2021 Two Hours each	556
3	Awareness Generation Program BYST	Mrs Ujwala Gosavi	24/2/2021 2 Hour	50
4	Interaction with our own young startup Entrepreneurs	Mr. O Dahiwal Mr S Mangrulkar , Mr. Sumit Ghodke	25/02/2021 Half Day	83 and 07(Faculty)
5	Expert Talk	Mrs. Sujata Chandra	04/03/2021 Half Day	70 and 10 (Faculty)
6	Webinar on "Preparation for being industry ready"	Mr G Zadge & Mr C Bhutada	20/03/2021	80
7	Webinar on "Soft Skill: A must have asset for Engineers"	Dr. Utpal Ganatra	20/03/2021	120
8	Awareness Generation Programmes (AGP) and Counselling Session	BYST, Pune Mentors	26/03/2021& 27/03/2021 Two days	05
9	Webinar on Career Success Mantra	Mr Rajesh D Kamath	01/05/2021	100
10	One week STTP on "2D & 3D Modelling in STAAD Pro"	Mr R. Udhyasankar	10/05/2021 to 14/05/2021 05 days	300

S N Chiwande
ESD-Cell



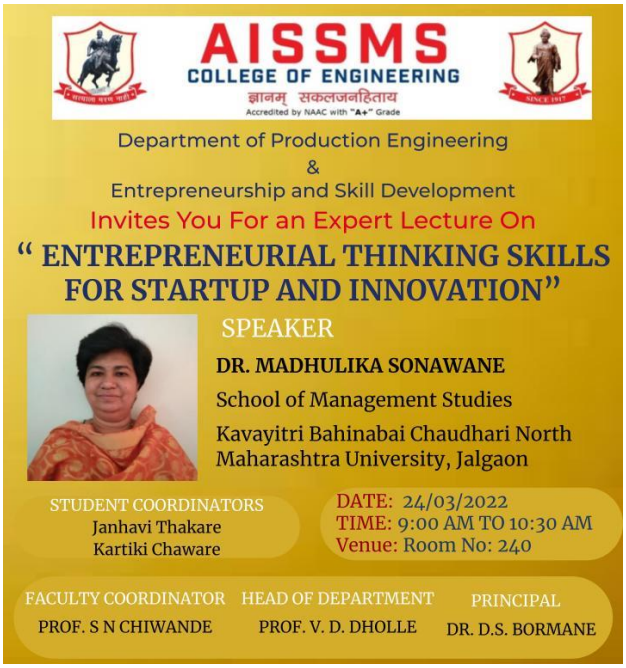


Fig. 9.6.4. Glimpse of Expert Lectures

Success stories

We would like to share the success story of one of our alumni, Mr. Reshnu Pillai who completed B.E. in Chemical Engineering in the academic year 2018-19. Reshnu had been a sincere and hard-working student throughout his four years of engineering. He used to participate actively in both co-curricular and extra-curricular activities. He was able to secure on-campus placement in P Square Technologies, Pune and joined the firm in June 2019 as Project Engineer. There he got the exposure of fabrication of a wide category of basic industrial process equipment (e.g. Automatic Powder Packing Machine, Industrial Process equipment, Material Handling Bucket Elevator, etc.) and mechanical conveyers. After gaining the experience of one year, Reshnu switched to Heat Transfer Engineering Systems (HTES), Pune in August 2020. HTES specializes in manufacturing heat transfer specific equipment like Industrial Blower, Cyclone Separator, Pulse JET Bag Filter, Packed Bed Scrubber, etc. After working there for more than a year, Reshnu was confident enough to plan his own start-up. He installed the start-up in Pimpri Chinchwad in 2022 and named it as Mesotech Engineering Systems (MES). Currently, MES supplies a variety of equipment to process industries incorporating heat and mass transfer. Reshnu has also been continuously trying to expand his firm and include more products. A brief introduction of the company has been presented here:

Name of Company: Mesotech Engineering Systems

Founder / Founders Name: Mr. Reshnu Pillai

Sector - Service / Product: Manufacturing

Brief description of company: Mesotech Engineering Systems has been established in the year of 2022 and are the leading Manufacturer of an extensive array of Centrifugal Blowers, Pulse Jet Dust Collector, Cyclone Separators, Ribbon Blender, Portable Belt Conveyor, Electric Dry Scrubber, Industrial Scrubber System, Welding Fume Extraction System, etc. The current annual turnover of the company is up to one crore. The company directs all activities to cater the expectations of customers by providing them excellent quality products as per their gratification. Moreover, the firm follows moral business policies and crystal pure transparency in all transactions to keep healthy relations with the customers.



Fig. 9.6.5. Entrepreneur Mr. Reshnu Pillai

Company website**:**

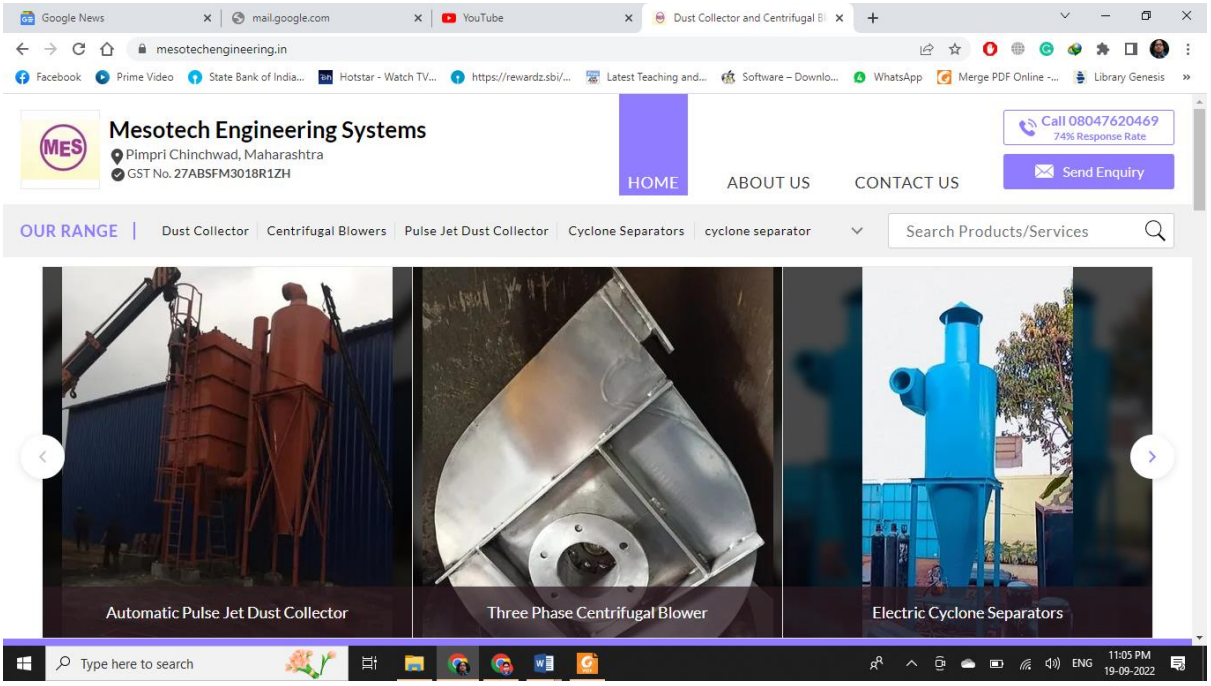


Fig. 9.6.6. Home page of Website of Mesotech Engineering Systems

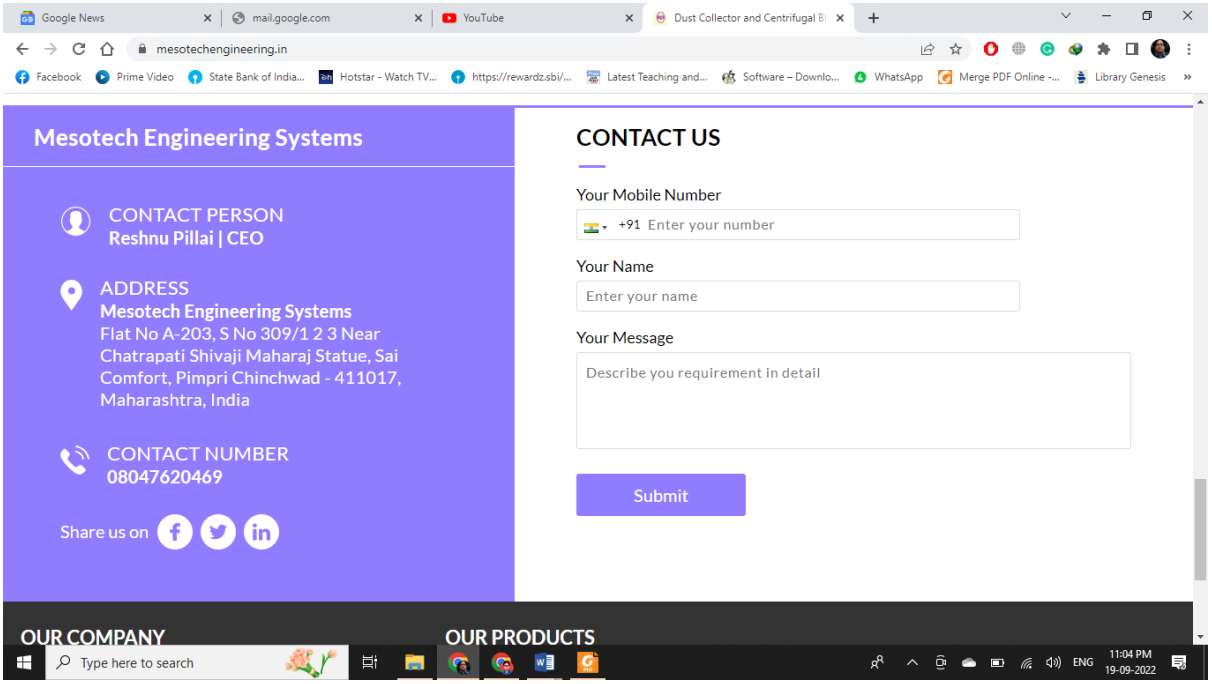


Fig. 9.6.7. Contact page of Website of Mesotech Engineering Systems

9.7. Co-curricular and Extra-Curricular Activities

Institute supports students in co-curricular and extra-curricular activities. Institute runs various clubs such as drone club, robotics club, motorsports club, coding club, aero design club and so on. These students are supported financially and non-financially by the institute. Peer to peer learning, learning from alumni, result oriented activities, modern tool and software usages are the outcomes of these activities.

Students Symposium 'AISSMS Engineering Today': Every Year, the institute organizes technical competitions and symposia. These events provide students an opportunity to prepare technical papers, Quiz, Model Making, Robo-race, Science exhibition. Students also participate as volunteers in the organization of such events.

Cultural Activities: AISSMS COE Conducts a state-level cultural and sports event "Ashwamedh", "Shahu Trophy" every year. The Students of various colleges throughout the state participate in the event. Annual social gathering "Shivanjali" is the most awaited event for students. This year, the institute resumed fully in offline mode in February 2022. We were able to celebrate our annual cultural program Shivanjali in the month of May 2022.



Fig. 9.7.1. A glimpse of cultural program *Shivanjali*

AISSMS COE students actively participate at various levels and win prizes continuously in cultural and literary events organized by other institutions. Events are Firodiya Karandak, Purushottam Karandak, Dnyanottam Karandak, Kaware Trophy etc.

