



# AISSMS

COLLEGE OF ENGINEERING

ज्ञानम् सकलजनहिताय

(Accredited by NAAC with grade A+)



## SELF ASSESSMENT REPORT (SAR)

For Bachelor of Computer Engineering (Tier II)



National Board of Accreditation

New Delhi



Department of Computer Engineering

AISSMS College of Engineering Pune - 411001

## SAR Contents

<b><u>Serial Code &amp; Link to the Item</u></b>	<b><u>Item</u></b>	<b><u>Page No.</u></b>
<b>PART A</b>	<b>Institutional Information</b>	1-7
<b>PART B</b>	<b>Criteria Summary</b>	8
	<b>Program Level Criteria</b>	
1	Vision, Mission and Program Educational Objectives	9-16
2	Program Curriculum and Teaching – Learning Processes	17-72
3	Course Outcomes and Program Outcomes	73-114
4	Students’ Performance	115-130
5	Faculty Information and Contributions	131-162
6	Facilities and Technical Support	163-167
7	Continuous Improvement	168-204
	<b>Institute Level Criteria</b>	
8	First Year Academics	205-231
9	Student Support Systems	232-254
10	Governance, Institutional Support and Financial Resources	255-280
<b>Annexure-I</b>	<b>Program Outcomes(POs) &amp; Program Specific Outcomes(PSOs)</b>	

**ALL INDIA SHRI SHIVAJI MEMORIAL SOCIETY S COLLEGE OF ENGG KENNEDY ROAD  
NEAR R.T.O. PUNE**

**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:**

<input type="checkbox"/> University	<input type="checkbox"/> Autonomous
<input type="checkbox"/> Deemed University	<input checked="" type="checkbox"/> Affiliated
<input type="checkbox"/> Government Aided	

**5 Ownership Status:**

<input type="checkbox"/> Central Government	<input checked="" type="checkbox"/> Trust
<input type="checkbox"/> State Government	<input type="checkbox"/> Society
<input type="checkbox"/> Government Aided	<input type="checkbox"/> Section 25 Company
<input type="checkbox"/> Self financing	<input type="checkbox"/> 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	Kennedy Road, Pune - 1

		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)	
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, BSc 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 ( General ), Tool and Die Maker ( Press, Tool, Jig and Fixture )	At – Daund, Urulikanchan, Dist – Pune – 412 202
All India Shri Shivaji Memorial Society's SSPM Day School &	1972	School & Jr College : Std. 5th to 10th (School), Std. 11th to 12th	55-56, Shivajinagar,

Junior College, Pune – 5		(College – Science & Commerce)	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	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	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 Telecommunication Engineering	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	2013	2015	0	4
ME - Mechanical	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	Granted	2013	2015	0	4
Production Engineering (Sandwich)	UG	1994	1994	30	Yes	60	Granted	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:

S 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:**

<b>Engineering and Technology-UG</b>	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
<b>Engineering and Technology- PG</b>	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
<b>Engineering and Technology-Polytechnic</b>	<input type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
<b>MBA</b>	<input type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
<b>MCA</b>	<input type="checkbox"/> Shift1	<input type="checkbox"/> 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
<b>Total</b>	<b>3030</b>	<b>3112</b>	<b>2815</b>

**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
<b>Total</b>	<b>73</b>	<b>77</b>	<b>69</b>

### 11 Vision of the Institution:

Service to Society through quality education

### 12 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.

### 13 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

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## PART B: Criteria Summary

**Name of the program: Computer Engineering**

Criteria No.	Criteria	Mark/Weightage
	<b>Program Level Criteria</b>	
1.	Vision, Mission and Program Educational Objectives	60
2.	Program Curriculum and Teaching – Learning Processes	120
3.	Course Outcomes and Program Outcomes	120
4.	Students’ Performance	150
5.	Faculty Information and Contributions	200
6.	Facilities and Technical Support	80
7.	Continuous Improvement	50
	<b>Institute Level Criteria</b>	
8.	First Year Academics	50
9.	Student Support Systems	50
10.	Governance, Institutional Support and Financial Resources	120
	<b>Total</b>	<b>1000</b>

<b>CRITERION 1</b>	<b>VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES</b>	<b>(60)</b>
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## **1.1 State the Vision and Mission of the Department and Institution (5)**

### **1.1.1 Vision of the Institution**

Service to society through quality education

### **1.1.2 Mission of the Institution**

**M1:** Generation of national wealth through education and research imparting quality technical education at the cost affordable to all strata of the society

**M2:** Enhancing the quality of life through sustainable development

**M3:** Carrying out high-quality intellectual work

**M4:** Achieving the distinction of the highest preferred engineering college in the eyes of the stakeholders

### **1.1.3 Vision of the Department**

Contributing to the welfare of society through technical and quality education

### **1.1.4 Mission of the Department**

**M1:** To produce best quality computer science professionals by imparting quality training, hands on experience and value education

**M2:** To strengthen links with Industry through partnerships and collaborative developmental works

**M3:** To attain self-sustainability and overall development through research, consultancy and development activities

**M4:** To extend technical expertise to other technical institutions of the region and play a lead role to impart technical education

## **1.2 State the Program Educational Objectives (PEOs)**

**(5)**

**PEO1:** To prepare the graduates for successful careers in IT industry, by developing their ability to solve computing problems in multidisciplinary environment.

**PEO2:** To develop ability among the graduates to analyze data and technical concepts for various application development of real-life.

**PEO3:** To Motivate and provide graduates various opportunities for further studies, team work and successful career in their chosen domain.

**PEO4:** To motivate and encourage graduates to understand their social, ethical and cultural responsibilities as well with their professional responsibilities.

### 1.3 Indicate where the Vision, Mission and PEOs are Published and Disseminated among Stakeholders (10)

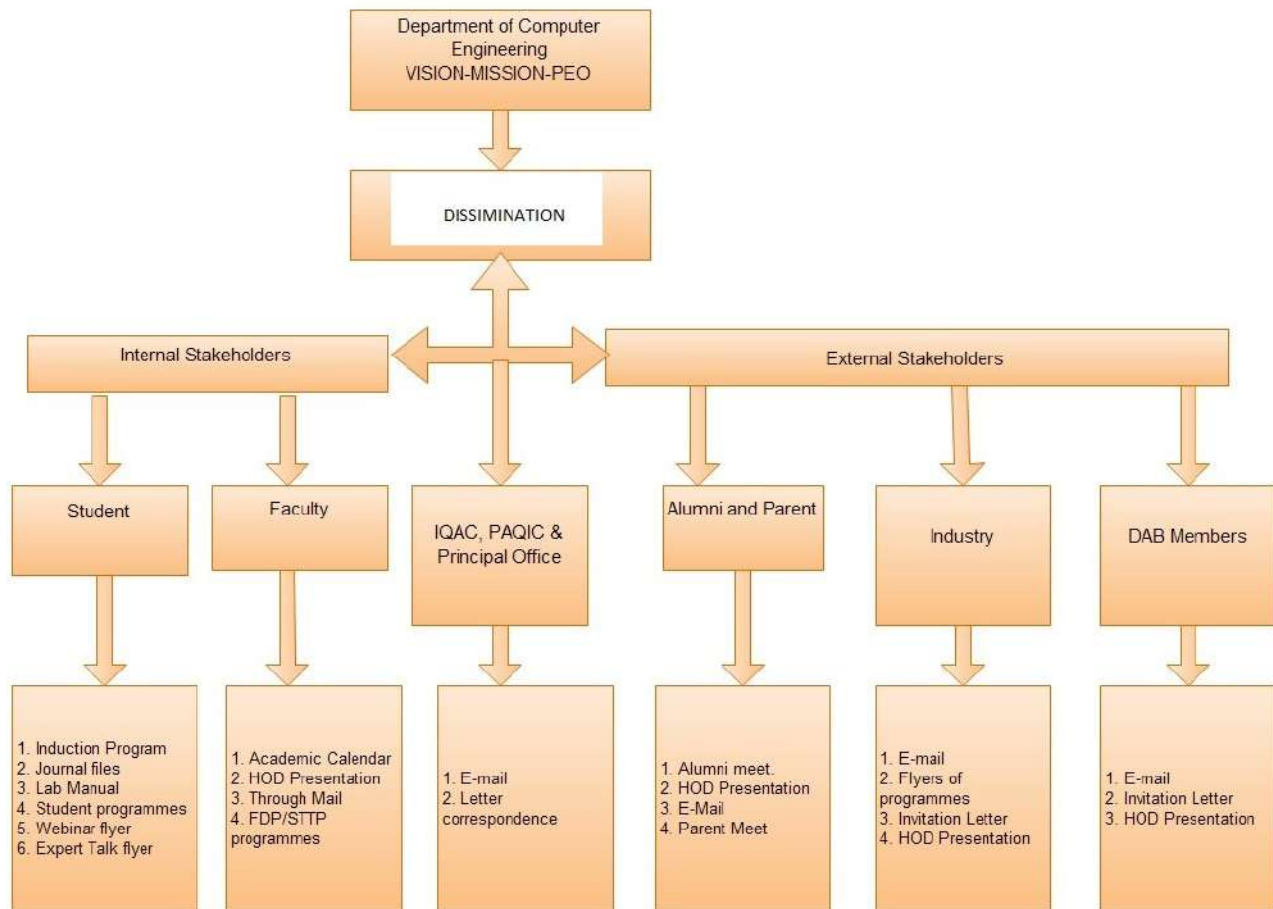
	Sl	Medium of Publishing	Stake holders	
			Internal	External
Vision Mission PEOs	1	The Institute website <a href="http://www.aiissmscoe.com">www.aiissmscoe.com</a>	Yes	Yes
	2	Academic Calendar of Department	Yes	Yes
	3	Students Journal	Yes	Yes
	4	Faculty Course files	Yes	Yes
	6	News Letter	Yes	Yes
	7	Annual Magazine	Yes	Yes
	8	Department Library	Yes	Yes
	9	HOD Office	Yes	Yes
	10	Department notice Board	Yes	Yes
	11	Laboratory Manuals	Yes	Yes
	12	Corridors of department	Yes	Yes
	13	Seminar Hall	Yes	Yes

**Table 1.3-(a) Publication Medium**

	Sl	Method of Dissemination	Stake holders	
			Internal	External
Vision Mission PEOs	1	Brochure and Flyers of programs	Yes	Yes
	2	Invitation cards	Yes	Yes
	3	Conferences organized	Yes	Yes
	4	College programs	Yes	Yes
	5	Parent Teacher Meetings	Yes	Yes
	6	Placement drives	Yes	Yes
	7	Alumni Meetings	Yes	Yes
	8	Chapter activities	Yes	Yes
	10	Industry visits by faculty members	Yes	Yes
	11	E mail correspondence	Yes	Yes

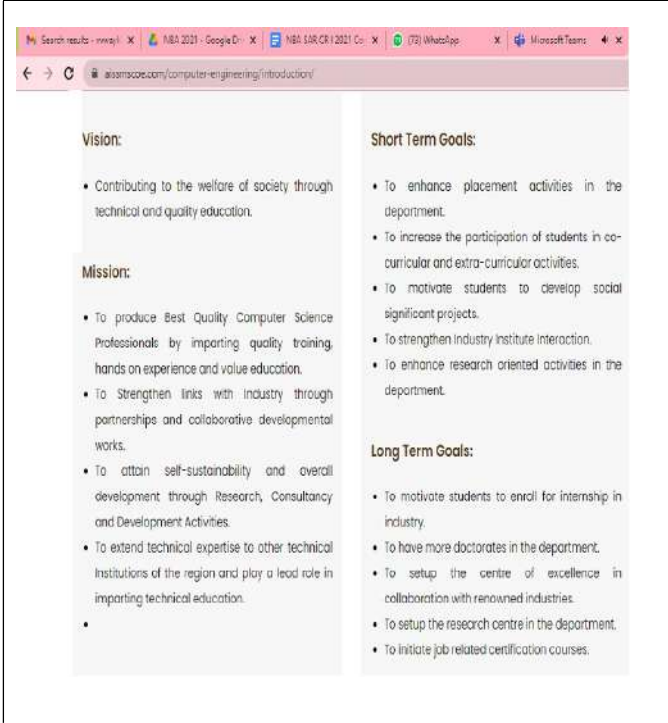
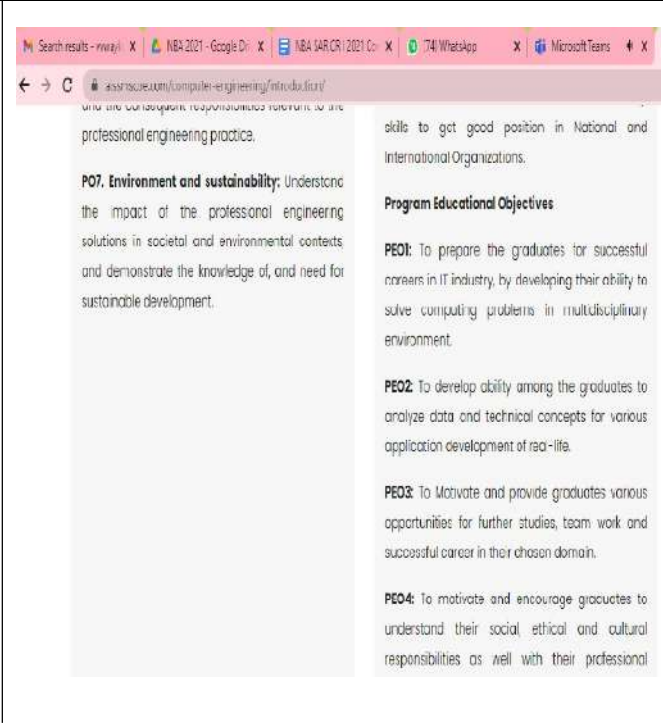
**Table 1.3 – (b) Dissemination Method**