A strong unit of **NSS (National Service Scheme)** organizes various activities leading toward energy saving, environmental protection, rural development, sanitation, flood relief, conservation of natural resources, women's health, rural irrigation, youth development etc. The NSS team also works on state/central government schemes. Institution has also adopted a few villages where the NSS team is instrumental. The AISSMS, College of Engineering, National Service Scheme has carried out various activities in and outside the campus for the development of the society, some are listed below:

Table 9.7.1. Activities conducted under NSS (AY 2020-21)

Sr. No.	Activity	Chief Guest

01	Global Level Poster Making Competition	Dr. Savita Kulkarni
02	World Environment Day(Webinar)	Dr. Shivaji Pancharne
03	Tree Plantation	Hon.Chandrakant Jiwade
04	QUIZ- Ek Bharat Shreshta Bharat	Dr. Arun Bhamre
05	Spitting Kills Campaign	Hon. Shivaji Pacharne
06	Kargil Vijay Divas (Webinar)	Maj.Gen. Shashikant Pitre
07	Raksha Bandhan	Hon. Bhaskar Kumbharde
08	Swayamsiddha Hackathon 2020	Dr. Virendra Kumar Vijay
09	Independence Day	Hon. Gopal Malvi
10	National Education Policy 2020 (Webinar)	Hon. Prabhakar Desai
11	Mahatma Gandhi Jayanti	Dr. Kumar Saptarshi
12	World Food Day(Webinar)	Hon. Vineet Jadhav
13	QUIZ- World Food Day	Hon. Santosh Chavan
14	Food Distribution Drive	Hon. Sheshraj Patil
15	Be Your Own Lakshmi (Webinar)	Hon. Shikha Mittal.
16	Be Vocal Buy Local	Hon. Jayashri Kumbharde
17	QUIZ -Constitution Day	Hon. Sujata Bhamre
18	World AIDS Day (Awareness Drive)	Hon. Vrushali Gadhave
19	We the Change- Aamhi Bharatache Lok (Webinar)	Dr. Sunjay Awte
20	QUIZ- Armed Force Flag Day	Hon. Uma Patil
21	Human Rights Day	Hon. Dilip Ghorpade
22	Tree Plantation (Kalyan)	Sarpanch- Shri Rajesh Dimble
23	Cleanliness Drive (Kalyan)	Sarpanch- Shri Rajesh Dimble
24	Survey regarding Science and Technology Lab (Kalyan)	Sarpanch- Shri Rajesh Dimble
25	Site Visit for Water Reservoir (Kalyan)	Sarpanch- Shri Rajesh Dimble
26	Awareness- Tobbaco Deaddiction	Sarpanch- Shri Rajesh Dimble
27	Pledge- Majhi Vasundhara	Sarpanch- Shri Rajesh Dimble
28	Health Check-up Camp- Kalyan	Sarpanch- Shri Rajesh Dimble
29	Women Literacy- Kalyan	Sarpanch- Shri Rajesh Dimble
30	Mask Distribution- Kalyan	Sarpanch- Shri Rajesh Dimble
31	Resperiometer Distribution- Kalyan	Sarpanch- Shri Rajesh Dimble
32	Tree Plantation- Kalyan	Sarpanch- Shri Rajesh Dimble
33	Cleanliness Drive- Kalyan	Sarpanch- Shri Rajesh Dimble
34	Corona Awareness- Kalyan	Sarpanch- Shri Rajesh Dimble
35	Survey of Water Reservoir- Kalyan	Sarpanch- Shri Rajesh Dimble
36	Survey for Town planning- Kalyan	Sarpanch- Shri Rajesh Dimble
37	Best out of Waste Competition- Paste reduction.	Hon. Manisha Patil
38	Debate - The changing mind-set if youth.	Hon. Mangala Malvi
39	Webinar- Role of youth in Adult Education.	Hon. Sunita Katam
40	Student Literacy- Kalyan	Sarpanch- Shri Rajesh Dimble
41	Tobacco Deaddiction Awareness- Kalyan	Sarpanch- Shri Rajesh Dimble
42	Road Safety Program	Hon. Dr. D. S. Bormane
43	Polio Vaccination Drive	Hon.Usha (Mai) Dhore, Mayor (PCMC)
45	SPPU Foundaation Day	Hon.Padmasghri Ravindra Kolhe

46	Student Activity	Hon. Sunil Dimble
47	Explanation of Science Experiments	Hon. Sunil Dimble
48	Health Check up Camp	Principal, Dr.D.S. Bormane
49	Aazadi ka amrut mahotsav	Hon. Chandrakant Patil, Hon. Mdan Mohan Goyal.
50	SPPU Blood Donation Camp	Hon. Nana Patekar
51	Symbol of Knowledge	Padmashree Dr. Milind Kamble
52	Tree Plantaion Drive	Hon. Swati Jiwade
53	Natural wellness & freedom from poison	Hon. Siddharth Apte
54	Tobbaco: A threat to progress	Hon. Sanjay Seth
55	Tobbaco Addiction: Poetry Compitition	Dr.D. S. Bormane
56	Shivswarajya Din	Hon. Dr. Ganesh Raut
57	Symbol of Knowledge - 02	Hon. Dr. Rajendra Singh

Table 9.7.2. Activities conducted under NSS (AY 2019-20)

Sr. No.	Activity	Chief Guest
1	Yoga Day	Smt. Kailash Patel
2*	Chh. Shahu Maharaj Jayanti	Chh. Malojiraje
3*	Tobacco Free Campaign	Dr. D. S. Bormane
4	Tree Plantation (Campus)	Dr. D. S. Bormane
5	Kargil Vijay Divas	Shri. Nandkumar Choure
6	Yuva Mhiti Dut	Dr. D. S. Bormane
7	Energy Saving prog	Madhu Babu
8	Kolhapur Flood (Collection Drive)	Dr. D. S. Bormane
9	Fit India	Dr. D. S. Bormane
10	Disaster Management	Shri V R Patil
11	Blood Donation Camp	Chh. Malojiraje
12	Science Exhibition Program	Dr. Wagmare GMRT
13	NSS Day Celebration	Dr. Shivaji Pacharne
14	Tobacco rally ,Shanivarwada	Dr N Shejwal
15*	Tobacco Rally(Kondhanpur)	Shri. P.B. Nangare sir
16*	Kondhanpur Oxygen Park	Shri H L Kamble
17	Kalyan Plastic Free Village	Dr N Shejwal
18*	Tobacco free Pledge(Kondhanpur)	Dr N Shejwal
19#	Kalyan Water Reservoir Survey	Shri. P. B. Nangre
20*	Tree Plantation (Kalyan)	Shri Mandhare
21*	Women Hygiene (Kondhanpur)	Mrs. H. L. Kamble
22	Energy Saver Award Program (Kondhanpur)	Shri. Mahesh Pawar
23	Energy Saver Award Program (SSPMS)	Sangeeta Jagtap
24	Energy Saver Award Program (R.M.School)	Dr. N. N. Shejwal
25#	Energy Saver Award Program (Sangavi, Hujurpaga)	Dr. N. N. Shejwal
27#	Dustbin Distribution Prog (Malvandi Dhore)	Mrs. Ranjana Dhore
28#	Gramsabha Malvandi Dhore	Mrs. Ranjana Dhore
29#	Best College Award (SPPU)	Dr. Nitin Karmalkar

30#	Uttkal University (Orissa) Visit At Kasar Sai	Dr. Pareda
31#	Maharashtra- Orissa Cultural Program	Chh. Malojiraje
32#	Road Safety Program	PSI Deccan
33#	Tobacco free India	PSI Deccan
34	Marathi Bhasa Din	Mrs. Rucha Thhate
35	R.O Installation Survey	Mrs. Ranjana Dhore
36	Survey of Soak Pits	Mrs. Jalkute, Gramsevak
37	School Program	Mrs. Ranjana Dhore
38	Installation Of R.O. Plant	Mr. Balu Dhore
39	Poshan Pandharwada	Dr. N. N. Shejwal

Some pictures capturing NSS activities:



Cleaning Drive At Dindi



Kargil Vijay Diwas



Voter Awareness Drive



Swaccha Bharat Abhiyan At Kalyan



Kerala Flood Donation



Job Fair



Diwali Fara Distribution



Mobile Awareness at Malvandi



Soak Pit at Tulapur



Mobile Awareness at Kondhanpur

Fig. 9.7.2. A glimpse of various NSS activities

Student Chapters

Chemical Engineering students participate actively in three student chapters: AIChE, IIChE and IEI. We briefly mention about these student chapters and the activities conducted.

AIChE Student Chapter: American Institute of Chemical Engineers (AIChE) is a reputed and renowned international platform for chemical engineering students to explore and manifest their talent and creativity. AIChE's Institute for Learning and Innovation provides students and professionals the opportunity to learn and innovate through education, practice and discovery. With more than 60,000 members from more than 110 countries, AIChE has the breadth of resources and expertise we need whether we are in core process industries or emerging areas, such as translational medicine. Our chemical engineering students have joined AIChE Student Chapter, worked hard and achieved several milestones, a few of which have been listed below:

Table 9.7.3. Achievements of AIChE Student Chapter

S.N.	Title	Recipient	Date
1	AISSMS College of Engineering Pune, Department of Chemical Engineering achieving status in The American Institute of Chemical Engineers	Department of Chemical Engineering	06/05/2020
2	Selection of AIChE Members in Executive Student Committee (ESC) Regional Liaison of Asia Pacific Region	Ms. Dikshita Mehta Mr. Devendra More	10/06/2020
3	Paper Presentation Competition in Prakalp- 2020 16th National Conference for Chemical Engineering Students, organized by MIT AOE	Ms. Manali Kulkarni, Ms. Yashoda Patil (First prize Environmental Engineering) Ms. Dimpal Kadu (First Prize-Chemical Reaction Engineering)	15/10/2020
4	AIChE International Student Chapter Leadership Development Award 2020	Mr. Devendra More (Regional Liaison, Asia – Pacific Region, 2020)	17/10/2020
5	Competition Organised by Startup and Innovation Cell of AISSMS College of Engineering for Savitribai Phule	Ms. Nupoor Upadhye Ms. Yashoda Patil Mr. Niranjan Deochae	10/02/2021

		Mr. Sahil Jain Mr. Darshan Desadla (Second Prize for their startup idea –Authentic Tourism)	
6	Selection of AIChE AISSMS COE Members in Executive Student Committee (ESC)	Ms. Nupoor Upadhye (Member - K-12 outreach Subcommittee) Mr. Darshan Desadla (Regional Liaison - Asia Pacific Region) Mr. Soham Kumbhar (Regional Liaison – Southern Asia Region)	17/07/2021
7	Student Technical Presentation Competition – AIChE Student Regional Conference 2021	Ms. Nupoor Upadhye Mr. Suyog Choudhari (Runner up – Topic – Synthesis of silver nanoparticles for Electronic Application)	01/09/2021
8	Paper Presentation Competition in Prakalp- 2020 17th National Conference for Chemical Engineering Students, organized by IIChE Student Chapter, MIT AOE	Ms. Nupoor Upadhye Mr. Suyog Choudhari (Best Paper – Session 2B – Topic – Synthesis and Characterization of silver nanoparticles)	13/09/2021
9	Selection of AIChE AISSMS COE Members in Executive Student Committee (ESC)	Ms. Sharyu Badhe (Member – Social Media Subcommittee of AIChE ESC)	

Students who contributed significantly to AIChE were appreciated with certificates:



Fig. 9.7.3. Achievements of AIChE Student Chapter

IIChE Student Chapter: Indian Institute of Chemical Engineers (IIChE) was born on the eve of the Indian Independence during the days fomenting with nationalistic aspirations. Dr. Hira Lal Roy, the great visionary and pioneer of Chemical Engineering education in India, along with a few other stalwarts felt the need for such a forum within the country to spread Chemical Engineering education and to foster the interest of the Chemical Engineering profession in general. A modest beginning was made on 18 May 1947 at a room in Jadavpur University, Kolkata, with 30 members, little fund and nominal infrastructure. IIChE has come a long way since. Today, with around 30,000 members on its roll, the Institute has emerged as the apex professional body of Chemical Engineering professionals in India and has developed a distinct profile of its own. As a matter of fact, IIChE is always moulding itself and playing a proactive role to keep up with the dynamic needs of the economy and the society.