## Dissemination Process Chart



**Figure 1.3 – (a) Dissemination Method**

## Publication Proof:

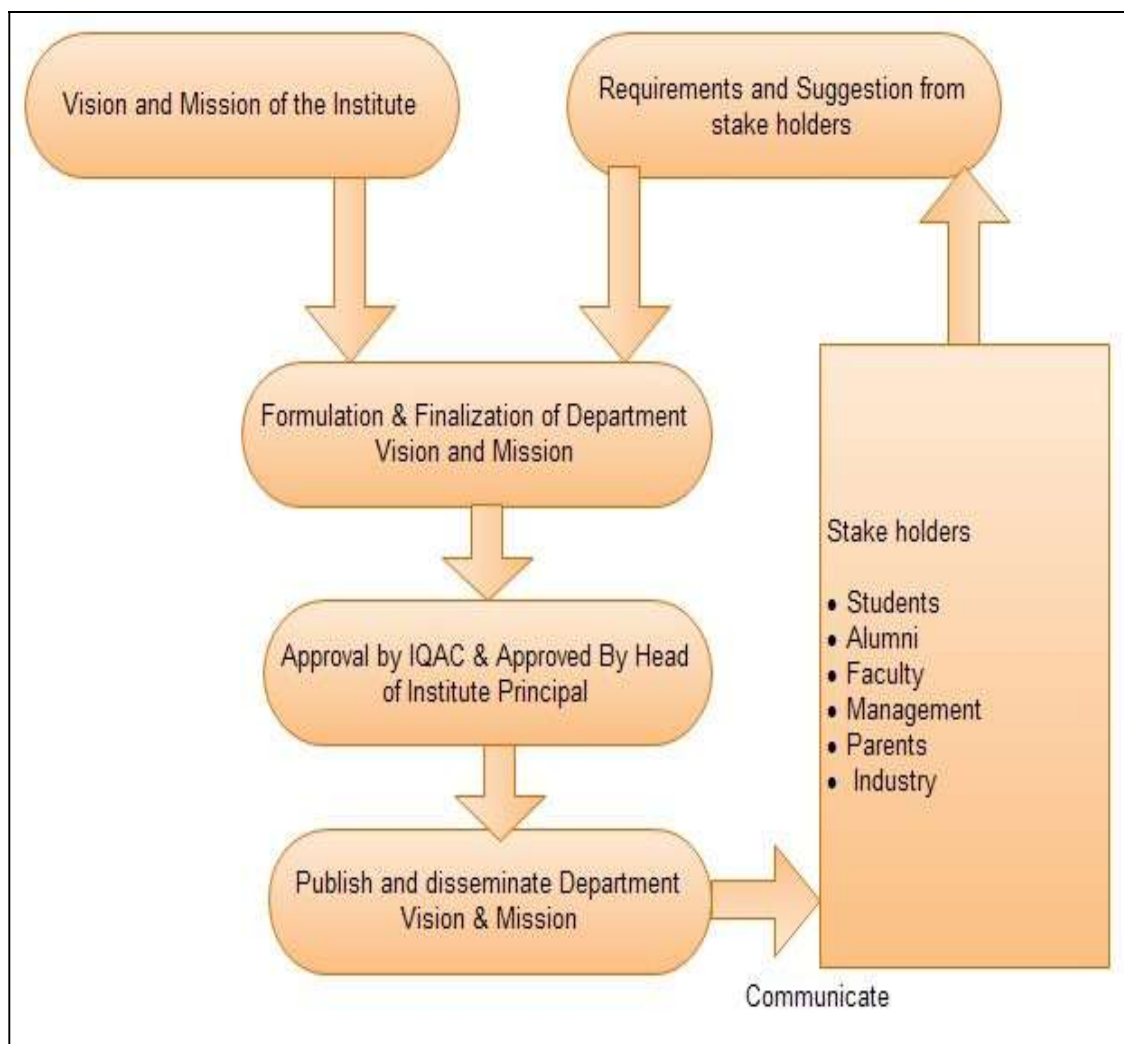
 <p><b>Vision:</b></p> <ul style="list-style-type: none"> <li>Contributing to the welfare of society through technical and quality education.</li> </ul> <p><b>Mission:</b></p> <ul style="list-style-type: none"> <li>To produce Best Quality Computer Science Professionals by imparting quality training, hands on experience and value education.</li> <li>To Strengthen links with Industry through partnerships and collaborative developmental works.</li> <li>To attain self-sustainability and overall development through Research, Consultancy and Development Activities.</li> <li>To extend technical expertise to other technical Institutions of the region and play a lead role in imparting technical education.</li> </ul> <p><b>Short Term Goals:</b></p> <ul style="list-style-type: none"> <li>To enhance placement activities in the department.</li> <li>To increase the participation of students in co-curricular and extra-curricular activities.</li> <li>To motivate students to develop social significant projects.</li> <li>To strengthen Industry Institute interaction.</li> <li>To enhance research oriented activities in the department.</li> </ul> <p><b>Long Term Goals:</b></p> <ul style="list-style-type: none"> <li>To motivate students to enroll for internship in industry.</li> <li>To have more doctorates in the department.</li> <li>To setup the centre of excellence in collaboration with renowned industries.</li> <li>To setup the research centre in the department.</li> <li>To initiate job related certification courses.</li> </ul>	 <p>professional engineering practice.</p> <p><b>PO7. Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.</p> <p>skills to get good position in National and International Organizations.</p> <p><b>Program Educational Objectives</b></p> <p><b>PEO1:</b> To prepare the graduates for successful careers in IT industry, by developing their ability to solve computing problems in multidisciplinary environment.</p> <p><b>PEO2:</b> To develop ability among the graduates to analyze data and technical concepts for various application development of real-life.</p> <p><b>PEO3:</b> To Motivate and provide graduates various opportunities for further studies, team work and successful career in their chosen domain.</p> <p><b>PEO4:</b> To motivate and encourage graduates to understand their social, ethical and cultural responsibilities as well with their professional</p>
<p align="center"><b>Institute Website Vision-Mission</b></p>	<p align="center"><b>Institute Website PEOs</b></p>

## Dissemination Proof

 <p align="center"><b>AISSMS</b> COLLEGE OF ENGINEERING ज्ञानम् सकलजनहिताय Accredited by NAAC with "A+" Grade</p> <p align="center"><b>Five Days FDP on R and R Studio</b></p> <p>FDP Registration for Five day Faculty Development Program on R Programming Language, by AISSMS COE, Department of Computer Engineering in association with Spoken Tutorial</p> <p align="center">Please Note all of you use a new email address is compulsory</p> <p><b>Vision:</b></p> <p>Contributing to the welfare of society through technical and quality education.</p> <p><b>Mission:</b></p> <ul style="list-style-type: none"> <li>To produce Best Quality Computer Science Professionals by imparting quality training, hands-on experience and value education.</li> <li>To Strengthen links with Industry through partnerships and collaborative developmental works.</li> <li>To attain self-sustainability and overall development through Research, Consultancy and Development Activities.</li> <li>To extend technical expertise to other technical Institutions of the region and play a lead role in imparting technical education.</li> </ul>	 <p align="center"><b>AISSMS</b> COLLEGE OF ENGINEERING ज्ञानम् सकलजनहिताय (Accredited by NAAC with grade A+)</p> <p align="center"><b>Department of Computer Engineering</b> <b>Parents Teachers Meet'2022</b></p> <p><b>Vision:-</b> Contributing to the welfare of society through technical and quality education</p> <p><b>Mission:-</b></p> <ul style="list-style-type: none"> <li>To produce Best Quality Computer Science Professionals by imparting quality training, hands on experience and value education.</li> <li>To Strengthen links with Industry through partnerships and collaborative developmental works.</li> <li>To attain self-sustainability and overall development through Research, Consultancy and Development</li> </ul>
<p align="center"><b>Flyers of programs</b></p>	<p align="center"><b>Parent Meet</b></p>

#### 1.4 State the Process for Defining the Vision and Mission of the Department, and PEOs of the Program (25)

- Firstly, in a staff meeting tentative statements of vision and mission have been written keeping in mind vision and mission statements of Institute.
- All the staff members have taken note of it and each faculty member has been asked to go through vision and mission statement thoroughly and give their suggestions about the same then after many brainstorming sessions, vision and mission has been rectified incorporating the suitable suggestions.
- These vision and mission statements are then distributed to various stakeholders like Parents, Industry Experts ,Students, Alumni etc and again this statement of vision and mission has been rectified incorporating the suitable suggestions from various stakeholder.
- These vision and mission statements are then submitted to Departmental Advisory Board (DAB), Program Assessment and Quality Improvement Committee (PAQIC), Principal and also Management for their approval and suggestions.
- These finalized statements are then displayed on common notice board of college as well as department's HOD's cabin, main passages, library along with seminar hall and laboratories of Department



**Figure 1.4(a): Process of defining Department vision and mission**

### Process for defining the PEOs of the program (15)

To begin with, in a staff meeting tentative statements of Program Educational Objectives have been established by keeping in mind vision-mission statements (Institute, department) and future trends and scope of programme.

Program Educational Objectives are established by keeping views of various stakeholders in mind. The suggestions and feedback from Alumni, Parents in relevance with the professional and carrier accomplishment.

Based on feedback and suggestions provided by various stakeholders PEOs are analyzed and reviewed by Department Advisory Board (DAB) and Program Assessment and Quality Improvement Committee (PAQIC).

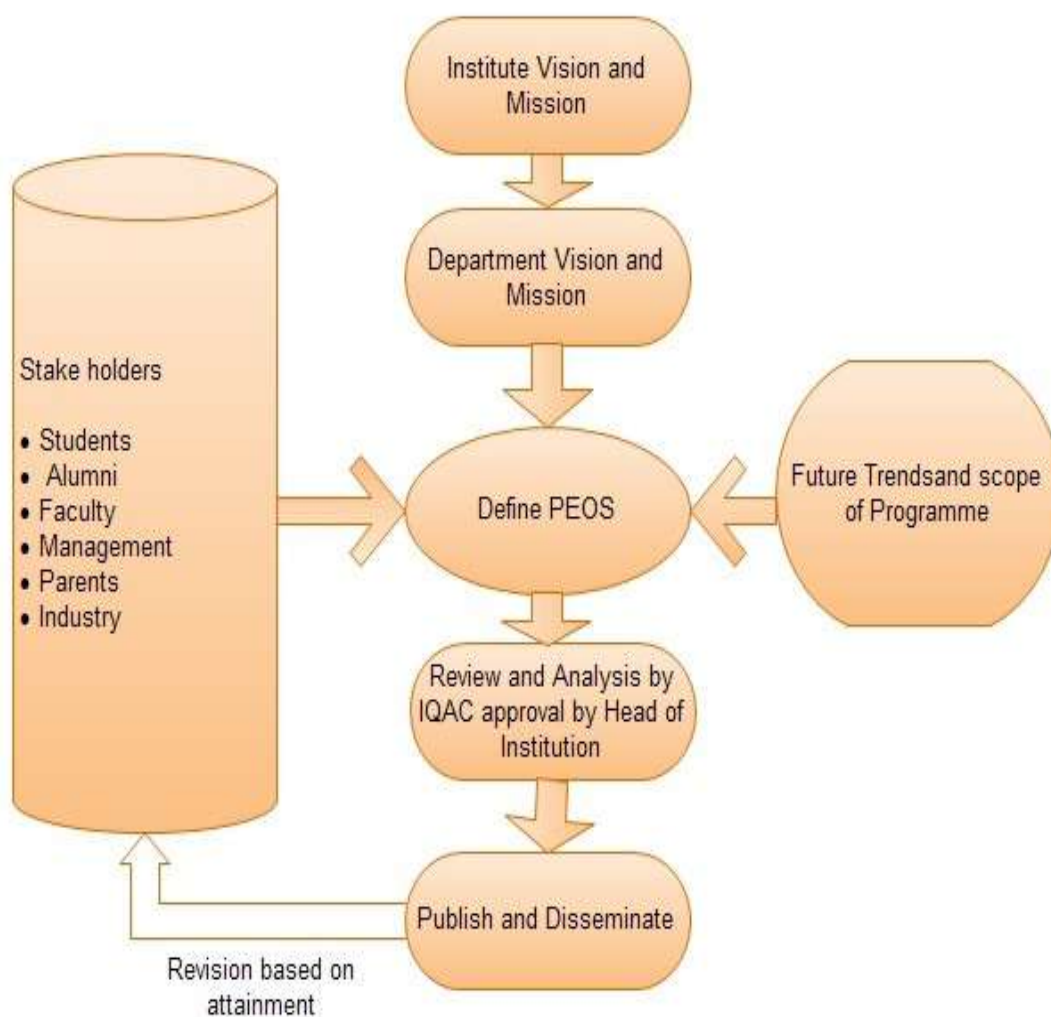


Fig 2: Process of establishing PEO's



## 1.5 Establish consistency of PEOs with Mission of the Department

### A. Preparation of a matrix of PEOs and elements of Mission

PEO STATEMENT	M1	M2	M3	M4
<b>PEO1:</b> To prepare the graduates for successful careers in IT industry, by developing their ability to solve computing problems in multidisciplinary environment	3	3	3	-
<b>PEO2:</b> To develop ability among the graduates to analyze data and technical concepts for various application development of real-life.	2	2	2	1
<b>PEO3:</b> To Motivate and provide graduates various opportunities for further studies, team work and successful career in their chosen domain	2	2	2	-
<b>PEO4:</b> To motivate and encourage graduates to understand their Social, ethical and Cultural responsibilities as well with their professional responsibilities.	2	2	1	-

Correlation levels are - 1: Slight(Low)      2: Moderate(Medium)      3: Substantial(High)

### B. Consistency/justification of co-relation parameters of the above matrix

#### Substantially Mapped

PEOs	Mission	Justification
<b>PEO1</b>	<b>M1</b>	Students are groomed with quality training and hands on experience through value education.
	<b>M2</b>	Licensing with various industries of related domain is increased through collaborative development which made it easy for students to understand challenges and scope in the industry
	<b>M3</b>	Students are encouraged to do their final year project ,third year seminar based on recent trends in research.
<b>PEO3</b>	<b>M1</b>	Technical expertise made students to opt higher education.
	<b>M3</b>	Promotion of team engagement and creative activities lead to enhance the team work and leadership quality.