Following activities have been organized under the flag of IIChE Student Chapter:

Table 9.7.4. Activities conducted under IIChE Student Chapter

S.N.	Academic Year	Details of Activity	Date
1	2019-20	Online quiz conducted on Process Instrumentation & Control	30/05/2020
2		Guest lecture on "Career Building" by Shri Lalit Khairnar to SE, TE & BE Students	15/01/2020
3		Industrial visit of BE chemical students to "Sewage treatment Plant, Erandawane"	14/10/2019
4		Seminar on "Scale up of batch process and flow chemistry in batch reactors" by Mr. Chetan Shende	19/07/2019
5	2020-21	Webinar on "Interview Preparation" by Ms. Neetu Bhowate, Chief Manager–Vendor Management, Hindustan Unilever Ltd. Mumbai.	07/11/2020
6		Webinar on "Innovation Driven" Entrepreneurship by Mr. Santosh Khawale, M-Tech IITM, MS-Italy Strategic Engineer, Desicolab founder, Pune	30/01/2021

7		Webinar on “Scope of Piping Engineering in Oil and Gas Sector” by Mr. Atul Singla, Principal Piping Engineer, Petrofac Ltd. Gurgaon	30/05/2021
8	2021-22	“Paper Presentation Competition (CH-1)” in ET-2021 (CHEMIXIR)	29/09/2021
9		Webinar on “Role of Economics in Selection of Technology” by Mr. Nikunj Tanna, Principal Sales Engineer-Honeywell UOP Sustainable Technology Solutions	16/03/2022
10		Webinar on “Introduction to Energy Integration” by Dr. Parikshit Shahane, Senior Chemical Engineer, Ecolab, Pune	01/05/2022

IEI Student Chapter: Institution of Engineers (India) [IEI] is the largest multi-disciplinary professional body of engineers, established in 1920 with its Headquarters located in Kolkata and incorporated under Royal Charter on 9th September, 1935 by the then His Majesty of King George V. The Royal Charter endowed the Institution with the responsibility to promote the general advancement of engineering amongst its members and persons attached to the Institution. After Independence, the Institution is a “Body Corporate” protected under Article 372 of the Constitution of India. The Institution of Engineers (India) is administered by a National Council with the President as its Head.

IEI has been recognized as Scientific and Industrial Research Organization (SIRO) by the Ministry of Science & Technology, Govt. of India and besides conducting its own research, provides Grant-in-Aid to UG/PG/ PhD students of Engineering Institutes & Universities. IEI holds the International Professional Engineers (IntPE) Register for India under the global International Professional Engineers Alliance (IntPEA). The Institution also awards the Professional Engineers (PE) Certification.

Following activities have been organized under IEI Student Chapter:

Table 9.7.5. Activities conducted under IEI Student Chapter

S.N.	Academic Year	Details of Activity	Date
1	2019-20	National Seminar on “Office Etiquettes during and post COVID” by Mr. Niesh Jolhe, Director “i-learn.org.in” Pune	02/06/2020
2		International Webinar on "CAREER PROSPECTS FOR CHEMICAL ENGINEERS IN SAUDI ARABIA" by Mr. Hrishikesh Dani Manager Operations, YBA Kanoo CO. LTD Saudi Arabia	13/06/2020
3	2020-21	Online Session on “Learning C++ for Chemical Engineers"	26/07/2020
4		Online Industrial Visit at “SUDARSHAN CHEMICAL INDUSTRIES LTD"	28/07/2020
5		Online Documentary of BBC on "ABSOLUTE ZERO - THE CONQUEST OF COLD"	03/08/2020
6		Q and A Session on "JOB and Business Opportunities for Chemical Engineers" by Mr. Kedar Chaudhari, CEO REVA PROCESS TECHNOLOGIES Pune	29/08/2020
7		IEI Students Chapter and NSS AISSMS COE donated masks, sanitizers, Respirometer, and Vaporizer to adapted village MALVANDI Nr KAMSHET Pune	09/11/2020
8	2021-22	First Regional Conclave of Students’ Chapter of The Institution of Engineers (India) for Western Region for the year 2021-22	09/12/2021 & 10/12/2021
9		International webinar on "Energy Conservation In Oil and Gas Industries" by Dr. Santosh Madhav Walke, National University of Science and Technology. Muscat, Oman	22/04/2022

10		Expert Lecture on “ENERGY MANAGEMENT AND ENERGY EFFICIENCY IN INDUSTRIAL UTILITIES” by Mr. Kailash Tarde , Individual and Associate Consultant - Dynamic Energy Engineers, Pune	08/04/2022

CRITERION 10	ORGANIZATION, GOVERNANCE AND TRANSPARENCY	120

10. GOVERANCE, INSTITITIONAL SUPPORT & FINANCIAL RESOURCES

Organization, Governance and Transparency (40)

State the Vision and Mission of the Institute

4. Vision of AISSMS College of Engineering Pune

Vision

Service to society through quality education

Mission of AISSMS College of Engineering Pune

Mission

- Generation of national wealth through education and research
- Imparting quality technical education at the cost affordable to all strata of the society
- Enhancing the quality of life through sustainable development
- Carrying out high quality intellectual work
- Achieving the distinction of highest preferred engineering college in the eyes of the stakeholders

Governing Body, Administrative Setup, Functions of Various Bodies, Service Rules, Procedures, Recruitment and Promotional Policies (10)

AISSMS College of Engineering has well established organizational structure to execute out smooth functioning of administrative and academic processes. Various bodies are formulated which constitutes the organization chart. The governing body is the highest decision-making body constituting members of the management, Principal and nominated faculty members. College Development Committee (formerly Local Management committee) includes representatives of members of society, Principal, three members elected from teaching faculty and one member of non-teaching staff. The constituents of the organization structure are as follows: Every department has Department Advisory Board (formerly Department

Advisory Committee) to direct policies to excel students in academics and in work environments. It comprises one member each from industry, research establishment, and academic institute of repute, alumni, student, and parents and from management. Principal, Heads of the Departments, sectional heads and co-coordinators of various committees have adequate participation in making decisions in academic and administrative processes under their preview.

Members of Governing body, College development committee, Internal quality assurance cell and institute level committees are shown in the tables below:

5. Governing Body

Table 10.1.1 Constitution of Governing Body

Governing Body of Institute	
Chairman	To be nominated by the society
Member	Two to five members (Industrialist/ Technologist / Educationalist) to be nominated by the society
Member	Nominee of the affiliating university
Member	Nominee of AICTE(Ex –Officio)
Member	Nominee of State Government
Member	Industrialist/Technologist/Educationalist from the Region to be nominated by State Government.
Member Secretary	Principal of the college.
Member	Two faculty members to be nominated from the Regular staff, one at the level of professor and one at the level of Assistant Professor.

Table 10.1.2 List of Governing Body Members for the year 2020-21

Sl. No.	Name	Designation
1	Shri Suresh Pratap Shinde	Chairman (Society)
2	Shri Malojiraje Chhatrapati	Honorary Secretary (Society)
3	Shri Sunil Hambirrao Mohite	Member (Society)
4	Shri Rushiraj Balasaheb Tekawade	Member (Society)
5	Shri Rahul Nanasaheb Yadav	Member (Society)
6	Dr Amit Dutta	Member (AICTE, Regional Officer) Ex-Officio
7	Dr (Smt) Sharmila Chaudhari	Member (SavitribaiPhule Pune University Nominee)

8	Dr D R Nandanwar	Member (Govt. of Maharashtra) Industrialist/Technologist/ Educationalist
9	Shri P N Jumle	Member (Ex-Officio)
10	Dr (Mrs) Ashwini Avinash Godbole	Member (Teaching)
11	Shri Ganesh Chandrakant Chikute	Member (Teaching)
12	Dr Dattatraya Shankar Bormane	Member Secretary (Principal)

Table 10.1.3 Number of meetings of Governing Body

S.N.	Academic Year	Number of Meetings
01	2021-22	01
02	2020-21	01
03	2019-20	02

6. COLLEGE DEVELOPMENT COMMITTEE

Table No. 10.1.4 Constitution of College Development Committee

College Development Committee of Institute	
Chairmen	Chairperson of the management or his nominee ex-officio chairperson
Member	Secretary of the management or his nominee
Member	One head of department to be nominated by the principal
Member	Three teachers in the college elected by full time amongst themselves out of whom one shall be women
Member	One nonteaching employee, elected by regular nonteaching staff
Member	Four local members nominated by management in consultation with principal from the field of education industry, research and social service of whom at Least one shall be alumnus
Member	Coordinator ,IQAC of the college

Member	President and secretary of college student council
Member Secretary	Principal of the college

Table 10.1.5 List of College Development Committee members (2020-21)

Sr No.	Name	Designation
1	Shri Suresh Pratap Shinde	Chairman (Society)
2	Shri Malojiraje Chhatrapati	Honorary Secretary (Society)
3	Dr (Mrs) Ashwini Avinash Godbole	Member (Head of Department-Teaching)
4	Shri Diwakar Haribhau Joshi	Member (Teaching)
5	Shri Laxman Shivaji Godse	Member (Teaching)
6	Ms Vismita Devidas Nagrale	Member (Woman - Teaching)
7	Shri Santosh Prabhakar Pimpale	Member (Non Teaching)
8	Shri Rahul Nanasaheb Yadav	Member (Society)
9	Shri Nikhil Ashok Khanse	Member (Society)
10	Shri Rishiraj Balasaheb Tekawade	Member (Society)
11	Shri Sunil Hambirrao Mohite	Member (Society)
12	Dr Chandrakishor Shrirang Choudhari	Member (Co-ordinator IQAC : Teaching)
13	Ms Anjali Chaudhari	Member (General Secretary of the College Students Council)
14	Dr Dattatraya Shankar Bormane	Member Secretary (Principal)

Table No. 10.1.6 Number of meetings of Governing Body

S.N.	Academic Year	Number of Meetings
01	2019-20	02
02	2020-21	01
03	2021-22	01

Table 10.1.7 Members of Internal Quality Assurance Cell (2020-21)