#### Moderately Mapped

PEOs	Mission	Justification
<b>PEO1</b>	<b>M3</b>	Students are motivated to do their third year internship, final year projects, paper publication ,seminars based on recent research trends
<b>PEO2</b>	<b>M1</b>	Students are groomed to participate in various technical competitions across the nation.
	<b>M2</b>	Through one faculty one industry, students explore new technologies and applications and able to solve real life problems.
	<b>M3</b>	Students are motivated for paper and poster publication based on recent research trends
<b>PEO3</b>	<b>M1</b>	Students are encouraged and motivated for further studies and start-ups and soft-skill trainings are provided for overall development.
	<b>M2</b>	Students are taken to various industrial visits and industrial seminars are organized to make them aware about various recent trends in industry.
	<b>M3</b>	Paper publication and start-up innovations are encouraged in students.
<b>PEO4</b>	<b>M1</b>	Extra-curricular activities, Sport activities and NSS activities are promoted between students for overall development.
	<b>M2</b>	Social and Cultural events help students to cultivate responsibility towards society

### Student's joining letter

### Student's joining letter



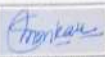

	<b>COLLEGE OF ENGINEERING, PUNE (COEP)</b> <small>(An Autonomous Institute of Engineering &amp; Technology)          Anna University, Chennai - 600 025 (India)</small>	
Phone No. : +91-20-25507519	Web: <a href="http://www.coep.ac.in">http://www.coep.ac.in</a>	Mail: <a href="mailto:info@coep.ac.in">info@coep.ac.in</a>
<b>Provisional Grade Report</b>		Date : 16/09/2022
Academic Year:- 2019-2020		Course Name:- M.Tech
Branch name:- Mechanical		Semester:- Semester II
Student MR No. : 11909001		
Student Name:- MANKAR SHREKHAR KAJENDRA		
SGPA:- 8.55		CGPA:- 7.80


  

Subject Code	Subject Name	Credit Assigned	Grade
ME-19011	Research Methodology and Intellectual Property Rights	3	BB
ME-19019	Research in Technical Communication	3	BB
MCH-19008	Robotics	3	BB
MCH-19010	Embedded System Design	3	AB
MCH-19012	Artificial Intelligence and Machine Learning	3	BB
MCH-19013	Embedded System Design Laboratory	1	AB
MCH-19014	Fluid Power Automation Laboratory	1	BB
MCH(DE)-19006	Micro Electro-Mechanical Systems	3	BB
MCH(DE)-19010	Fuzzy Logic and Neural Networks	3	AB
MCH-19011	Fluid Power Automation	2	BC
IL-19001	Application of Geoinformatics in Water Management	3	AB
LC-19005	Liberal Learning Course -Agriculture	1	AB
<b>Credit Earned:-</b>		<b>32</b>	

**Note:** "This is system generated Provisional Grade Report.No signature is required."

### Student joined higher courses

 <b>GATE 2019 Scorecard</b> Graduate Aptitude Test in Engineering						
<b>Candidate's Details</b>	Name	SHRIDHAR RAJENDRA MANKAR				
	Registration Number	CS19S32090094				
	Examination Paper	Computer Science and Information Technology				
	 (Candidate's Signature)					
<b>Performance</b>	Marks out of 100* <table border="1"> <tr> <td>31.67</td> </tr> </table>	31.67	Valid from March 17, 2019 to <b>March 16, 2022</b>			
	31.67					
	Qualifying Marks** <table border="1"> <tr> <td>29.5</td> <td>26.6</td> <td>19.7</td> </tr> </table> General (CBC NCL) SC/ST/PwD	29.5	26.6	19.7	All India Rank in this paper <table border="1"> <tr> <td>12007</td> </tr> </table>	12007
	29.5	26.6	19.7			
12007						
GATE Score <table border="1"> <tr> <td>374</td> </tr> </table>	374	Number of Candidates Appeared in this paper <table border="1"> <tr> <td>99932</td> </tr> </table>	99932			
374						
99932						
<p><small>* Normalized marks for multi-session papers.            ** Candidates are considered qualified if the marks secured are greater than or equal to the qualifying marks mentioned for the category for which valid category certificate, if applicable, is produced along with this scorecard.</small></p> <p>Digital Fingerprint: <b>ad5f59b6c6d92ed5c9e1537aa299164</b></p> 						

  
**Prof. Nitesh J. Vasa**

Organizing Chairman, GATE 2019  
 (on behalf of NCB - GATE, for MHRD)

March 17, 2019

## Student cleared TOFEL/GRE

[illegible]

**Student cleared GATE**

## Alumni interaction with students

<b>CRITERION 2</b>	<b>PROGRAM CURRICULUM AND TEACHING - LEARNING PROCESSES</b>	<b>(120)</b>
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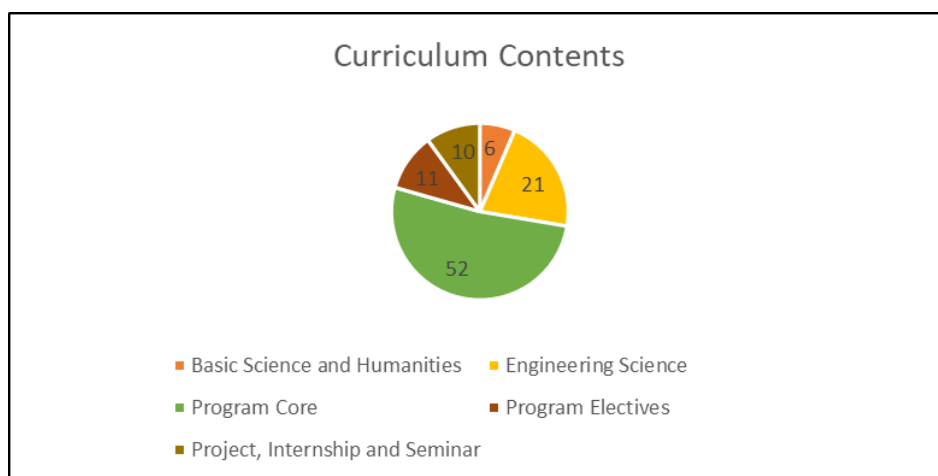
## 2.1 Program Curriculum (20)

### 2.1.1. State the process used to identify extent of compliance of the University curriculum for attaining the Program Outcomes and Program Specific (10)

The AISSMS College of Engineering is affiliated to Savitribai Phule Pune University (SPPU), Pune, Maharashtra. The program curriculum is as provided by SPPU which is a composition of Basic sciences, humanities and social sciences, professional courses and their distribution as core and electives with the specified breadth and depth of learning. The curriculum is formulated and reviewed once in 4 years through Board of Studies (BoS) Computer Engineering, SPPU comprising a chairman, members and Industry representatives. Currently two patterns of program curriculum namely 2015 and 2019 are in execution. The components of curriculum are shown in table 2.1.

**Table 2.1 Components of curriculum (2019 Pattern)**

Sr. No.	Course Components	Total No. of credits	Curriculum Contents(%)
1	Basic Science and Humanities	11	6
2	Engineering Science	36	21
3	Program Core	88	52
4	Program Electives	18	11
5	Project, Internship and Seminar	15	10



**Fig 2.1 Components of Curriculum (2019 Pattern)**

# University Curriculum

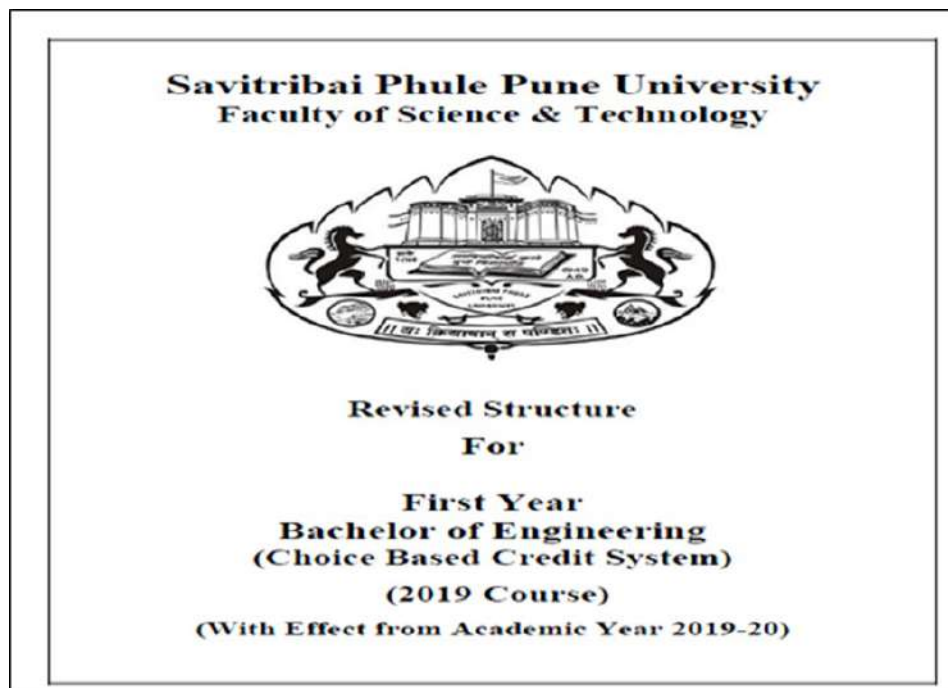


Fig 2.2 FE Syllabus Structure 2019 Pattern

TABLE -I 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
103003	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 <sup>st</sup>	02	Environmental Studies-I											
Induction Program : 2 weeks at the beginning of semester-I and 1 week at the beginning of semester-II														

Table 2.3 FE 2019 Syllabus Structure Semester I

TABLE -2 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 <sup>u</sup>	01	02	01	--	50	25	--	--	75	01	01	--	02
110013	Project Based Learning <sup>d</sup>	--	04	--	--	--	25	50	--	75	--	02	--	02
Total		15	12	02	120	330	75	125	--	650	15	05	02	22
101014	Audit Course 2 <sup>nd</sup>	02	Environmental Studies-II											
107015		--	Physical Education-Exercise and Field Activities											

Table 2.3 FE 2019 Syllabus Structure Semester II

SE 2019 Syllabus Structure:

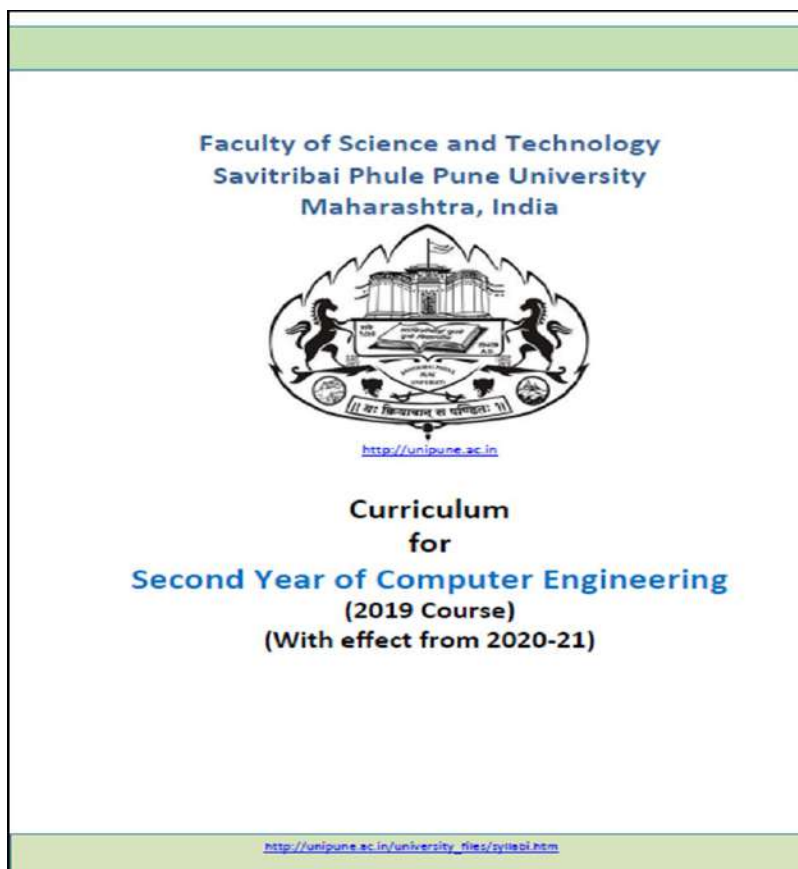


Fig 2.3 SE 2019 Syllabus Structure



Table 2.4 SE 2019 Syllabus Structure Semester III

Curriculum for Second Year of Computer Engineering (2019 Course), Savitribai Phule Pune University														
Savitribai Phule Pune University														
Second Year of Computer Engineering (2019 Course)														
(With effect from Academic Year 2020-21)														
Semester-III														
Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
210241	<a href="#">Discrete Mathematics</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210242	<a href="#">Fundamentals of Data Structures</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210243	<a href="#">Object Oriented Programming (OOP)</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210244	<a href="#">Computer Graphics</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210245	<a href="#">Digital Electronics and Logic Design</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210246	<a href="#">Data Structures Laboratory</a>	-	04	-	-	-	25	50	-	75	-	02	-	02
210247	<a href="#">OOP and Computer Graphics Laboratory</a>	-	04	-	-	-	25	25	-	50	-	02	-	02
210248	<a href="#">Digital Electronics Laboratory</a>	-	02	-	-	-	25	-	-	25	-	01	-	01
210249	<a href="#">Business Communication Skills</a>	-	02	-	-	-	25	-	-	25	-	01	-	01
210250	<a href="#">Humanity and Social Science</a>	-	-	01	-	-	25	-	-	25	-	-	01	01
210251	<a href="#">Audit Course 3</a>													
Total Credit											15	06	01	22
Total		15	12	01	150	350	125	75	-	700	-	-	-	-

Table 2.5 SE 2019 Syllabus Structure Semester IV

Semester-IV														
Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
207003	<a href="#">Engineering Mathematics III</a>	03	-	01	30	70	25	-	-	125	03	-	01	04
210252	<a href="#">Data Structures and Algorithms</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210253	<a href="#">Software Engineering</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210254	<a href="#">Microprocessor</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210255	<a href="#">Principles of Programming Languages</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210256	<a href="#">Data Structures and Algorithms Laboratory</a>	-	04	-	-	-	25	25	-	50	-	02	-	02
210257	<a href="#">Microprocessor Laboratory</a>	-	02	-	-	-	25	-	25	50	-	01	-	01
210258	<a href="#">Project Based Learning II</a>	-	04	-	-	-	50	-	-	50	-	02	-	02
210259	<a href="#">Code of Conduct</a>	-	-	01	-	-	25	-	-	25	-	-	01	01
210260	<a href="#">Audit Course 4</a>													
Total Credit											15	05	02	22
Total		15	10	02	150	350	150	25	25	700	-	-	-	-

TE 2019 Syllabus Structure:

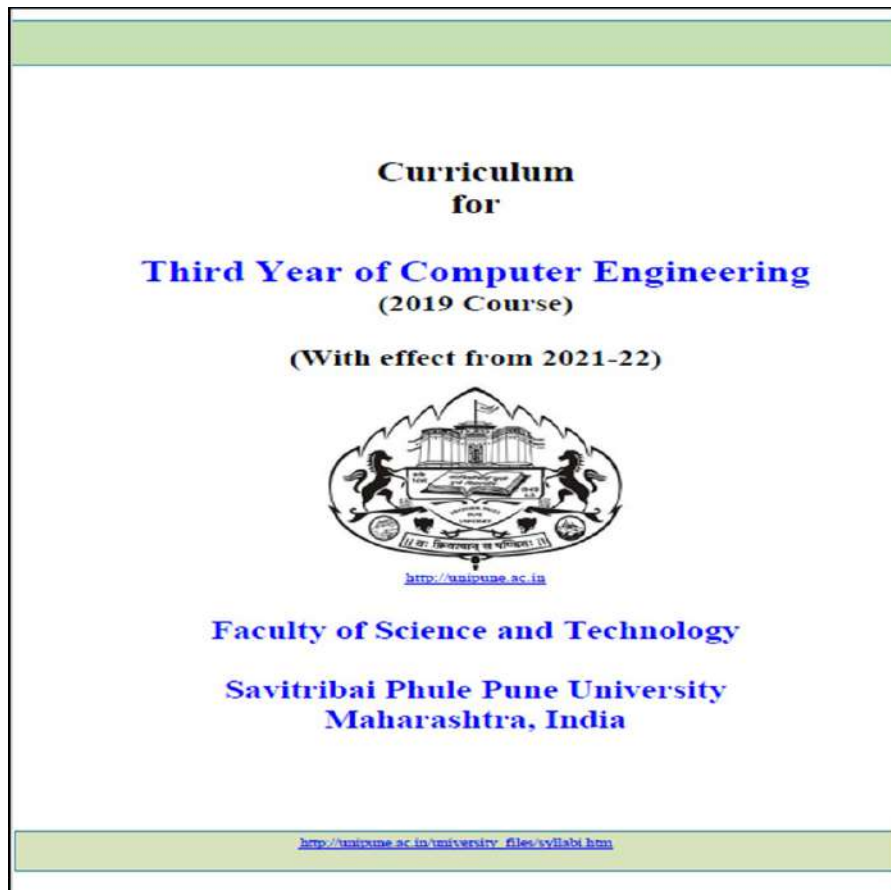



Fig 2.4 TE 2019 Syllabus Structure

Table 2.5 TE 2019 Syllabus Structure Semester V

Curriculum for Third Year of Computer Engineering (2019 Course), Savitribai Phule Pune University															
Savitribai Phule Pune University Third Year of Computer Engineering (2019 Course) (With effect from Academic Year 2021-22)															
Semester V															
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks							Credit Scheme			
		Lecture	Practical	Tutorial	MidSem	EndSem	Termwork	Practical	Oral	Total	Lecture	Practical	Tutorial	Total	
310241	Database Management Systems	03	-	-	30	70	-	-	-	100	03	-	-	03	
310242	Theory of Computation	03	-	-	30	70	-	-	-	100	03	-	-	03	
310243	Systems Programming and Operating System	03	-	-	30	70	-	-	-	100	03	-	-	03	
310244	Computer Networks and Security	03	-	-	30	70	-	-	-	100	03	-	-	03	
310245	Elective I	03	-	-	30	70	-	-	-	100	03	-	-	03	
310246	Database Management Systems Laboratory	-	04	-	-	-	25	25	-	50	-	02	-	02	
310247	Computer Networks and Security Laboratory	-	02	-	-	-	25	-	25	50	-	01	-	01	
310248	Laboratory Practice I	-	04	-	-	-	25	25	-	50	-	02	-	02	
310249	Seminar and Technical Communication	-	-	01	-	-	50	-	-	50	-	-	01	01	
Total		15	10	01	150	350	125	50	25	700	15	05	01	21	
310250	Audit Course 3														
Total Credit											15	05	01	21	
310245 Elective I Options:					310250 Audit Course 3 Options:										
310245(A) Internet of Things and Embedded Systems					310250 (A) Cyber Security										
310245(B) Human Computer Interface					310250 (B) Professional Ethics and Etiquettes										
310245(C) Distributed Systems					310250 (C) Learn New Skills										
310245(D) Software Project Management					310250 (D) Business Economics										
					310250 (E) Foreign Language										
Laboratory Practice I Assignments from Systems Programming and Operating System and Elective I															

Curriculum for Third Year of Computer Engineering (2019 Course), Savitribai Phule Pune University

**Savitribai Phule Pune University**  
**Third Year of Computer Engineering (2019 Course)**  
 (With effect from Academic Year 2021-22)




**Semester VI**

Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks							Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total	
310251	Data Science and Big Data Analytics	04	-	-	30	70	-	-	-	100	03	-	-	03	
310252	Web Technology	04	-	-	30	70	-	-	-	100	03	-	-	03	
310253	Artificial Intelligence	04	-	-	30	70	-	-	-	100	03	-	-	03	
310254	Elective II	04	-	-	30	70	-	-	-	100	03	-	-	03	
310255	Internship**	-	-	-	-	-	100	-	-	100	-	-	-	04	
310256	Data Science and Big Data Analytics Laboratory	-	04	-	-	-	50	25	-	75	-	02	-	02	
310257	Web Technology Laboratory	-	02	-	-	-	25	-	25	50	-	01	-	01	
310258	Laboratory Practice II	-	04	-	-	-	50	25	-	75	-	02	-	02	
<b>Total</b>		<b>12</b>	<b>10</b>	<b>-</b>	<b>120</b>	<b>280</b>	<b>225</b>	<b>50</b>	<b>25</b>	<b>700</b>	<b>12</b>	<b>09</b>	<b>-</b>	<b>21</b>	
310259	Audit Course 6											<b>Grade</b>			
<b>Total</b>											<b>12</b>	<b>09</b>	<b>-</b>	<b>21</b>	
310254 Elective II Options:					310259 Audit Course 6 Options:										
310254(A) Information Security					310259(A) Digital and Social Media Marketing										
310254(B) Augmented and Virtual Reality					310259(B) Sustainable Energy Systems										
310254(C) Cloud Computing					310259(C) Leadership and Personality Development										
310254(D) Software Modeling and Architectures					310259(D) Foreign Language										
					310259(E) Learn New Skills										
Laboratory Practice II: Assignments from Artificial Intelligence and Elective II.															
** Internship: Internship guidelines are provided in course curriculum sheet.															

Table 2.6 TE 2019 Syllabus Structure Semester VI

### BE 2015 Syllabus Structure:

**Faculty of Engineering**  
**Savitribai Phule Pune University, Pune**  
**Maharashtra, India**



**Syllabus**  
**for**  
**Fourth Year of Computer Engineering**  
**(2015 Course)**  
**(with effect from 2018-19)**

www.unipune.ac.in

Fig 2.7 BE 2015 Syllabus Structure



**Table 2.8 BE 2015 Syllabus Structure Semester I**

Faculty of Engineering
Savitribai Phule Pune University

<b>Savitribai Phule Pune University</b> <b>Fourth Year of Computer Engineering (2015 Course)</b> <b>(with effect from 2018-19)</b>												
<b><u>Semester I</u></b>												
Course Code	Course	Teaching Scheme Hours / Week		Examination Scheme and Marks						Credit		
		Theory	Practical	In-Sem	End-Sem	TW	PR	OR/ *PRE	Total	TH/ TUT	PR	
410241	<a href="#">High Performance Computing</a>	04	--	30	70	--	--	--	100	04	--	
410242	<a href="#">Artificial Intelligence and Robotics</a>	03	--	30	70	--	--	--	100	03	--	
410243	<a href="#">Data Analytics</a>	03	--	30	70	--	--	--	100	03	--	
410244	<a href="#">Elective I</a>	03	--	30	70	--	--	--	100	03	--	
410245	<a href="#">Elective II</a>	03	--	30	70	--	--	--	100	03	--	
410246	<a href="#">Laboratory Practice I</a>	--	04	--	--	50	50	--	100	--	02	
410247	<a href="#">Laboratory Practice II</a>	--	04	--	--	50	--	*50	100	--	02	
410248	<a href="#">Project Work Stage I</a>	--	02	--	--	--	--	*50	50	--	02	
<b>Total Credit</b>										<b>16</b>	<b>06</b>	
<b>Total</b>		<b>16</b>	<b>10</b>	<b>150</b>	<b>350</b>	<b>100</b>	<b>50</b>	<b>100</b>	<b>750</b>	<b>22</b>		
410249	<a href="#">Audit Course 5</a>										<b>Grade</b>	
<b>Elective I</b>				<b>Elective II</b>								
410244 (A) <a href="#">Digital Signal Processing</a>				410245 (A) <a href="#">Distributed Systems</a>								
410244 (B) <a href="#">Software Architecture and Design</a>				410245 (B) <a href="#">Software Testing and Quality Assurance</a>								
410244 (C) <a href="#">Pervasive and Ubiquitous Computing</a>				410245 (C) <a href="#">Operations Research</a>								
410244 (D) <a href="#">Data Mining and Warehousing</a>				410245 (D) <a href="#">Mobile Communication</a>								
<b><u>410249-Audit Course 5 (AC5) Options:</u></b>												
AC5-I: <a href="#">Entrepreneurship Development</a>				AC5-IV: <a href="#">Industrial Safety and Environment Consciousness</a>								
AC5-II: <a href="#">Botnet of Things</a>				AC5-V: <a href="#">Emotional Intelligence</a>								
AC5-III: <a href="#">3D Printing</a>				AC5-VI: <a href="#">MOOC- Learn New Skills</a>								
<b><u>Abbreviations:</u></b>												
TW: Term Work			TH: Theory			OR: Oral			PR: Practical			
Sem: Semester			*PRE: Project/ Mini-Project Presentation									

Syllabus for Fourth Year of Computer Engineering
84/87

**Table 2.9 BE 2015 Syllabus Structure Semester II**

Faculty of Engineering
Savitribai Phule Pune University

Savitribai Phule Pune University												
Fourth Year of Computer Engineering (2015 Course) (with effect from 2018-19)												
<b>Semester II</b>												
Course Code	Course	Teaching Scheme		Examination Scheme and Marks						Credit		
		Hours / Week	Theory	Practical	In-Sem	End-Sem	TW	PR	OR/ *PRE	Total	TH/ TUT	PR
410250	Machine Learning	03	--	30	70	--	--	--	100	03	--	
410251	Information and Cyber Security	03	--	30	70	--	--	--	100	03	--	
410252	Elective III	03	--	30	70	--	--	--	100	03	--	
410253	Elective IV	03	--	30	70	--	--	--	100	03	--	
410254	Laboratory Practice III	--	04	--	--	50	50	--	100	--	02	
410255	Laboratory Practice IV	--	04	--	--	50	--	*50	100	--	02	
410256	Project Work Stage II	--	06	--	--	100	--	*50	150	--	06	
<b>Total</b>		<b>12</b>	<b>14</b>	<b>120</b>	<b>280</b>	<b>200</b>	<b>50</b>	<b>100</b>	<b>750</b>	<b>12</b>	<b>10</b>	
410257	<u>Audit Course 6</u>										<b>Grade</b>	
<b>Elective III</b>				<b>Elective IV</b>								
410252 (A) Advanced Digital Signal Processing				410253 (A) Software Defined Networks								
410252 (B) Computers				410253 (B) Human Computer Interface								
410252 (C) Embedded and Real Time Operating Systems				410253 (C) Cloud Computing								
410252 (D) Soft Computing and Optimization Algorithms				410253 (D) Open Electives								
<u>410259-Audit Course 6 (AC6) Options:</u>												
AC6-I: Business Intelligence				AC6-IV: Usability Engineering								
AC6-II: Gamification				AC6-V: Conversational Interfaces								
AC6-III: Quantum Computing				AC6-VI: MOOC- Learn New Skills								
<b>Abbreviations:</b>												
TW: Term Work			TH: Theory			OR: Oral			PR: Practical			
Sem: Semester			*PRE: Project/ Mini-Project Presentation									