Sr No	Category	Post	Name & Designation of Committee members
1	Chairperson	Head of the Institution	Dr Dattatraya Shankar Bormane, Principal
2	Coordinator	Assistant Professor in Mechanical Engineering	Dr Chandrakishor Shrirang Choudhari, Associate Professor in Mechanical Engineering
3	Administrative officers	Head of Department	Dr Sandeep Haribhau Wankhade, Associate Professor in Production Engineering
		Head of Department	Dr (Mrs) Ashwini Avinash Godbole, Professor in Electrical Engineering
		Co ordinator, NAAC Steering Committee	Dr Daulappa Guranna Bhalke, Professor in E&TC Engineering
		Administrative Officer	Mr Abhijit Bhawanrao Bhonsle, Administrative Officer
		Registrar	Mr Santosh Prabhakar Pimpale Registrar
4	Faculty	Civil Engineering	Dr (Mrs) Vidya Nitin Patil, Associate Professor in Civil Engineering
		Computer Engineering	Dr (Mrs) Shabnam Farook Sayyad, Assistant Professor in Computer Engineering
		Mechanical Engineering	Dr Avinash Vishvanath Waghmare, Associate Professor in Mechanical Engineering
		Chemistry	Dr Deepak Vitthal Nighot, Associate Professor in Chemistry
5	Management member	Joint Secretary, AISSMS	Mr Suresh Pratap Shinde Honorary Joint Secretary, AISSM Society, Pune - 5
6	Industry	Ex. MD, Kirloskar Oil Engines Limited, Pune	Mr R R Deshpande
7	Employer	HR Regional Head, TCS, Pune	Mr Shekhar Kamble
8	Parent	Manager, Quality Assurance, ITW (I), Pvt, Ltd, Pune	Mr Hemant Jadhav
9	Student	General Secretary, General Students Association	

Table No. 10.1.8 Number of meetings of IQAC

S.N.	Academic Year	Number of Meetings
01	2021-22	02
02	2020-21	02
03	2019-20	02

7. Service rules, Policies and procedures

Institute follows all the defined service rules and policies and code of conduct laid down by AICTE, UGC, Government of Maharashtra and SPPU, for recruitment and promotion of staff. Pay scale, annual increments and other benefits to staff are being given as per the AICTE and Government of Maharashtra norms.

A) For recruitment of faculty, Institute seeks permission from Savitribai Phule Pune University, Pune and reservation cell of Maharashtra State for the advertisement for recruitment of faculty. Interviews are conducted through staff selection committee appointed by University.

B) For the ad-hoc recruitment, Institute advertises the posts through newspapers and website. Local staff selection committee as per SPPU norms is appointed for selection of faculty through interview procedure.

C) Every employee of the institute is aware of the service, recruitment and promotion rules and code of conduct. These rules are available with registrar of the institute and also communicated to staff through HODs and published on staff notice boards.

Recruitment norms link: https://aissmscoe.com/wpcontent/uploads/2022/05/Faculty-Recruitment-Norms-2022-23.pdf

Decentralization in Working And Grievance Redressal Mechanism (10)

We at AISSMS COE believe in decentralization of activities and delegation of authorities is the key concept in the success achieved by the institute on different platforms. Basically, overall working methodology at institute level is student centric and involvement of each and everyone in the decision-making at their respective levels is ensured through decentralization and delegation of powers. There are various bodies, committees and key administrative positions at institute and department level. In order to ensure transparency in the working of all these committees, code of conduct and process manual is available with all key administrative officers and central library of the institute.

Various portfolio in charges have been delegated powers for taking administrative decisions.

Table 10.1.9 Faculties delegated with administrative powers

S.N.	Name of Faculty member	Decision Authority
01	Dr D S Bormane	Principal
02	Dr C S Choudhari	Coordinator, IQAC
03	Dr Naniwadekar M Y	H.O.D. (Chemical Engineering)
04	Dr P B Nangare	H.O.D. (Civil Engineering)
05	Dr Athawale S V	H.O.D. (Computer Engineering)
06	Dr (Mrs) A A Godbole	H.O.D. (Electrical Engineering)
07	Dr S B Dhonde	H.O.D. (Electronics and Telecommunications)
08	Dr S V Chaitanya	H.O.D. (Mechanical Engineering)
09	Dr D V Nighot	H.O.D. (First year Engineering)
10	Dr Shekhapure N G	H.O.D. (Production Engineering)
11	Mr A B Bhonsale	Administrative officer

In addition to this, various Institute Level administrative committees have been formed foreffective administration.

Details of coordinator and committee members are published on institute website. (https://aissmscoe.com/wp-content/uploads/2021/01/ILC-for-website-update.pdflink).

Also, functions and responsibilities of the committees are also available on the institute website.(https://aissmscoe.com/wp-content/uploads/2022/09/Objectives-and-functions-of-ILCs.pdf) Coordinators of all the institute level committees are delegated with administrative powersfor effective functioning of respective committee.

Table 10.1.10 Various Institute level administrative committees and coordinators

Academic Development Cell			
1	Academic Monitoring	Coordinator	Dr. S. R. Parekar
2	Faculty Development and Academic Collaborations	Coordinator	Dr. S. V. Chaitanya
3	Management Information System	Coordinator	Mr. V. B. Gawai
4	Library Development	Coordinator	Dr Mrs. V. B Dandawate
5	NBA/NAAC Preparations	Coordinator	Dr. M. R. Phate
6	Students Association	Coordinator	Dr S. J .Navale
7	Students Chapters(Professional Bodies)	Coordinator	Mr. N. P Mawale
Centre for Information, Training and Placements Head: Dr A V Waghmare			

8	Placements	Coordinator	Placement Officer
9	Training	Coordinator	Mr. V. S. Phonkshe
10	Counselling and mentoring	Coordinator	Mrs. S. R. Lengade
11	Industry Institute Interaction (III)	Coordinator	Dr. P. B. Nangare
12	Entrepreneurship and Skill Development	Coordinator	Mr. S. N. Chiwande
13	Alumni Engagement	Coordinator	Dr. D. V. Wadkar
14	Competitive Examinations	Coordinator	Mr. A. Y. Kazi
Infrastructure and Facility			
15	Infrastructure and Facility	Coordinator	Dr. S. R. Patil
Gymkhana			
16	Cultural In charge	Coordinator	Mrs. K. N. Kulkarni
17	Magazine In charge, Media	Coordinator	Mrs. S. J. Pachouly
18	Physical Director, Sports In charge, Media	Coordinator	Dr. M. M. Kondhare
19	National Service Scheme	Coordinator	Dr. N. N. Shejwal
20	Students Welfare and Development	Coordinator	Dr.A. B. Patil
Administration Cell			
21	Budget Preparations (Purchase and maintenance)	Coordinator	Dr D S Bormane Principal
22	Admissions	Coordinator	Mr V R Patil
23	Examinations	Coordinator	Dr. D. V. Nighot
Media Interface and Outreach Cell			
24	Website	Coordinator	Mr. N. R. Talhar
Research, Innovation and Development Cell			
25	Research, Innovation and Development Cell	Coordinator	Dr D G Bhalke
Grievance and Redressal Cell			
26	Internal Grievance Redressal	Coordinator	Dr. M. S. Deshpande

27	Women Grievance, Vishakha (Internal Complaint Committee)	Coordinator	Dr. P. S. Gajjal
28	Anti-Ragging	Coordinator	Mr V R Patil

Other than the above-mentioned committees, at department level, committees are formed for the smooth and efficient management of activities at department level. The committees are constituteed by the HOD in consultation with faculty.

For effective implementation of various initiatives and for effective decentralization, committees such as department advisory board and program assessment and quality improvement committees are formed at department level.

Table 10.1.11 Department advisory board members

S.N.	Name of member	Representation	Designation and organisation
1	Dr M Y Naniwadekar	Chairman	HOD, AISSMS COE
2	Dr Shashank Gaikwad	Member R&D	Senior Scientist, NCL Pune
3	Dr Makarand Pimpalpure	Member Industry	MD, Makspeed Technologies Pvt Ltd Pune
4	Dr S P Singh	Member Industry	Associate Vice-President, Praj Industries Pune
5	Mr Vinay Desai	Member Industry	Vice-President, Alkyl Amines Chemicals Ltd, Technology and Development Centre, Hadapsar, Pune
6	Mr Nitin Ghorpade	Member Parent	Project Manager Taikishi India Ltd
7	Mr Vivek Gadre	Member Alumni	Partner Napro Scientific Pune
8	Dr P N Dange	Member Faculty	Module Co-ordinator
9	Mrs H L Kamble	Member Faculty	Module Co-ordinator
10	Mr P M Warke	Member Faculty	Module Co-ordinator
11	Mr Shubham Shinde	Member Student	General Secretary

Table No. 10.1.12 PAQIC members

S.N.	Name of Member	Representation	Designation
1	Dr M Y Naniwadekar	Chairman	HOD, AISSMS COE
2	Mr P S Tadkar	Departmental academic Co-ordinator and Module Co-ordinator III	Coordinator
3	Mrs H L Kamble	Module Co-ordinator I	Member
4	Mr P M Warke	Module Co-ordinator II	Member
5	Dr S B Ghugare	Module Co-ordinator IV	Member
6	Dr A S Jadhav	Module Co-ordinator V	Member
7	Mr K B Gandhi	Module Co-ordinator VI	Member

Grievance redressal is systematically carried out by various team of faculty members acting as committees under the guidance of Principal of the institution. List of faculty members who are administrators'/ decision makers/committee members for various responsibilities are shown in the tables given below.

A Grievance Redressal Committee (GRC) at the College level is constituted for providing guidance and counselling on the problems related to faculty, staff and students.
The Committee redresses all kinds of grievances, academic or non - academic.

Table 10.1.13Members of Grievance Redressal Committee (GRC)

S. N.	Faculty Name and Designation	Post
01	**Dr (Mrs) M S Deshpande, Professor in Chemistry**	**Coordinator**
02	Mr P B Nangare, Assistant Professor in Civil Engineering	Member
03	Ms M V Waghmare, Assistant Professor in Civil Engineering	Member
04	Mr S V Chaitanya, Assistant Professor in Mechanical Engineering	Member
05	Ms S S Chauhan, Finance Officer	Member
06	General Secretary (Student Member)	Member

Grievance Redressal committee shall meet within a week from the date of receipt of any petition/complaint from anybody and take necessary action as deem fit and initiate necessary action for solving problem.

8. Mechanism of Grievance Redressal committee

(a) An aggrieved stakeholder who has the grievance or grievances shall make a written complaint first to the Head of the Department (HOD). The HOD after verifying the facts, will try to redress the grievance within a reasonable time. If the stakeholder is not satisfied with the solution of the HOD, then the written complaint should be forwarded to the Principal through HOD. The Principal then refers the complaint to the Internal Grievance Redressal Committee.
(b) On receiving the complaint from the Principal, Internal Grievance Committee meeting is called by the Chairman. The complaint is studied by the Committee. The Committee at all levels observes the law of natural justice.
(c) The Committee arranges meeting with the aggrieved party first, he/she expresses their views. Similarly meeting with all aggrieved members is scheduled. Thus all the concerned,

are given opportunity, one by one to express their viewpoint. Each one is requested to give their say in writing. The committee gives a patient hearing to both sides and counsels them. The committee also enlightens them based on their SWOC.

(d) After verifying the facts based on factual data and after deliberations, the report of the committee's findings and remedial measures is prepared and submitted to Principal Sir.

(e) Final decision is communicated to the both parties through the Principal.