Syllabus for Fourth Year of Computer Engineering
85/87

The process used to identify extent of compliance of the University curriculum for attaining the Program Outcomes and Program Specific Outcomes is explained in Fig 2.6

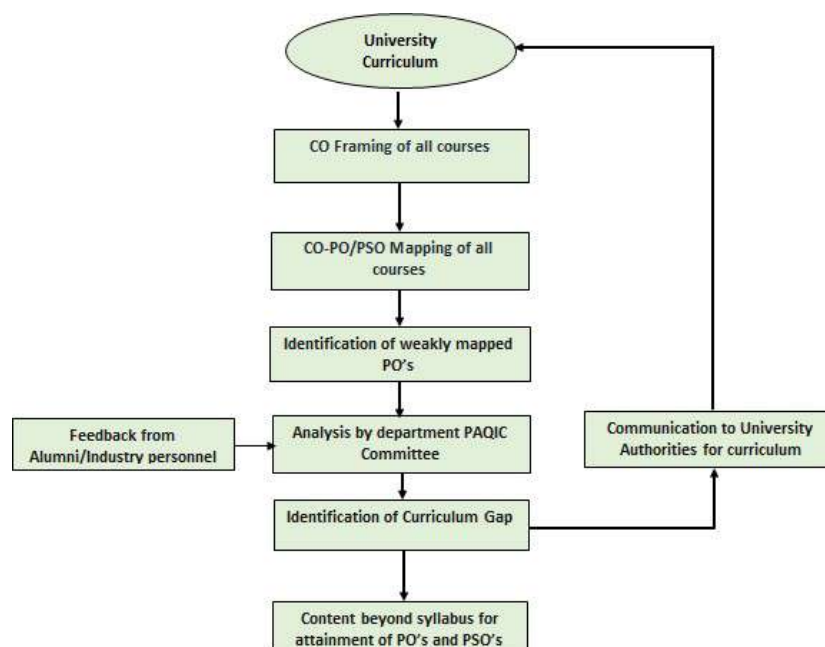


Fig 2.6 The process used to identify extent of compliances

Table 2.10 Curriculum gaps identified

**A. Curriculum Gap identified in the A.Y.2019-20**

Sr. No	Gap identified
1	Technical Skills in line with the requirements of the industry
2	Knowledge and skills used to solve real world problem on social, economic and health context
3	Mathematical concepts of Automata theory need to be included in Curriculum
4	Industry readiness
5	Use of modern tools and technologies

**B. Curriculum Gap identified in the A.Y.2020-2021**

Sr. No	Gap identified
1	Environment friendly engineering solutions for sustainable development
2	Industry readiness
3	Knowledge and skills used to solve real world problem on social, economic and health context
4	Technical Skills in line with the requirements of the industry
5	Use of modern tools and technologies

**c. Curriculum Gap identified in the A.Y.2021-2022**

	<b>Gap identified</b>
1	Technical Skills in line with the requirements of the industry
2	Knowledge and skills used to solve real world problem on social, economic and health context
3	Engineering and economics
4	Course on environment and sustainability
5	Full stack development

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

The content beyond syllabus is delivered to the students mainly in the form of expert lectures by academicians and industry experts but also by means of workshops, Class room instructions, NPTEL videos, industrial visits and providing course materials. The department has given inputs and suggestions regarding gaps to affiliating university. The email sent to the Board of Studies (Computer Engineering) SPPU, Pune is shown below.

----- Forwarded message -----

From: **Dwarkoba Gaikwad**

<dpgaikwad@aissmscoe.com (mailto:dpgaikwad@aissmscoe.com)>

Date: Tue, Apr 12, 2022 at 9:11 AM

Subject: Suggestion for BE syllabus

To: Mrs. V.H. Patil <varsha.patil@gmail.com (mailto:varsha.patil@gmail.com)>

Cc: Principal AISSMSCOE <principal@aissmscoe.com (mailto:principal@aissmscoe.com)>

Subject: Suggestion for BE syllabus

The AISSMS College of Engineering has its Stakeholder feedback policy and receives feedback from various stakeholders namely Faculty, Students. In Feedbacks, we received questions on curriculum and its effective implementation.

Following suggestions were given by stakeholders. Therefore, we request you to consider these suggestions in the next revision of Final Year Engineering.

1. Need to add subject relating Engineering and economics
2. Subject based on environment and sustainability can be included
3. Full stack development should be the one of the subject

We hope these inputs given for curriculum enrichment will be used to the course committees constituted in the forthcoming workshop.

2020-21

S.No	Gap	Action Taken	Date-Month-Year	Resource Person with Designation	% of students	Relevance to POs, PSOs
1	Use of modern tools and technologies	Webinar on future of design	24/8/2020	Mr Harsha Kakkeri Founder and CEO, Designboat, UI/UX school, Pune.	75	PO1 ,PO5,PSO1
2	Environment friendly engineering solutions for Sustainable development	Webinar on renewable energy conservation	30/12/2020	Mr Mahesh Wagh	100	PO7,PSO2
3	Industry readiness	Webinar on Essential communication skill for engineers	15/21/2020	Dr. Rupa Shaha, Corporate Trainer	85	PO10,PSO3
4	Use of modern tools and technologies	Webinar on Integrated platform on Mega Trending Emerging Technology	3/09/2020	Mr Rajendra Prasad, Qualitas technologies, Chennai, India	94	PO 5, PSO 2
5	Industry readiness	Webinar on discover your self	6/12/2021	Hans Kumar Yadav Facilitator Senior Engg Manager, Qubole	80	PO10,PSO3
6	Technical Skills in line with the requirements of the industry	Workshop on Spring Microservices	14/5/2021	Mr. Kushal Shukla Software Development Specialist Amdocs, Pune	90	PO 5, PO 12, PSO2
7	Technical Skills in line with the requirements of the industry	Virtual Industrial Visit	23/02/2021	Paradise Telecom Pvt. Ltd, Pune	90	PO 5, PO 12, PSO2
8	Professional Ethics	NSS activities	15/8/2021	NSS C Coordinators	50	PO6, PO7, PO8, PO9
9	Technical Skills in line with the requirements of the industry	Workshop on UX/UI Design and Prototyping	04/10/2020	Google's Developer Student Club (DSC Club)	60	PO 5, PO 12, PSO2
10	Technical Skills in line with the requirements of the industry	Open Source Webinar	20/10/2020	Google's Developer Student Club (DSC Club)	60	PO 5, PO 12, PSO2
11	Technical Skills in line with the requirements of the industry	Roadmap to be a Full Stack Android Developer	22/11/2020	Google's Developer Student Club (DSC Club)	60	PO 5, PO 12, PSO2

12	Technical Skills in line with the requirements of the industry	Android Study Jam –I	06/12/2020	Google's Developer Student Club (DSC Club)	70	PO 5, PO 12, PSO2
13	Technical Skills in line with the requirements of the industry	Android Study Jam -II	27/12/2020	Google's Developer Student Club (DSC Club)	70	PO 5, PO 12, PSO2
14	Technical Skills in line with the requirements of the industry	Android Study Jams- III	16/01/2021	Google's Developer Student Club (DSC Club)	70	PO 5, PO 12, PSO2

## 2019-20

S.No	Gap	Action Taken	Date-Month-Year	Resource Person with Designation	% of students	Relevance to POs, PSOs
1	Mathematical concepts of Automata theory need to be included in Curriculum	Expert Lecture Conducted on Basics of Automata theory's mathematical concepts	9/9/2019	Sherin Mathew, Research Associate, Search Bourne Consulting Ltd.Pune.	78	PO1
2	Technical Skills in line with the requirements of the industry	Expert lecture on Parallel computing	9/10/2019	Srikant Borude, NetScout,Pune.	68	PO12, PO2
3	Technical Skills in line with the requirements of the industry	Expert lecture on Microservices and data structure in Web graphs and Google Maps	29/03/2019	Mr.JalajPachouly, Senior Consultant , Symantec Software India Pvt. Ltd. Pune.	70	PO12,PSO1
4	Industry readiness	Webinar on Big picture of placement process and building porfolio	31/05/2021	Mr. Pushpak Katkhede, Data engineer IBM ISL	100	PO10,PSO 2
5	Knowledge and skills used to solve real world problem on social, economic and health context	Webinar on Lack of Technology Intervention in Agricultural Ecosystem and its solution and also of Hydroponics Farming.	23/12/2020	Dr. Lalasaheb Tambade, Executive Councillor- Indian Society Of Extension Education (Isee)	70	PO4, PO6, PSO 2
6	Knowledge and skills used to solve real	Organized Science Exhibition	20/09/2019	Ruchika Ganediwal, Director Intelliment	19	PO5,PO2,P SO 2

	world problem on social, economic and health context			Solution Pvt Ltd.		
7	Technical Skills in line with the requirements of the industry	Industrial Visit in ISRO- and HAL, Bangalore.	01/03/2019	Rajendra Hulyal, Group Head Programme, Planning & Evaluation Group ISRO Bangalore, India	95	PO9, PO12, PO4, P SO 2
8	Professional Ethics	NSS activities	15/8/2021	NSS Coordinators	50	PO6, PO7, PO8, PO9
9	Technical Skills in line with the requirements of the industry	Workshop on UX/UI Design and Prototyping	04/10/2020	Google's Developer Student Club (DSC Club)	60	PO5, PO 12, PSO 2
10	Technical Skills in line with the requirements of the industry	Open Source Webinar	20/10/2020	Google's Developer Student Club (DSC Club)	60	PO5, PO 12, PSO 2
11	Technical Skills in line with the requirements of the industry	Roadmap to be a Full Stack Android Developer	22/11/2020	Google's Developer Student Club (DSC Club)	60	PO5, PO12, PS02
12	Technical Skills in line with the requirements of the industry	Android Study Jam –I	06/12/2020	Google's Developer Student Club (DSC Club)	70	PO5, PO12, PSO2
13	Technical Skills in line with the requirements of the industry	Android Study Jam -II	27/12/2020	Google's Developer Student Club (DSC Club)	70	PO5, PO12, PSO 2
14	Technical Skills in line with the requirements of the industry	Android Study Jams- III	16/01/2021	Google's Developer Student Club (DSC Club)	70	PO5, PO12, PSO2

**2018-19**

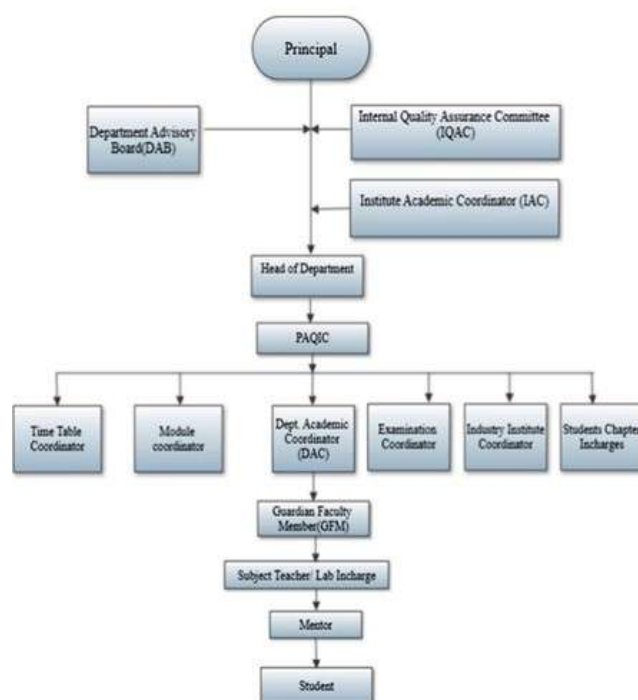
<b>S.No</b>	<b>Gap</b>	<b>Action Taken</b>	<b>Date- Month- Year</b>	<b>Resource Person with Designation</b>	<b>% of students</b>	<b>Relevance to POs, PSOs</b>
1	Technical Skills in line with the requirements of the industry	Expert lecture on algorithms related to link list	28/8/2018	Mr Shrikant Borude, Principal Software Engineer, NetScout	70	PO1, PSO1, PSO2, PO12
2	Technical Skills in line with the requirements of the industry	Expert lecture on java	28/3/2019	Akash Bhapkar, Software developer, TCS, Pune	58	PO12, PSO1
3	Environment friendly computer engineering solutions for Sustainable development	Encouraged students do their projects, mini projects addressing environmental issues and Sustainable development	28/7/2018	Project guides and project coordinators	80	PO1, PO2, PO5, PO8, PO9, PO10, PSO1, PSO2, PSO3
4	Awareness about professional ethics and norms of the engineering Practice	Industrial visit to CDAC (Pune Head Quarter)	4/09/2018	Mr. Manish Kumar, SPOC CDAC	61	PO6, PO8, PSO2
5	Use of modern tools and technologies	Seminar on Technical Communication and presentation skill	11/07/2018	Akhilesh Mishra, Sumedh Khichha, Software Engineer, Cybage, Pune	100	PO10, PSO3
6	Technical Skills in line with the requirements of the industry	Industrial visit at Kasnet Technologies, Pvt, Ltd, Pune	15/01/2019	Mr. Amol Aher, Director and Head of Operations, Kasnet Technologies, Pvt, Ltd, Pune	43	PO5, PO12, PSO2
7	Project management and finance	Guidance given to students for performing estimation and optimization of project cost	11/7/2018	Project Guides & Project Coordinator	100	PO11

## 2.1 Teaching - Learning Processes (100)

### 2.2.1 Describe processes followed to improve quality of Teaching & Learning (25)

Our institute is affiliated with Savitribai Phule Pune University (SPPU). We are following the teaching-learning as per the university guideline. To strengthen our teaching-learning (TL) process, we believe that outcome-based education (OBE) is important to identify the strength and weakness and to decide the plan for continuous improvement. This process helps us to identify our strengths and weakness and attain proficiency in the teaching-learning process. For assessment of our teaching-learning process, we use direct and indirect tools. The direct assessment of each outcome is through internal and external tools. Some indirect tools are also used for the assessment. The indirect tools provide valuable insights and feedback on student's views of what they are learning.