(f) The Committee, if needed, may recommend to the Principal, necessary corrective action as it may deem fit, to ensure avoidance of recurrence of similar grievance.

Note: The staff / student can lodge their grievance through online link available on Institute'swebsite too (http://aissmscoe.com/academics/online-grievance-redressal/)

9. Anti-Ragging Committees:

With reference to AICTE (Prevention and Prohibition of ragging in Technical Education, Universities including Deemed to be Universities imparting technical education) Regulations 2009 and as per as per the clause No.6(a) of this AICTE Regulations - 2009, Anti-Ragging Committee is formed comprising of experts, faculty members, parents, students, etc to look into any kind of ragging matter reported to them from time to time. The Committee takes immediate action in the matter reported to them, following all the guidelines given in the referred AICTE Regulation - 2009. The Committee also take review of the activities of Anti-Ragging Squad and suggest measures to effectively monitor the anti-ragging activities.

10. Anti Ragging Committee for The academic year 2019-20

Table 10.1.12Members of anti-ragging committee

Sr No	Name	Designation	Post
1	Dr D S Bormane	Principal	Chairman
2	Shri Suresh P Shinde	Businessman	Civil administration
3	Shri M M Mujawar	P I	Ex Officer Member
4	Shri Harsh Dudhe	Reporter, Maharashtra Times News Papers Ltd,Pune	Media Member
5	Shri V R Patil	Assistant Professor in Mechanical Department	Member
6	Mrs S J Pachouly	Assistant Professor in Computer Engineering Department	Member
7	Mrs Seema Chaudhari	Parent Representative	Member
8	Anjali Chaudhari	Student : GS	Member
9	Shri A B Bhonsle	Administrative Officer	Member

11. ANTI RAGGING COMMITTEE (SQUAD)

With reference to AICTE (Prevention and Prohibition of ragging in Technical Education, Universities including Deemed to be Universities imparting technical education) Regulations 2009 and as per as per the clause No.6(a) of this AICTE Regulations - 2009, Anti-ragging Squad is formed to look in to the matters of ragging.

The squad will continuously maintain vigil in the College campus and monitor the activities of the students. If any activity of students is found suspicious then immediate action is to be taken. The squad will conduct patrolling of canteen area, parking area, the College building and Ladies hostel. The patrolling of outside area near to College will also be done.

The students can contact Committee members at any time regarding any kind of problem faced by them from any students in the Campus or outside the campus. Also, students can personally meet any of the above members in the College during working hours**.**

Table 10.1.14 Members of anti-ragging squad

Sr. No.	Faculty Name and Designation	Post
01	**Mr V R Patil, Assistant Professor & Head, First Year Engineering**	**Coordinator**
02	Dr M K Nikam, Associate Professor in Engineering Mathematics	Member
03	Dr S K Upasani, Associate Professor in Chemistry	Member
04	Mr A J Kadam, Assistant Professor in Computer Engineering	Member
05	Mr A B Bhonsle, Administrative Officer	Member
06	Dr M M Kondhare, Physical Director	Member

12. Vishakha (Sexual Harassment Committee)

Table 10.1.15 Members of Vishakha

Sr. No.	Faculty Name and Designation	Post
01	**Dr (Mrs) P S Gajjal,** Associate Professor in Mechanical Engineering	**Coordinator**
02	Ms S J Pachouly, Assistant Professor in Computer Engineering	Member
03	Ms V S Dandawate, Librarian	Member
04	Mr S S Pimpale, Registrar	Member
05	Mr M D Bhalerao, Senior Clerk	Member

06	Mr D S Kulkarni, Technical Assistant	Member

The complaint received by Principal office from any ladies' staff members or student will be forwarded to the above committee. The said committee will look into the complaint and call the concerned complainant personally for hearing the grievance. The Chairman of the committee will forward their report in the sealed envelope to the Principal within one week from the date of receipt of complaint.

Delegation of financial powers (10)

Financial powers are delegated to the Principal of the institute and principal is the one of the signing authorities for financial transactions. Provision of petty cash of Rs. 20,000 is also made with the Principal and head of departments also can make expenses using petty cash with the approval of the principal.

Table 10.1.16 Utilization of petty cash in Rs.

Petty cash utilization					
2019-2020		**2020-2021**		**2021-2022**	
Sanctioned amount	Utilized amount	Sanctioned amount	Utilized amount	Sanctioned amount	Utilized amount
148757.00	148695.00	150543.00	146403.00	127503.00	127441.00

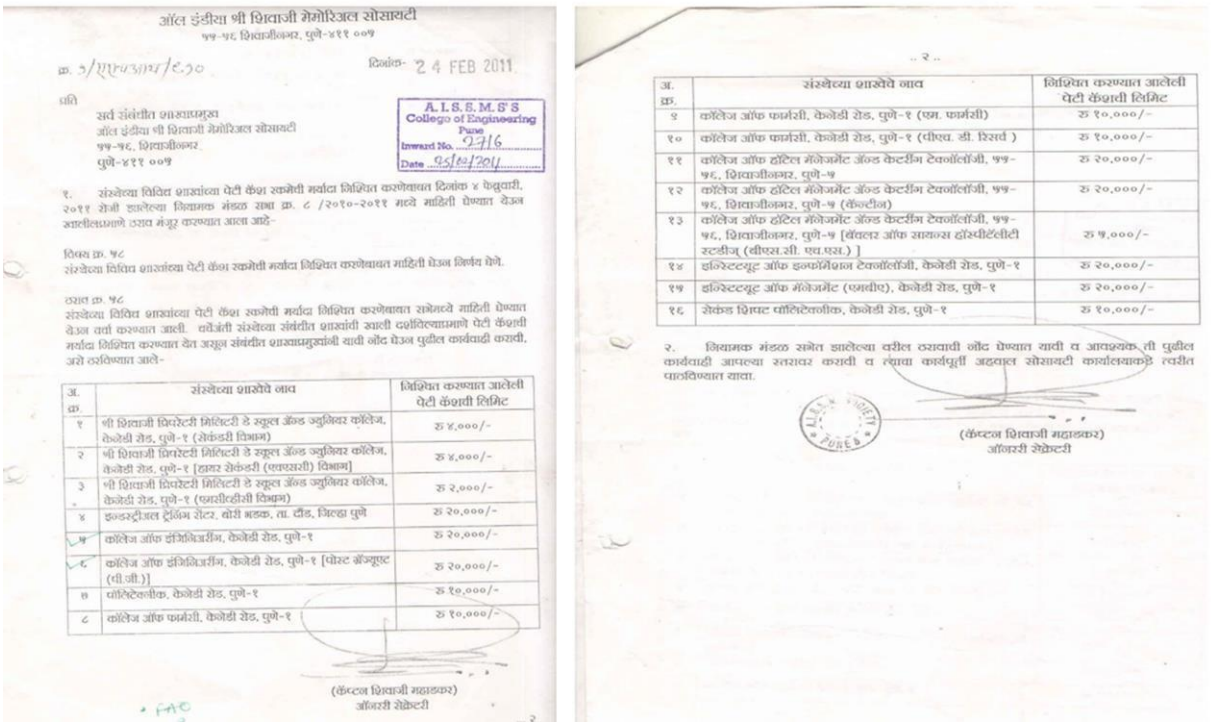


Fig. 10.1.1 Petty cash facility allotted to institutes

Transparency and availability of correct /unambiguous information in publicdomain

1. Unambiguous information is displayed on all general notice boards including department notice boards, Center for information, training and placement cell (CITP), student section, library, and other important areas.

2. Copies of official notices are circulated to the entire faculty, technical and non-technical staff and students.

3. The institute website is continuously updated for disseminating all the information about policies, students, faculty and relevant information. Institute website is www.aissmscoe.com.

Table 10.1.17 URLs for information available on institute website

S.N.	Name of document	URL of document on website
1	Vision, mission, goals and core values of the institute	https://aissmscoe.com/about-us/college-profile/
2	Admissions	https://aissmscoe.com/admission/admission-enquiry/
3	AICTE Approval Letters	https://aissmscoe.com/aicte-approvals/
4	Mandatory disclosure	https://aissmscoe.com/mandatory-disclosure/
5	Stakeholders feedback	https://aissmscoe.com/stakeholders/
6	AICTE essentials	https://aissmscoe.com/aicte-essentials/
Faculty Profile		

7	Department of Chemical Engineering	https://aissmscoe.com/chemical-engineering/faculty/
8	Department of Civil Engineering	https://aissmscoe.com/civil-engineering/faculty/
9	Department of Electrical Engineering	https://aissmscoe.com/electrical-engineering/faculty/
10	Department of Electronics and Telecommunication	https://aissmscoe.com/electronics-engineering/faculty/
11	Department of First Year Engineering	https://aissmscoe.com/first-year-engineering/faculty/
12	Department of Mechanical Engineering	https://aissmscoe.com/mechanical -engineering/faculty/
13	Department of Production Engineering	https://aissmscoe.com/production-engineering/faculty/
Annual Reports		
14	Department of Chemical Engineering	https://aissmscoe.com/chemical-engineering/annual-reports/
15	Department of Civil Engineering	https://aissmscoe.com/ civil-engineering/annual-reports/
16	Department of Electrical Engineering	https://aissmscoe.com/electrical-engineering/annual-reports/
17	Department of Electronics and Telecommunication	https://aissmscoe.com/electronics-engineering/annual-reports/
18	Department of First Year Engineering	https://aissmscoe.com/first-year-engineering/annual-reports/
19	Department of Mechanical Engineering	https://aissmscoe.com/mechanical -engineering/annual-reports/
20	Department of Production Engineering	https://aissmscoe.com/production-engineering/annual-reports/



Fig. 10.1.2 Best Professional College of SPPU



Fig. 10.1.3 Best Principal Award by ISTE

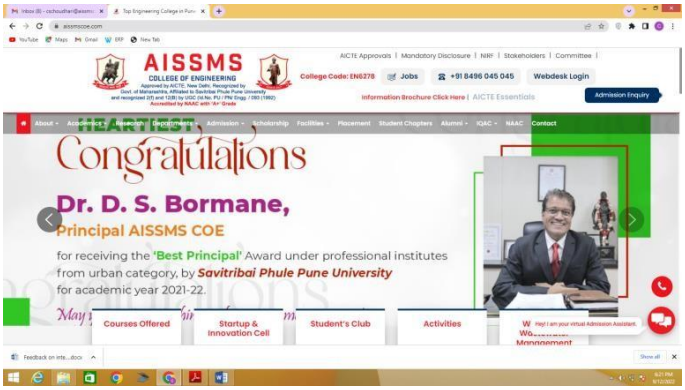


Fig. 10.1.4 Best Principal Award by SPPU



Fig. 10.1.5 Winner of prestigious “Firodiya Trophy 2022”

Budget Allocation, Utilization, and Public Accounting at Institute level (30) Total Marks 30.00

10.2.2 Utilization of allocated funds (15)

10.2.2 Utilization of allocated funds

Each department HOD after receiving the approved budget convene a meeting and discuss the step by step procedure for procuring the equipment and consumables required for the department Faculty who are in charge of the laboratories and course coordinators are nominated to involve in the purchase of equipment's. The nominated faculty members identify the companies/ agencies to receive the quotations and then prepare a comparative statement. The comparative statement will be submitted to the purchase Committee to get approval from the management and then place orders to procure the items. The HOD periodically monitor and take necessary efforts to see that the purchase of items is complete in all respects and the allocated funds are fully utilized.

Summary of current financial year's budget and actual expenditure incurred (for the institution exclusively) in the three previous financial years :

Total Income at Institute level: For CFY,CFYm1,CFYm2 & CFYm3CFY : (Current Financial Year),

CFYm1 : (Current Financial Year minus 1), CFYm2 : (Current Financial Year minus 2) andCFYm3 : (Current Financial Year minus 3)

Table 1 - CFY 2021-22

Total Income 384514955				Actual expenditure(till…): 337150209.65			Total No. Of Students3030
Fee	Govt.	Grants	Other sources(specify)	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify	Expenditure per student
383581137	0	0	933818	329543094.65	7607115	0	111270.70

Table 2 - CFYm1 2020-21

Total Income 374544068				Actual expenditure(till…): 300948858.43			Total No. Of Students 3112
Fee	Govt.	Grants	Other sources(specify)	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify	Expenditure per student
373411482	0	0	1132586	291096339.43	9852519	0	96705.93

Table 3 - CFYm2 2019-20

Total Income 319073736.52				Actual expenditure(till…): 356936441.63			Total No. Of Students 2815
Fee	Govt.	Grants	Other sources(specify)	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify	Expenditure per student
317338255	0	0	1735481.52	330815515.52	26120926.11	0	126798.03

Table 4 - CFYm3 2018-19

Total Income 311756516				Actual expenditure(till…): 359356147.59			Total No. Of Students 2916
Fee	Govt.	Grants	Other sources(specify)	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify	Expenditure per student
310308435	0	0	1448081	317150317.48	42205830.11	0	123235.99

Items	**Budgeted in**	**Actual Expenses in**	**Budgeted in**	**Actual Expenses in**	**Budgeted in**	**Actual Expenses in**	**Budgeted in**	**Actual Expenses in**

	2021-22	2021-22 till	2020-21	2020-21 till	2019-20	2019-20 till	2018-19	2018-19 till
Infrastructure Built-Up	33535208.00	32066113.00	32312734.00	29716580.00	51005208.00	49970510.11	69365208.00	69395393.11
Library	4325000.00	4099379.00	5510000.00	5500268.00	3925000.00	3296066.00	4325000.00	4399036.00

Laboratory equipment	5950000.00	4805267.00	8000000.00	7864601.00	6100000.00	5202903.00	8100000.00	6548410.00
Laboratory consumables	700000.00	231398.00	700000.00	542036.00	1000000.00	935167.00	1400000.00	1300678.00
Teaching and non-teaching staffsalary	227150000.00	226611240.00	208550000.00	207828775.00	205000000.00	204913144.00	203488000.00	203408950.00
Maintenance and spares	4200000.00	3419956.60	2750000.00	2591638.00	5450000.00	5312396.00	4900000.00	4878388.00
R&D	4200000.00	1723831.00	1400000.00	392884.00	3700000.00	1136690.00	4600000.00	1496623.42
Training and Travel	2850000.00	2750408.62	6020000.00	5330814.00	8300000.00	8328591.00	8065202.00	7763844.00
	580000.00	184210.00	280000.00	58504.00	5430000.00	5331466.00	3580000.00	3792752.00
Others, specify	46577240.88	46296208.49	33143792.00	25400338.23	51789792.00	51947991.84	44676590.00	40778027.36
Total	**330067448.88**	**322188011.71**	**298666526.00**	**285226438.23**	**341700000.00**	**336374924.95**	**352500000.00**	**343762101.89**

10.2.1 Adequacy of budget allocation (10)

10.2.1 Adequacy of budget allocation

The college has a well formulated financial policy which ensures effective and optimal utilization of finances for academic, administrative and development purpose which help ultimately in realizing the institute's vision and mission.

Institute has made the necessary provision in the books of account towards efficient use of available fund for each academic year. As per the guidelines of the management and Principal, Variance report of sanctioned budget and actual expenditure are regularly maintained.

The Institute has a well-defined procedure to monitor effective and efficient utilization of available financial resources for infrastructure development and academic processes. Every year, the budget is prepared well in advance after taking into consideration the requirement of every Department. Each Department prepares the budget based on the requirement such as equipment, computer as well as consumable required for next academic session. Principal puts up the budget in Governing Body meeting and after discussion and necessary corrections/modifications; Governing Body recommends the budget for approval. The budget is reviewed by the management and approved after necessary changes. As and when required, the institute makes a provision for advance additional fund. The Principal and the Head of Departments discuss the requirement and decide the priorities while allotting financial resources for various purposes; and also ensure optimum use of available financial resources. The Governing body studies the annual expenditure, scrutinizes the budget and provides feedback for efficient use of financial resources. The Institute has standardized procedure for sanctioning of funds for various activities and also for settlement of advance and passing of bills for payment.

The Management has given complete support to Principal for organization of various co-curricular & extracurricular activities like technical events, sponsoring of faculty & staff for various skill development programs, providing financial support for attending conferences, workshops, pursuance of higher education etc. Financial support is also provided for participation of students at various national and international level events like Baja, Supra, Effi-cycle, Go-Kart, Aero-design and different clubs like Robotics and Drone.

The Society has constituted a separate purchase Committee comprising of Management representative, Principal & college concerned staff. The purchase procedure such as calling quotation, technical bid, preparing comparative statement, negotiation meetings are followed for effective and efficient use of available financial resources. The committee ensures that suitable equipment with right specification is procured at competitive and optimal prices.

Financial audits are conducted by a chartered accountant every financial year to verify the compliance with established processes.

Apart from this the college also provides financial assistance to student for participation at various national & state level cultural & Sports competition. We are very proud to say that due to the financial freedom given by the management in organization of various sports & Cultural events at institute level and participation of our student in various national & State level culture & Sports competition our students have shown excellent performance in these events.

10.2.3 Availability of the audited statements on the institute's website (5)

10.2.3 Availability of the audited statements on the institute website

Audited statements are uploaded on institute website and are available for public. https://aissmscoe.com/mandatory-disclosure/ (https://aissmscoe.com/mandatory-disclosure/)

Program Specific Budget Allocation, Utilization (30) Total Marks 30.00

10.3.2 Utilization of allocated funds (20)

10.3.2 Utilization of allocated funds

The Funds allocated to the department are effectively utilized and are adequate as per the departmental academic requirement. As per the requirement of the University curriculum and industry needs, all the laboratories of the department are being upgraded regularly by purchasing new equipment and accessories and upgrading existing equipment.

Allocated budget for the department is properly utilized in the financial year as per requirement.

Total Income at Institute level: For CFY,CFYm1,CFYm2 & CFYm3CFY: (Current Financial Year),

CFYm1 : (Current Financial Year minus 1), CFYm2 : (Current Financial Year minus 2) andCFYm3 : (Current Financial Year minus 3)

Table 1 :: CFY 2021-22

1545020		Actual expenditure (till…): 3116882		Total No. Of Students 269
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
850000	695020	1788000	1328882	11586.92

Table 2 :: CFYm1 2020-21

2348000		Actual expenditure (till…): 1534851		Total No. Of Students 273
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
1000000	1348000	896800	638051	5622.16

Table 3 :: CFYm2 2019-20

3391000		Actual expenditure (till…): 3058622		Total No. Of Students 257
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
1200000	2191000	1205665	1852957	11901.25

Table 4 :: CFYm3 2018-19

3937000		Actual expenditure (till…): 3502426		Total No. Of Students 276
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
2100000	1837000	2135799	1366627	12689.95

Items	Budgeted in 2021-22	Actual Expenses in 2021-22 till	Budgeted in 2020-21	Actual Expenses in 2020-21 till	Budgeted in 2019-20	Actual Expenses in 2019-20 till	Budgeted in 2018-19	Actual Expenses in 2018-19 till
Laboratory equipment	850000.00	695020.00	1000000.00	896800.00	1200000.00	1205665.00	2100000.00	2135799.00
Software	1000000.00	1015999.00	500000.00	42909.00	550000.00	544559.00	100000.00	84281.00
Laboratory consumable	100000.00	0	100000.00	39034.00	100000.00	162954.00	175000.00	177425.00
Maintenance and spares	100000.00	86313.00	100000.00	67008.00	100000.00	54444.00	200000.00	160021.00
R & D	300000.00	0	125000.00	0	300000.00	0	400000.00	0

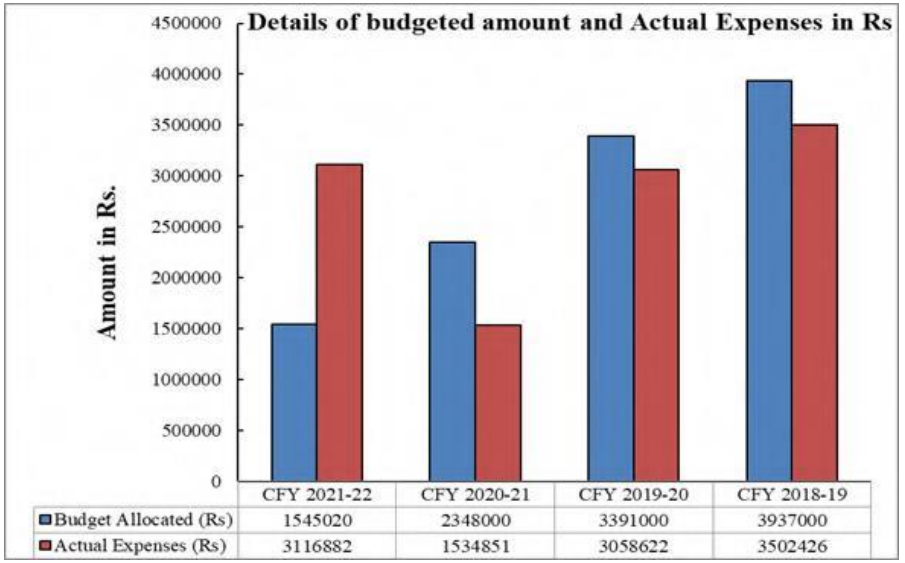
Training and Travel	240000.00	211570.00	500000.00	484600.00	691000.00	691000.00	672000.00	645000.00
	48000.00	15000.00	23000.00	4500.00	450000.00	400000.00	290000.00	300000.00
Total	**2638000.00**	**2023902.00**	**2348000.00**	**1534851.00**	**3391000.00**	**3058622.00**	**3937000.00**	**3502526.00**

10.3.1 Adequacy of budget allocation (10)

10.3.1 Adequacy of budget allocation

- As per the regular purchase process of the financial year, requirement of the department is considered for the preparation of the annual budget.
- Before the commencement of the financial year details of the purchase requirement (recurring and non-recurring details) are collected from the laboratory in-charge of the department.
- Budget proposal is finalized by the Head of the Department by considering annual intake of the students, university curriculum, industry requirement, laboratory & infrastructure development. The requirement Budget of the equipment, computers, software, consumables, maintenance & furniture etc. is finalized. Apart from this, budget proposals are prepared for co-curricular, extra-curricular and extension activities for the overall development of students.
- Head of the Department submits the proposal of the budget to the Principal and the same is put up in the College Development Committee (CDC) and Governing Body (GB) meeting and after discussion and necessary corrections/modifications, College Development Committee and Governing Body recommends the budget for approval.
- The budget is reviewed by the management and approved after necessary changes.