Organization structure of Academic Monitoring Committee is as shown in Fig.2.7



**Fig 2.7 Organization structure of Academic Monitoring Committee**

The Institute Academic Coordinator (IAC) in consultation with Principal and Heads of Department formed an Academic Monitoring Committee comprising of Department Academic Coordinators (DAC). IQAC provides guidelines and collect information from departmental coordinators and convey it to the principal for corrective measures, if required. AMC prepares an Academic Calendar and submit it to Principal for approval and same is then forwarded to all the departments at least 15 days before commencement of semester.


The processes followed by the institute to improve quality of Teaching & Learning are as follows:

#### A. Adherence to Academic Calendar

Institute academic calendar is framed based on the University academic calendar. Academic calendar of department is designed before the commencement of the semester based on college academic calendar. It consists of the activities planned for the semester which includes internal test dates, assignment dates, display of internal marks, conduction of events like organizing guest lectures, industrial visits, conferences etc. The sample University, Institute and department calendar are shown below:



## University Academic calendar


 <p align="center"><b>Circular No.103 of 2020</b> <b>Important Notification</b></p> <p align="center"><b>Revised Dates of Conclusion of II terms for the Academic Year 2019-2020 and Commencement for the Academic Year 2020-2021</b> <b>For affiliated Colleges/recognised Institutes Only.</b></p> <p>In view of prevailing COVID-19 situation in the Country, it is hereby informed that, the revised dates of conclusion of the Second term of 2019-2020 and Commencement for the Academic Year 2020-2021 University Courses, under various faculties shall be as under :</p>			
Sr. No.	Name of the Courses and Faculties	II Term 2019-20	I Term 2020-2021
		Conclusion	Commencement
1	<b>Science &amp; Technology</b>		
	Science	05/06/2020	15/06/2020
	Engineering : SE,TE,BE & MCA- II, & III Year	05/06/2020	15/06/2020
	Engineering :ME - II Year.	05/06/2020	01/07/2020
	B.Architecture II, III, IV & V Year.	05/06/2020	15/06/2020
	M. Architecture II Year.	05/06/2020	01/07/2020
	B. Pharmacy	05/06/2020	15/06/2020
	M. Pharmacy	05/06/2020	01/07/2020
2	<b>Commerce &amp; Management</b>		
	Commerce	05/06/2020	15/06/2020
	Management	05/06/2020	01/07/2020
3	<b>Humanities</b>		
	Arts & Fine Arts	05/06/2020	15/06/2020
	Mental Moral and Social Sciences		
	Law : UG & PG ( II, III, IV & V Year.)	05/06/2020	01/07/2020
4	<b>Inter-disciplinary Studies</b>		
	Education II Year.(B.Ed., M.Ed.)	05/06/2020	01/07/2020
	Physical Education II Year.(B.P.Ed., M.P.Ed.)	05/06/2020	01/07/2020

**Fig 2.8 University Academic calendar A.Y.2020-21**

# Institute Academic calendar

**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	26/12/2020
		Roll Call List	
		Elective Confirmation List	
		Seminar List	
		Project List	
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 (Minimum 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 (Minimum 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
		SE, TE, BE	15/05/2021
10	Conclusion of Term	ME-I	22/05/2021
		ME-II	01/10/2021
		SE, TE, BE	As per the University Schedule
		ME II	As per the University Schedule
11	Oral/Practical examination	ME II	As per the University Schedule
		SE, TE, BE	As per the University Schedule
		ME II	As per the University Schedule
		FE	As per the University Schedule
12	Theory Exam	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 Department 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 Meeting		Last Week of April	
Staff Selection Meeting		Last Week of May	
Principal Meeting with all Non Teaching Staff and Support Staff		Once in Term	
Principal Meeting with CITP		Once in Term	

  
**PRINCIPAL**






Fig 2.9 Institute Academic calendar A.Y.2020-21

## Department Academic calendar


**AISSMS**  
**COLLEGE OF ENGINEERING**  
Approved by AICTE, New Delhi, Recognized by  
Govt. of Maharashtra, Affiliated to Savitribai Phule Pune University  
and recognized 201 and 12(B) by UGC (Id No. PU / PM/ Brga. / 093 (1992)  
Accredited by NAAC with 'A' Grade


**COMPUTER ENGINEERING DEPARTMENT**

**Vision:**  
 > Contributing to the welfare of society through technical and quality education.

**Mission:**  
 > To produce Best Quality Computer Science Professionals by imparting quality training, hands on experience and value education.  
 > To strengthen links with Industry through partnerships and collaborative developmental works.  
 > To attain self-sustainability and overall development through Research, Consultancy and Development Activities.  
 > To extend technical expertise to other technical institutions of the region and play a lead role in imparting technical education.

**Academic Calendar:-2020-21**

			Term -II	
1	Commencement of Classes	SE,TE,BE 01/01/2021 ME-I 28/01/2021 ME-II 15/06/2021	9	Theory /Oral/Practical University Exams As per the University Schedule
2	Time Table ,Roll call	26/12/2020	10	Mentoring and counseling SE,TE,BE Students once in fortnight
3	Seminar list, Project list	26/12/2020	11	Conclusion of Term 15/05/2021
4	Course File Checking	In the Month of March	12	Conclusion of Term ME-I 22/05/2021 ME-II 01/10/2021
5	Class Unit Test	Faculty Member Conduct Class test after Completion of each Unit (6 Class Test )		
6	Weekly Academic Report	After every 07 days (starting from commencement of teaching)		
7	Students Feedback	Department should conduct minimum 2 Feedback during the term	13	Completion of Term Work one week before the Conclusion of Term
8	BE Project Evaluation	Department Should Conduct Minimum 3 Presentation during the term	14	Commencement of First Term of Academic Year 2021-22 ME I, II As per the University Schedule

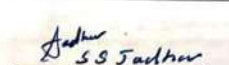
**1. Assignment Schedule: provide Assignment after Completion of two Units (3 Assignment)**

Unit 1	Unit 2	Unit 03	Unit 04	Unit 05	Unit 06
Assignment 01		Assignment 02		Assignment 03	

The assignment must be returned after 10 days of submission.

**2. Schedule for Departmental Activities:**

SN	Details	Date
1	HOD Meeting with Principal	Two Department Meetings with Principal will be conducted in the month of August and November
2	NAAC/NBA Meeting	Every Tuesday
3	ADC	First and Third Monday of Every Month
4	Parent teacher Meeting	Third Week of January 2021
5	I3 Meet	First Week of February 2021
6	Purchase Meeting	Last Week of April
7	Principal Meeting	Once in Term
8	Expert Lectures	10/01/2021
9	Expert Lectures	07/02/2021
10	Expert Lectures	27/03/2021
11	Expert Lectures	06/04/2021
12	Industrial Visit	Fourth Week of January 2021
13	Industrial Visit	Third Week of February 2021

  
**Academic Calendar Coordinator**

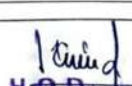
  
**H.O.D.**  
 Computer Engg Dept  
 AISSMS COE Pune

Fig 2.10 Department Academic calendar A.Y.2020-21

## **B. Use of various instructional methods and pedagogical initiatives**

Over the last few years, faculties are shifting their focus from a conventional teaching-learning process to a student centric learning approach while transferring knowledge to students during classroom lectures. The focus lies on student's active participation and involvement for effective knowledge transfer and learning. The faculty provides students a platform to explore independently, learn through self-study and from their peers while guiding them in developing effective and lifelong skills.

Lockdown due to COVID 19 pandemic didn't stop the Teaching Learning process at AISSMS COE Pune. Systematic efforts were put while initiating and implementing teaching in an online mode. During the initial part of the lockdown, ZOOM platform was used to conduct different webinars, FDPs and different teaching learning activities. Other options like Google classroom, WhatsApp etc. were also used. For academic year 2020-21, the institute used Microsoft Team platform for online teaching.

The latest teaching and learning instructional methodologies were used to motivate students to learn and retain the knowledge through better understanding. Using the following methods, a positive attitude towards the subjects taught were developed in the students:

### **1) Active learning:**

The faculties adopted an active learning methodology by involving students in the learning process more directly using activities like:

- Brainstorming, quiz, debate, group discussions, role play, games, model making, mini project, presentations, essay, elocutions, case studies and simulations on technical content. Replacing some lectures with animated PPTs.
- Hands-on experiences.
- Challenging students to take up open ended problems requiring critical/creative thinking. Short pauses for reflection during lectures, brief demonstration.

8/21/22, 2:51 PM

Name : M.M. Swami

Quiz 1

Quiz conducted using Google form

Sub: Microprocessor. 21-22

(SE computer)

### Quiz 1

Unit I

\* Required

1. Email \*

2. The 80386 is a processor that supports \* 1 point

Mark only one oval.

☐ 8-bit data operand

☐ 16-bit data operand

☐ 32-bit data operand

☐ 64 address lines

Fig 2.11.A Online Quiz Sample

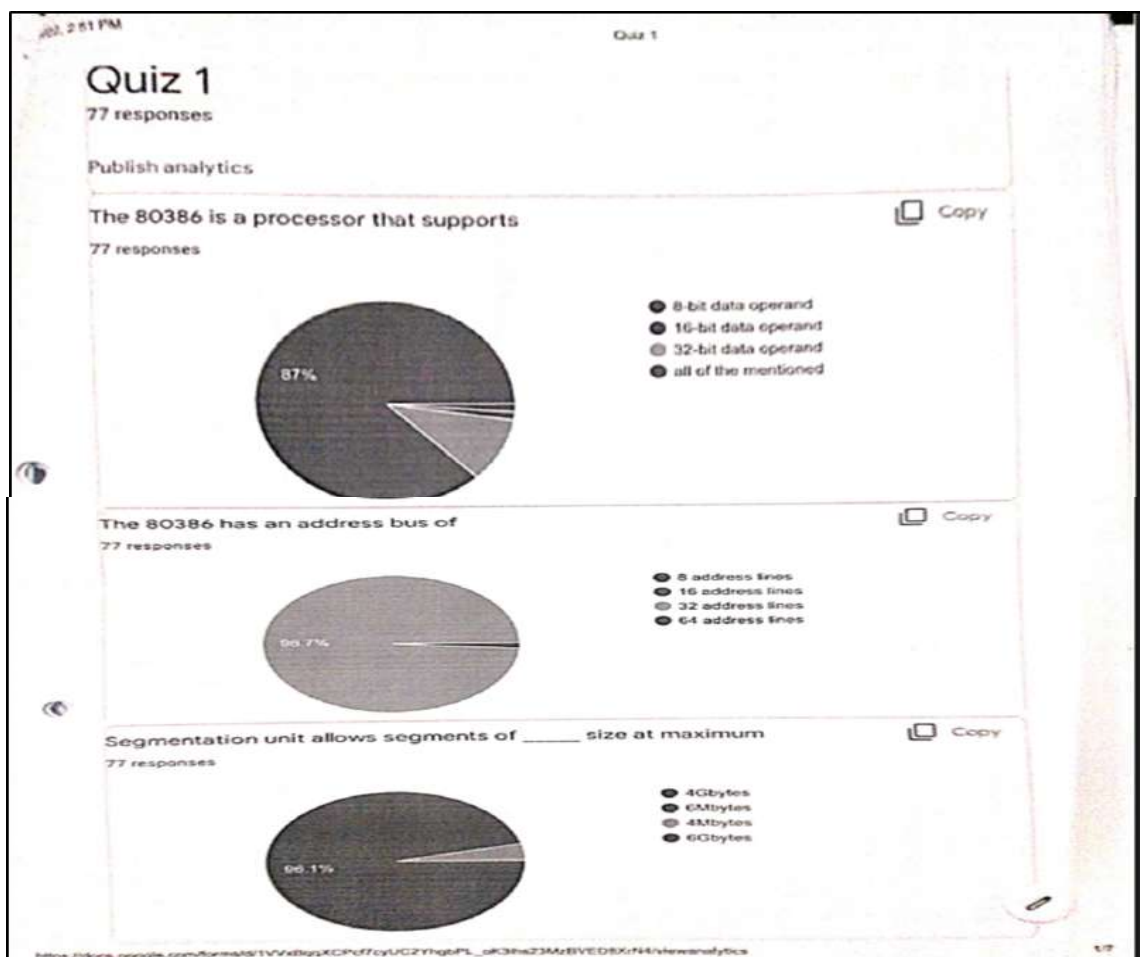
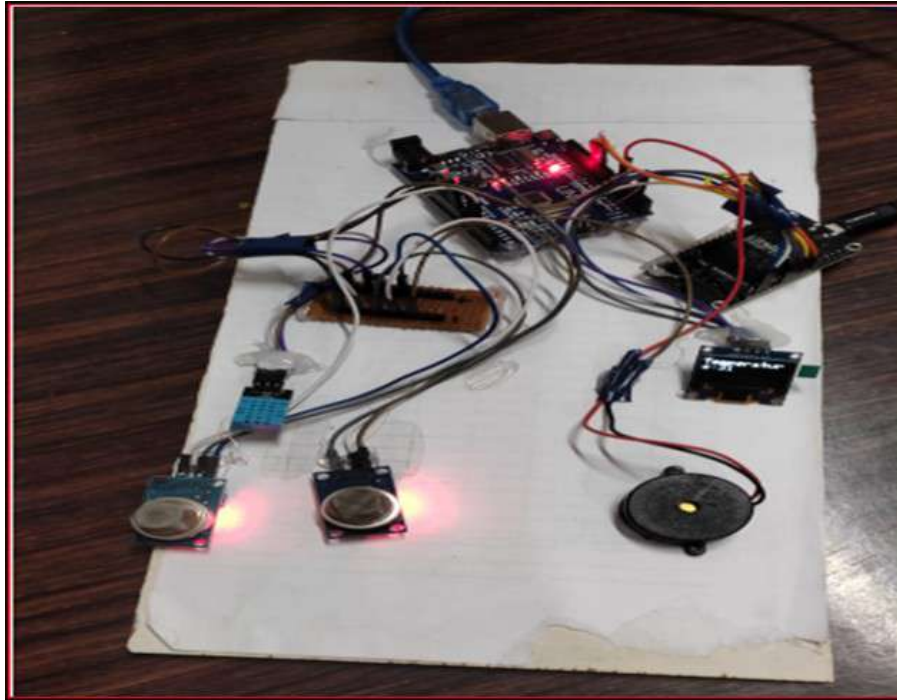


Fig 2.11.B Online Quiz Sample



**2. Collaborative Learning:** This is implemented by forming student teams working jointly to solve a problem, complete a task/project, participate in debates or design a product.



**Fig 2.12 Working model of IoT**

**3. Cooperative Learning:** The department also focuses on cooperative learning methodologies. Students work together to maximize their own and each other's learning capabilities within the student chapters and also while performing various activities like think-pair-share, round table techniques, etc.



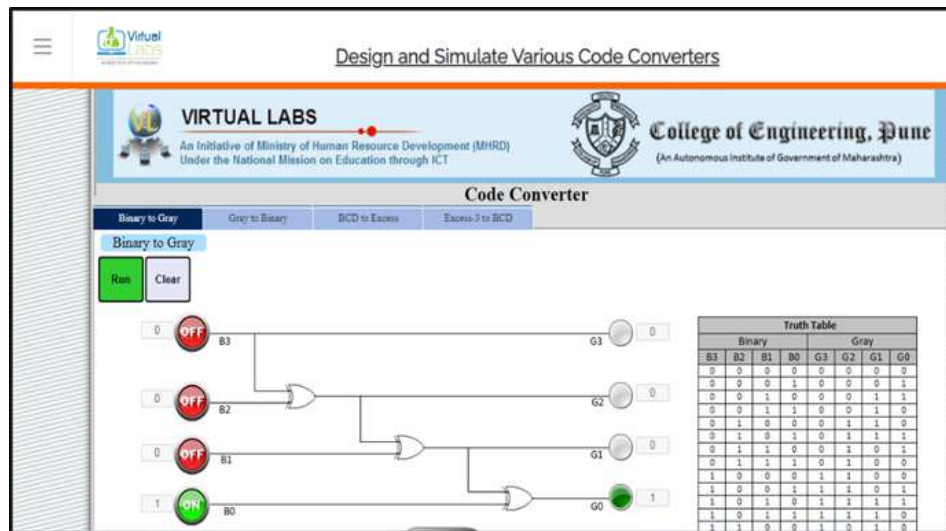
**Fig 2.13 Activity under IEI Student's chapter**

**4. Peer Led Team Learning:** Institute provides an environment for students to engage in intellectual discussions and work in team for problem-solving under the guidance of a peer leader to perform various activities.

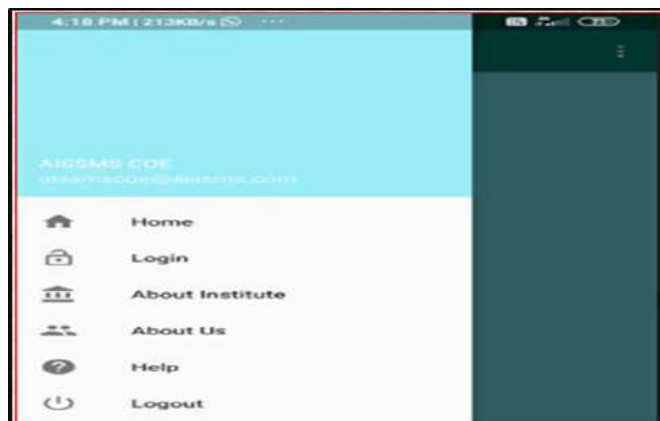


**Fig 2.14 Mini Hackathon**

**5. Experiential learning:** Field based experiential learning like Internship, practicum, service learning and class based experiential learning like role plays, games, case studies, simulation, virtual lab, presentations are practiced.



**Fig 2.15 Virtual Lab used to explain assignments to students**



**Fig 2.16.A Application developed by student**



**Fig 2.16.B Application developed by student**

**6. Project based learning:** A team of 3 to 5 students works cohesively on a project/problem guidance of a mentor.

### **C. Methodologies to support weak students and encourage bright students**

The academic progress of the students is tracked throughout their graduation and special efforts are made to bring weak students (students with certain limitations) at par with the average/above average group. Students with good potential and skills are guided to higher levels of achievements and encouraged towards challenging goals. Bright and Weak students are identified based on their performance in the internal and external examinations. Liberty is given to individual faculty to modify weak and bright learner list based on discussions in GFM/ Mentors and their observations. The GFM/Mentors, in meetings with all faculties of respective classes, carry out discussion about students' learning levels, attendance in theory and practical classes, programming skills, performance in laboratory, examination results (internal and external) etc.

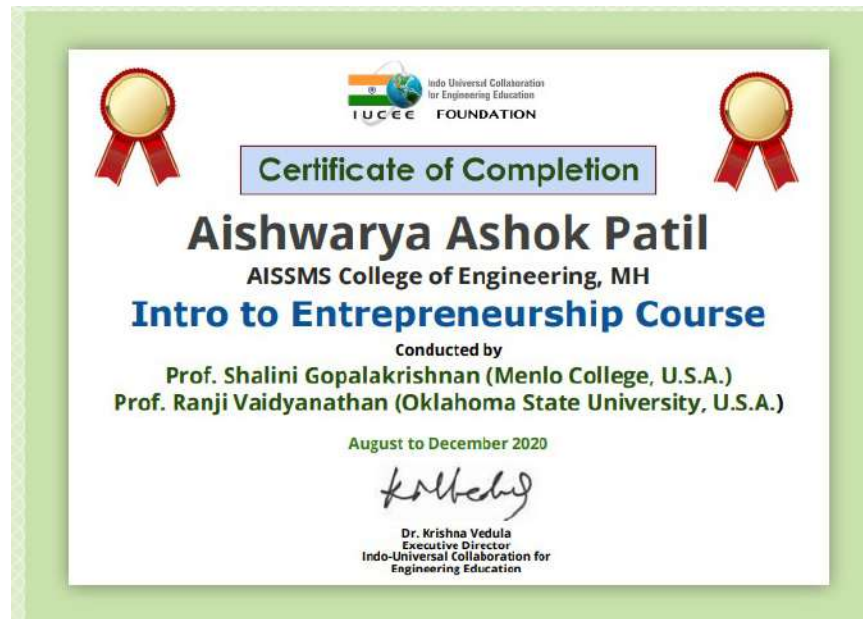


**Guidelines to identify weak students****Table 2.11 Guidelines to identify weak students**

<b>Identification Criteria</b>	<b>Actions taken</b>
Students fail in previous semester exams	<ul style="list-style-type: none"> <li>• Special sessions by course faculty.</li> <li>• Periodic counseling is given to the students having backlog subjects by mentors.</li> </ul>
Students scoring less than 40% of marks in Internal Assessment	<ul style="list-style-type: none"> <li>• Mentors follow their progress regularly advising students about attending classes, making up for classes missed, and getting additional help.</li> <li>• Conduct special session for students.</li> </ul>
Students weak in programming skill	<ul style="list-style-type: none"> <li>• Hands-on programming sessions are organized.</li> <li>• Provide platform for peer learning by means of student clubs.</li> </ul>

**Guidelines to identify bright students****Table 2.12 Guidelines to identify bright students**

<b>Identification Criteria</b>	<b>Actions taken</b>
Class toppers	<ul style="list-style-type: none"> <li>• Felicitated at Institute level in annual function.</li> </ul>
Semester wise and Subject wise toppers will be identified	<ul style="list-style-type: none"> <li>• Encouraging them to score more marks in the examination.</li> </ul>
Students Secured 9 and above SGPA	<ul style="list-style-type: none"> <li>• Motivate them to participate in conferences, workshops and symposiums.</li> <li>• Encourage them to publish technical papers in a reputed conferences and journals.</li> </ul>
Students strong in programming skill	<ul style="list-style-type: none"> <li>• Encourage for software application development and participation in Hackathon.</li> </ul>



Bright student achievements

## **Impact Analysis**

As a result of the above initiatives undertaken by the department, the following outcomes have been achieved

- Improvement in result.
- Publication of research papers
- Participation in innovative competitions like Hackathon.

### **Activities to support the weak students:**

- Question bank
- Extra lectures
- Extra Practical sessions
- Personal Attention while teaching
- Mock oral/practical examination
- Guidance for Seminar/Project presentations
- Assignments and Solving university question papers

### **Activities to encourage bright students:**

- Encouragement to complete NPTEL/ other online courses
- Additional Library facilities
- Participation in incubation center
- Induction in Clubs
- Participation in Seminars and Conferences
- Motivational guest talks
- Paper publication and presentation
- Workshop and seminar on current trends
- Model making/building
- Motivation and Guidance for higher studies (GRE, CAT, GATE, Competitive examinations)
- Industry visits and Industry sponsored/research project
- Patent filing process

Institute has made special provisions for an exhaustive soft skill training and an exclusive counseling to prepare the weak and bright students to plan their careers and placements.

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

- Classrooms in the institute are well designed to offer conducive environment
- The classrooms are equipped with LCD projectors and internet connection
- There is also a dedicated classroom having attached a Smart Board to enhance effective delivery of teaching learning process.
- Faculty reaches the class room in time, revise the previous class portions, ask questions and then commence the successive topic.
- Video lectures of NPTEL, Swayam, YouTube etc. of respective courses are shared with students by faculty
- Emphasis is given on logical learning wherein real-life examples related to application, analysis, synthesis and evaluation/ creation are given to the students so that their learning will be fruitful.

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

- All laboratories are equipped with adequate number of computers with the required software packages.
- The maintenance of computer laboratories is taken care of by laboratory In-charge with Laboratory Assistant.
- The laboratories under the program have display boards which are used for exhibiting the course objectives courses, outcomes, list of experiments carried course wise, safety measures to be taken and laboratory timetable to enhance the lab experience.
- Lab manuals are provided to the students where a student can refer required details while performing an experiment.
- Virtual Lab experiments are also demonstrated to students.



Fig 2.17.A Conduction of practical in Laboratory



Fig 2.17.B Conduction of practical in Laboratory

#### **F. Continuous Assessment in the laboratory**

- Standard Continuous Assessment Sheet (CAS) is used by the course faculty during the laboratory sessions.
- The CAS sheet is approved and provided by the Institute Academic coordinator.
- The CAS sheet includes the attendance, experimental write-ups and performance as a performance parameter.
- Each student is monitored and assessed accordingly during the practical hours.

Sample CAS sheet is shown below:

Roll No.	Name of the Student	Marks in Test	Marks in Assignment	Marks in Project	Marks in Viva	Total Marks
18-3001	ADARSH KUMAR	10	10	10	10	40
18-3002	ADARSH KUMAR	10	10	10	10	40
18-3003	ADARSH KUMAR	10	10	10	10	40
18-3004	ADARSH KUMAR	10	10	10	10	40
18-3005	ADARSH KUMAR	10	10	10	10	40
18-3006	ADARSH KUMAR	10	10	10	10	40
18-3007	ADARSH KUMAR	10	10	10	10	40
18-3008	ADARSH KUMAR	10	10	10	10	40
18-3009	ADARSH KUMAR	10	10	10	10	40
18-3010	ADARSH KUMAR	10	10	10	10	40
18-3011	ADARSH KUMAR	10	10	10	10	40
18-3012	ADARSH KUMAR	10	10	10	10	40
18-3013	ADARSH KUMAR	10	10	10	10	40
18-3014	ADARSH KUMAR	10	10	10	10	40
18-3015	ADARSH KUMAR	10	10	10	10	40
18-3016	ADARSH KUMAR	10	10	10	10	40
18-3017	ADARSH KUMAR	10	10	10	10	40
18-3018	ADARSH KUMAR	10	10	10	10	40
18-3019	ADARSH KUMAR	10	10	10	10	40
18-3020	ADARSH KUMAR	10	10	10	10	40

Fig 2.18 Continuous Assessment Sheet

### G. Student feedback of teaching learning process and action taken

- Student feedback is taken twice during the semester on the institute ERP system.
- Feedback questionnaire is based on parameters like coverage of syllabus, communication skill etc.
- Performance of the faculty member is evaluated based on the feedback received from the students.
- The feedback is quantified into percentage as per the rubrics developed by the institute on ERP.
- All the parameters mentioned in the feedback form are analyzed.
- Faculty members with more than 75% feedback were motivated to continue their hard work and explore the scope of further improvement.
- 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 on platforms like NPTEL