- The budget allocated by the institute to the department is adequate to cater the need of the department to upgrade the laboratory in terms of equipment,



	CFY 2021-22	CFY 2020-21	CFY 2019-20	CFY 2018-19
Budget Allocated (Rs)	1545020	2348000	3391000	3937000
Actual Expenses (Rs)	3116882	1534851	3058622	3502426

consumables, software, computers, maintenance-spare and furniture etc. and for conducting curricular and extra-curricular activities.

Fig.10.3.1 Budgeted amount and actual expenses

Library and Internet (20)

Quality of learning resources

The Learning Resource Center, the Central Library of AISSMS College of Engineering with its state-of-the-art facilities and excellent resources plays proactive role in providing excellent user services, optimal use of resources supporting quality enhancement in teaching-learning, research and extension. keeping pace with the developments in the ICTs, Institute library works as adigitized knowledge Center for accessibility with print and e-resources and provides focused services to the students and faculty. The Library has significant collection of books, journals, e- books, e-journals, secondary sources, databases, digital primary sources.

Integrated Library Management System (SLIM21) is used to manage different functions of library for improving accessibility to students. Institute Central Library is using commercial software as well as Open Source software for Automation of Library Services. With SLIM21 retrieval of information becomes easy and even a catchy phrase in the description of the catalogued item canbe used for searching. SLIM21 supports flexible workflow to cover activities related to acquisition of books, serials control, and funds monitoring.

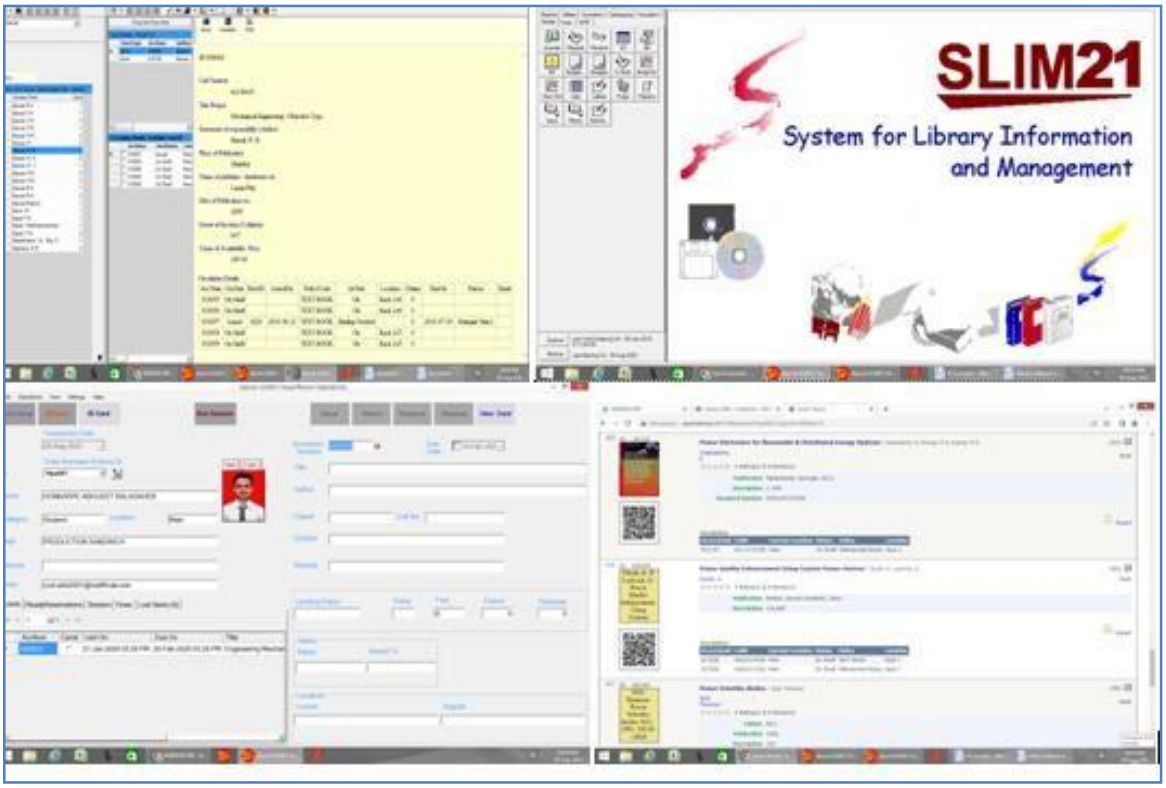


Fig. 10.4.1: SLIM Software Screenshots

With the growing popularity of e-resources, l i b r a r y i s gradually migrating from print documents to e-resources. Qualified and experienced staff plays important role in providing easily accessible and cost-effective information services. Institute library has subscribed / implemented

learning and e-learning resources as shown in below tables.

Table 10.4.1: Learning resources available in Library

Learning Resources	Number of resources
Books	36942
E Journals	1014
e-Journals/e-Books	15000
List of print journals/Magazine	91
List of Newspapers	12
CD/DVD	867

Table 10.4.2: Expenditure in last three years on learning resources

Year	No of New Titles added	No of new Editions added	No of new volumes added	Expenditure
CFY -2019-20	17	9	99	96197.00
CFY-2020-21	428	314	1324	650064.00
CFY- 2021-22	87	36	277	199492
CFY- 2022-23	12	12	20	25926

Table 10.4.3: Expenditure in last three years on E-Journals Subscription

Year	Number of E Journals	Expenditure
CFY 2019-20	612	2624635
CFY 2020 -21	1016	2493007
CFY 2021-22	1016	2810777
CFY- 2022-23	1016	3041158

Institute Library has made following online resources available to the staff and students. Table 10.4.4: Various online resources available in AISSMS COE

E Library Resource	Contents	Link
Science Direct	275 E Journals Access	https://www.sciencedirect.com/
IEEE	169 eJournal Backfile Access- Since 2000)	https://ieeexplore.ieee.org/Xplore/home.jsp
ASME Digital Library	27 E Journals	https://www.asme.org/
ASCE Digital Library	35 E journals	https://www.asce.org/
Access Engineering	365 E journals/ E Books Access	https://www.accessengineeringlibrary.com/user/login

DELNET	Access Millions of Networked Library Resources through DELNET, 2,20,00,000+ Books available for loan, 5,000+ Full-text E-journals, 1,00,000+ Thesis/Dissertations	http://164.100.247.26/
Knimbus	25000+ ebooks	https://aissms.knimbus.com/user#/home
NDL	Includes all disciplines	https://ndl.iitkgp.ac.in/
List of Open Access Resources	Access to all open access resources	https://aissmscoelibrary.weebly.com/open-access-resources.html
S Chand Ebooks	Access to 112 E-Text Books	https://ebooks.schandgroup.com
New Age Ebooks	Access to 50 E Books	https://digital.elib4u.com/
Person E books	Access to 104 E -Text Books	https://elibrary.in.pearson.com/
Calibre Digital Library	Access to 1012 Free Ebooks	Available in LAN

For the easy access, all the online resources are subscribed as IP Based access subscription. This helps users to access any resource from any computer connected in the AISSMSCOE Campus LAN and also through WiFi enabled devices. This helps users for searching multiple database at a stretch. Remote off campus access facility is created and this can be used by students from home.

13. Library user tracking students and faculty

Library user tracking for students and faculty is done through ERP system. daily visit to library reports can be download through ERP system

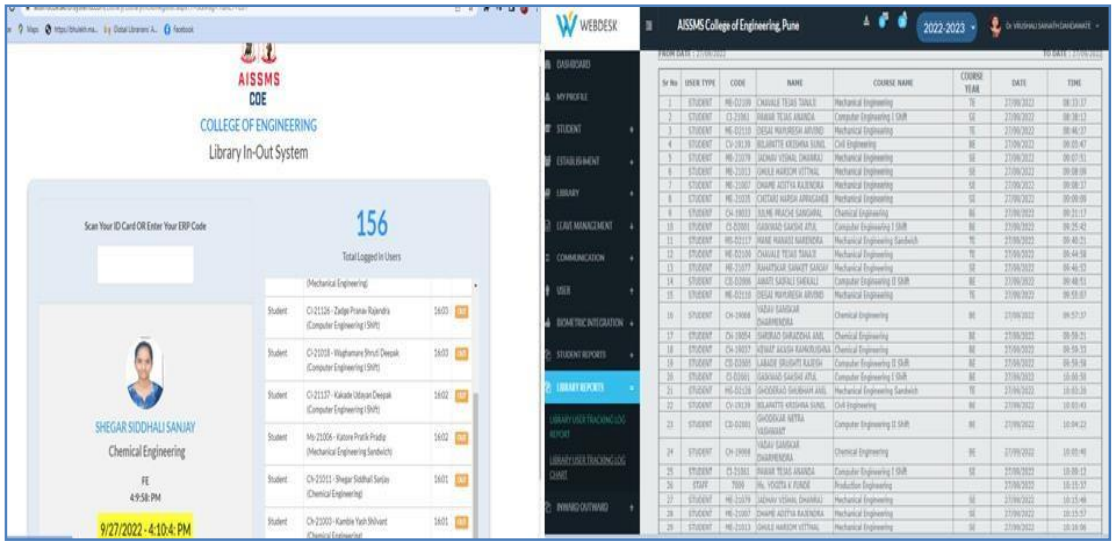
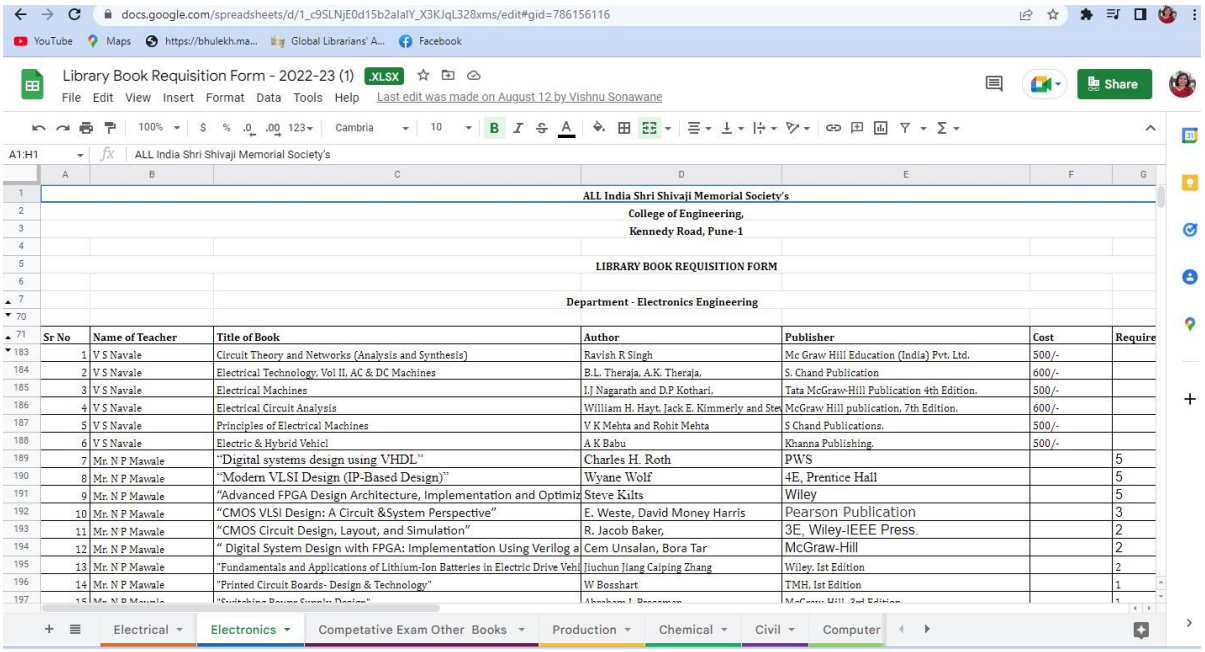


Fig. 10.4.2: Screenshot of Library user tracking system

14. Book Purchase System Process

Library books requirement is collected through a book requisition form which is made available to all faculty through the google drive link. List of books requested by faculty are send for quotation to the supplier, after that purchase order is placed to the supplier with Head of Department and Principal approval.



Library Book Requisition Form - 2022-23 (1) .XLSX

File Edit View Insert Format Data Tools Help Last edit was made on August 12 by Vishnu Sonawane

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ALL India Shri Shivaji Memorial Society's
College of Engineering,
Kennedy Road, Pune-1

LIBRARY BOOK REQUISITION FORM

Department - Electronics Engineering

Sr No	Name of Teacher	Title of Book	Author	Publisher	Cost	Require
1	V S Navale	Circuit Theory and Networks (Analysis and Synthesis)	Ravish R Singh	Mc Graw Hill Education (India) Pvt. Ltd.	500/-	
2	V S Navale	Electrical Technology, Vol II, AC & DC Machines	B.L. Theraja, A.K. Theraja.	S. Chand Publication	600/-	
3	V S Navale	Electrical Machines	I.J Nagarath and D.P Kothari.	Tata McGraw-Hill Publication 4th Edition.	500/-	
4	V S Navale	Electrical Circuit Analysis	William H. Hayt, Jack E. Kimmerly and Ste	McGraw Hill publication, 7th Edition.	600/-	
5	V S Navale	Principles of Electrical Machines	V K Mehta and Rohit Mehta	S Chand Publications.	500/-	
6	V S Navale	Electric & Hybrid Vehicl	A K Babu	Khanna Publishing.	500/-	
7	Mr. N P Mawale	"Digital systems design using VHDL"	Charles H. Roth	PWS		5
8	Mr. N P Mawale	"Modern VLSI Design (IP-Based Design)"	Wyane Wolf	4E, Prentice Hall		5
9	Mr. N P Mawale	"Advanced FPGA Design Architecture, Implementation and Optimiz	Steve Kilts	Wiley		5
10	Mr. N P Mawale	"CMOS VLSI Design: A Circuit &System Perspective"	E. Weste, David Money Harris	Pearson Publication		3
11	Mr. N P Mawale	"CMOS Circuit Design, Layout, and Simulation"	R. Jacob Baker,	3E, Wiley-IEEE Press.		2
12	Mr. N P Mawale	" Digital System Design with FPGA: Implementation Using Verilog a	Cem Unsalan, Bora Tar	McGraw-Hill		2
13	Mr. N P Mawale	"Fundamentals and Applications of Lithium-Ion Batteries in Electric Drive Vehi	Jiuchun Jiang Caiping Zhang	Wiley, Ist Edition		2
14	Mr. N P Mawale	"Printed Circuit Boards- Design & Technology"	W Bosshart	TMH, Ist Edition		1

Electrical | Electronics | Competative Exam Other Books | Production | Chemical | Civil | Computer

Fig.10.4.3: Screenshot of Library book requisition form

15. Support to students for self-learning

Institute Library supports students for self-learning activities by creating and making available various platforms for learning. Following resources are accessible to the students:

- 9000 + NPTEL Videos
- 100+ Subjects NPTEL Text Content
- 1500+ E-Books
- Access to previous year question papers
- Access to Ekeeda Learning platform
- Access to IIRS training programs
- Access to Coursera (During Covid pandemic period)
- Access to Edx platform (During Covid pandemic period)
- Organization of book exhibitions, Author meets, E resources training program for students
- Use of SLIM webopac for book search and reissue and reservation process

Digital library has been established by library for the effective use of these self-learning resources.

Question point service, “Ask a Librarian” is a unique online service available where queries and reference questions from students are responded within 24 hours. Additional facilities created in the library for improving accessibility and support to students for self-learning.

- Ask-A-Librarian - Question Point Online Reference Service.
- Wi-Fi accessible across the Library.
- Library e-resources Remote Access (off-campus access) through Knimbus remote access platform.
- User Training, Sensitization and Information Literacy programs.
- Research Data Management, Publishing support, Style Manuals.
- Workshops/Programs on research methods Tools.
- Plagiarism Check tools (Turnitin) and services.
- Institutional Repository Dspace for faculty publication
- Faculty publication platform Vidwan
- Print, Scan Services.
- Access to previous year question papers and syllabus
- Mobile App facility available

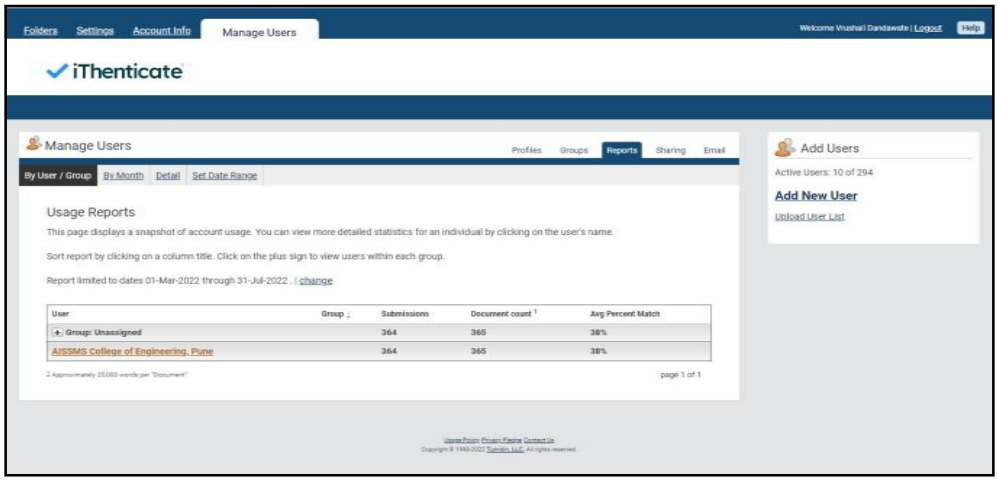


Fig.10.4.4: Plagiarism Software Screenshots



Fig. 10.4.5: Library Web-O-PAC Screenshots

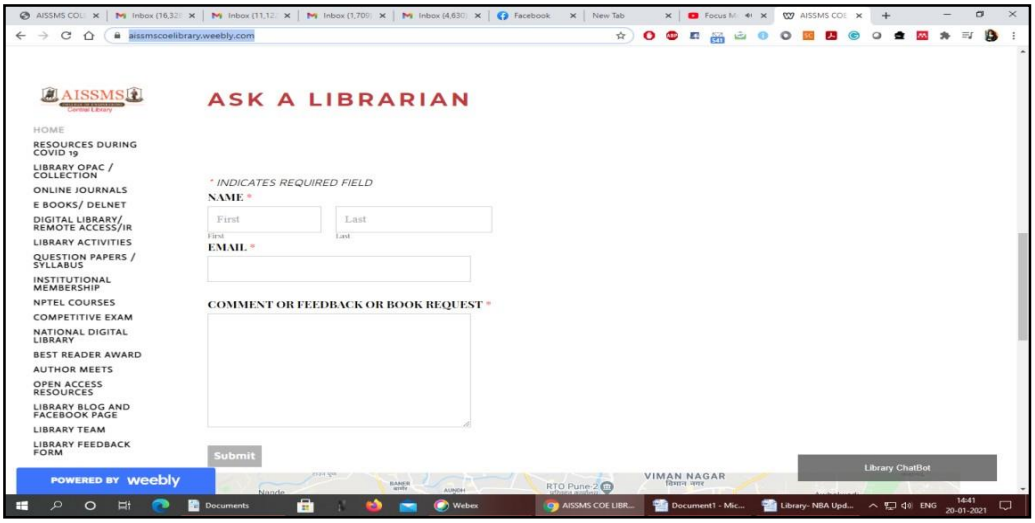


Fig. 10.4.6: Ask A Librarian service

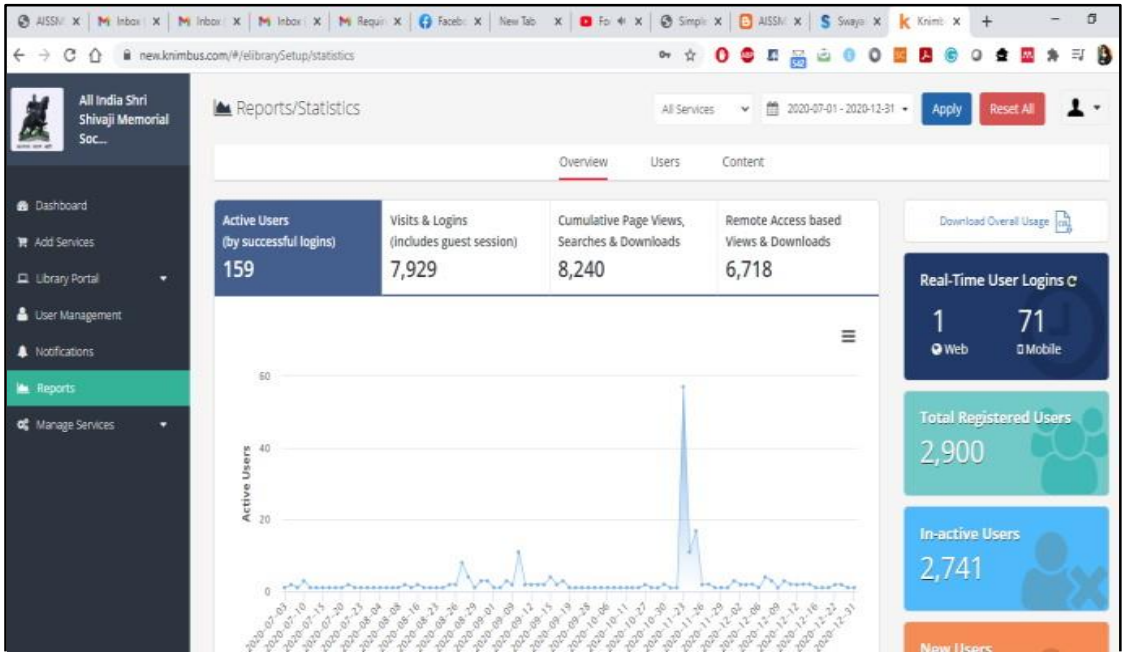


Fig. 10.4.7: Use of remote access facility



Fig. 10.4.8: Reprography Machine and I card printing facility Information Kiosk

Internet Facility

Table 10.4.4 Institute Internet Facility

Name of internet provider	Tata Tele Services Ltd
Available bandwidth	500 Mbps
Wi fi availability	yes
Internet access in labs, classrooms, library and offices of all departments; yes	Internet access in available in all the labs, classrooms, library and offices of all departments and administrative office.
Security arrangements	Layer 3 Firewall (SOPHOS XGS 3300 HW APPLIANCE WITH 8GE). Each user is assigned with user id and password. Antivirus software is installed on all computers and laptops of the institute.