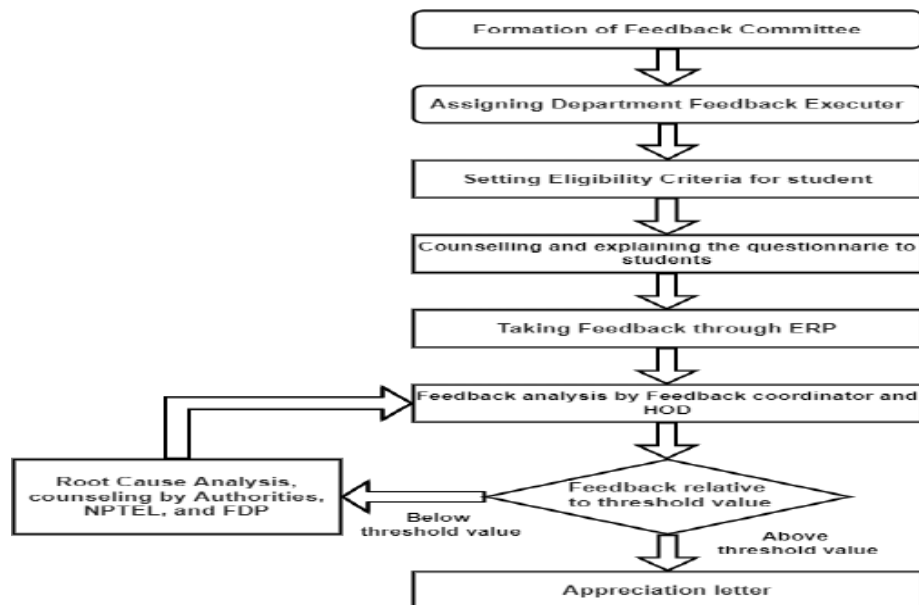


Fig 2.19 Student feedback on the teaching-learning process

<b>AISSMS</b> <b>COLLEGE OF ENGINEERING</b> <small>गुणवत्ता संस्थान</small> <small>Approved by AICTE New Delhi, Recognized by Govt. of Maharashtra,          Affiliated to Savitribai Phule Pune University and recognized 201 and 1208 by UGC/DE. No. PU/PH/Engg/093(1992)          Accredited by NAAC with 'A+' Grade</small> <small>Kennedy Road, Pune 411001, Maharashtra, India. Tel: +91 - 20 - 26058587, 26057660, 26058342 Email: contact@aiissmscoe.com, principal@aiissmscoe.com          www.aiissmscoe.com</small>	
<b>Department of Computer Engineering I Shift</b>	
To,	Date
<b>Subject - Letter of Appreciation</b>	
Dear Madam,	
<p>It gives me immense pleasure to congratulate you on the behalf of <b>Computer Engineering I Shift</b> department based upon the analysis of feedback forms submitted by the students of SE for the subject <b>Computer Graphics</b> . 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 !!!</p>	
 CLASS TEACHER	 FEEDBACK COORDINATOR
 HEAD OF DEPARTMENT	

Fig 2.20 Appreciation letter

<b>AISSMS</b> <b>COLLEGE OF ENGINEERING</b> <small>गुणवत्ता संस्थान</small> <small>Approved by AICTE New Delhi, Recognized by Govt. of Maharashtra,          Affiliated to Savitribai Phule Pune University and recognized 201 and 1208 by UGC/DE. No. PU/PH/Engg/093(1992)          Accredited by NAAC with 'A+' Grade</small> <small>Kennedy Road, Pune 411001, Maharashtra, India. Tel: +91 - 20 - 26058587, 26057660, 26058342 Email: contact@aiissmscoe.com, principal@aiissmscoe.com          www.aiissmscoe.com</small>	
<b>Department of Computer Engineering I Shift</b>	
To,	Date
<b>Subject - Letter of Improvement</b>	
Dear Madam,	
<p>It gives me pleasure to inform you that your teaching efforts have been appreciated by the students of <b>Computer Engineering I Shift</b> department. However, based upon the analysis of feedback forms submitted by the students of SE for the subject <b>Discrete Mathematics</b> . It has been observed that there is still some scope of improvement. Please keep it up good work and incorporate some changes in your teaching methodology to improve your performance. Wishing you all the best !!!</p>	

Fig 2.21 Improvement letter

## 2.1.2 Quality of internal semester Question papers, Assignments and Evaluation (20)

### A. Process for internal semester question paper setting and evaluation and effective process

Institute level Faculty development program on “outcome-based learning curriculum design: framework” was organized to create awareness about the quality of question paper. The Process adopted to ensure quality of question paper is as follows:

- There are six units in each course.
- Each unit is mapped against CO.
- In a semester, there are six internal tests for each course
- Each test is based on a unit.
- Questions in the tests are mapped against CO of respective course.
- Question papers are framed using Anderson/Blooms taxonomy.
- Question paper set by the faculty is verified by module coordinator and The Program Assessment and Quality Improvement Committee members (PAQIC).
- Faculty follow the suggestions given by the Program Assessment and Quality Improvement Committee members and improve question paper to ensure quality of the question paper.

#### Evaluation

- The faculty assesses the answer sheets and keeps the record of the of the marks scored by the students.
- These marks are used in the CO attainment calculation of the course.
- Sample answer sheets are maintained by faculty members.

#### Effective process implementation

- Unit test is conducted after completion of a unit
- Mark sheet is prepared by the teacher after the assessment of answer sheets.
- The expected answers are discussed in the class after conduction of test

Department PAQIC assess the quality and relevance of the question papers based on its syllabus coverage, marks allotment and compliance with the prescribed percentage distribution of the course outcomes. In PAQIC meeting Guidelines are set for unit test papers. Anderson/Blooms taxonomy is used to set the paper. Question paper Format approved by PAQIC is circulated to all course teachers. Question papers for all courses are collected & checked by Module coordinator. In case of some modifications needed, those question papers are reverted back to concerned course teacher for revision. After approval by Module coordinator question papers are forwarded to PAQIC and HOD for approval. Assessment of answer sheets is done by respective course teacher. Result of examination is communicated to students. In case of any query, student contact corresponding course teacher to clarify their doubts.



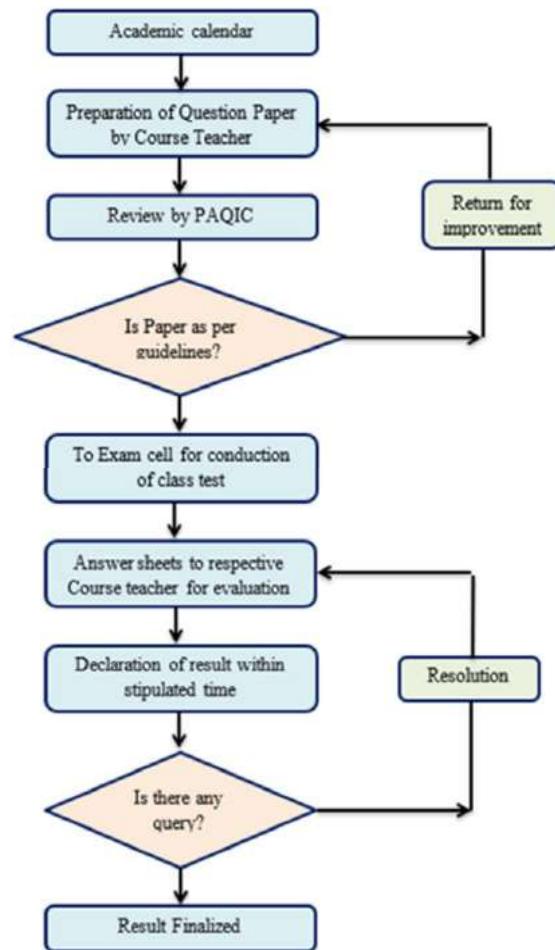


Fig 2.23 Process of Setting of question paper and evaluation

B. Evidence of COs coverage Sample question paper is shown below:

Fig 2.24 Question paper with module coordinator's remarks

**AISSMS**  
COLLEGE OF ENGINEERING  
Approved by UGC with "A" Grade

Date: 18/09/2020

Department of Computer Engineering

Class: BE-1 Subject: Elective-II: 410245(A)-Distributed Systems Term-I 2020-21

**Unit Test-I**

**Instructions:**

- All questions are compulsory.
- Neat and well diagrams carry full marks.
- Assume suitable data if necessary.

CO1: Learn and apply the concept of remote method invocation and Remote Procedure Calls

**Set(A): Questions:**

Q.1	State and Explain distributed system. Explain significant characteristics of distributed system.	5	CO1
Q.2	Design architectural model employed in distributed system.	5	CO1
Q.3	Describe with diagram the role of client stub and server skeleton procedure in RPC.	5	CO1

**Set(B): Questions:**

Q.1	Give example of distributed system and explain its challenges.	5	CO1
Q.2	Explain what is middleware and its need in distributed system?	5	CO1
Q.3	How RMI mechanism works, explain any save study in java.	5	CO1

Course Coordinator: \_\_\_\_\_ Moodle Coordinator: \_\_\_\_\_ PAQIC Coordinator: \_\_\_\_\_ Head of Department: \_\_\_\_\_

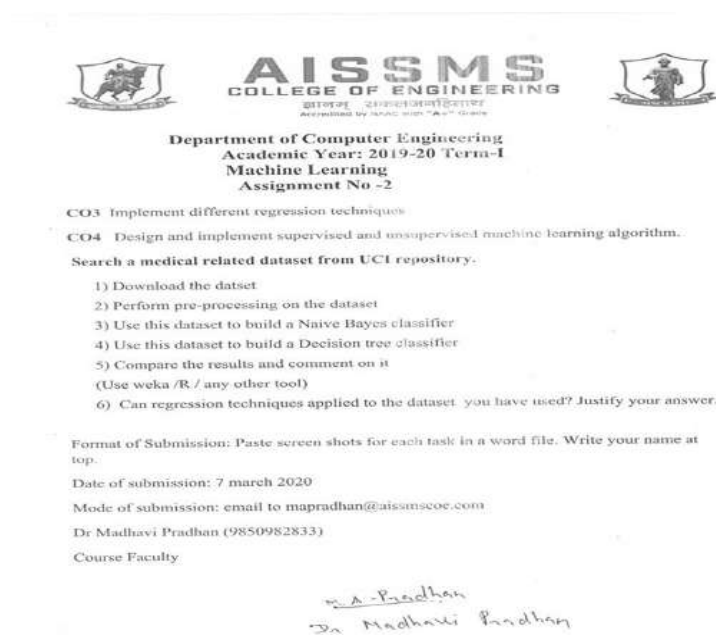
H. O. D.  
Computer Engg. Deptt.  
AISSMS COE Pune

AISSMSCOE | DEPARTMENT OF COMPUTER ENGINEERING | TERM-I 2020-21

Fig 2.25 Question paper approved by module coordinator

### C. Quality of assignments and relevance to Cos

- To promote self-learning three assignments for each course are given.
- Each assignment is based on two units.
- Assignment questions are mapped to COs.
- Assignments are used as the internal assessment tool for the CO attainment calculations.
- Assignments are Simulation based, Project based, case study etc. to inculcate self-learning and critical thinking in students



**Fig 2.26 Sample assignment**

### 2.1.3 Quality of student projects (25)

#### A. Identification of projects and allocation methodology

- The students are encouraged to select project in line with the Departmental Mission, Vision and Program Outcomes.
- Project coordinator organizes an orientation session for students to make them aware about the expectations from projects.
- Students are informed about subscribed E-resources like IEEE, ASCE, ASME, J-GATE, McGraw Hill and Science Direct.
- Faculty Publications Repository is maintained by the library. The link for it is provided to the students which helps them in identification of projects.
- Faculty shares the NPTEL and other project related links with the student. Example:

([https://onlinecourses.swayam2.ac.in/ntr20\\_ed30/preview](https://onlinecourses.swayam2.ac.in/ntr20_ed30/preview))

([https://onlinecourses.swayam2.ac.in/ntr20\\_ed30/preview](https://onlinecourses.swayam2.ac.in/ntr20_ed30/preview))

<https://nptel.ac.in/courses/105106149>

(<https://nptel.ac.in/courses/105106149>)

([https://www.youtube.com/watch?v=if\\_z7pMA85g](https://www.youtube.com/watch?v=if_z7pMA85g))

[https://www.youtube.com/watch?v=if\\_z7pMA85g](https://www.youtube.com/watch?v=if_z7pMA85g))

[https://www.youtube.com/watch?v=if\\_z7pMA85g](https://www.youtube.com/watch?v=if_z7pMA85g)

- Students are allowed to form the team, based on their area of interest.
- The strength of the team should be maximum of four.
- An area of specialization is collected from each team such as machine learning, Data Mining, IoT, Bigdata Analytics, Networks, Image Processing etc.
- Mapping process is carried out between student team and faculty member's specialization.

#### B. Types and relevance of the projects and their contribution towards attainment of POs Course

The projects are mapped with POs and PSOs and the attainments are assessed based on the following:

- Depth in fundamentals
- Clarity in problem analysis
- Methodology adopted
- Modern tool usage
- Impact on societal needs as useful products/processes
- Future scope of the work
- Novelty of work
- Team work
- Presentation and documentation
- Cost effectiveness and project management
- Employability

#### Project Outcome and mapping with POs and PSOs

Sr. No.	Name of the Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	Detection of malarial parasite in blood using image processing	3	3	2.33	2	2	3	2	2.5	2	3	1	2.3
2	Voice to Indian Sign Language Conversion for Hearing Impaired People	3	3	2.33	2	2	3	2	2.5	2	3	1	2.3
3	Decentralized Cloud Storage using IPFS	3	3	2.33	2	2.5	2	2	2.5	2	3	1	2.3
4	Detection of Chronic Disease using Machine Learning	3	3	2.33	2	2	2	2	2.5	2	3	1	2.3
5	Smart Agriculture System	3	3	2.33	2	2	3	2	2.5	2	3	1	2.3
6	Detection of Parkinson using deep learning	3	3	2.33	2	2	2	2	2.5	2	3	2.5	2.3

**Table 2.13(A) Summary report of best projects mapped with POs for the AY-2019-20**

Sr. No.	Name of the Project	PSO 1	PSO 2	PSO 3
1	Cold Storage Monitoring System	2	2.33	2.33
2	Smart City's Intelligent Parking System	2	2.33	2.33
3	Modern Social Media Application on Serverless Architecture with Microservices Pattern	2	2.33	2.33
4	Neurological disorder detection using computer vision and machine learning technique	2	2.33	2.33
5	Plant Classification and Leaf Disease Detection using Deep Learning	2	2.33	2.33
6	Detection of Phishing Websites using ML	2	2.33	2.33

**Table 2.15 (A) Summary report of best projects mapped with POs for the AY-2021-22**

Sr No	Name of the Project	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012
1	Criminal Record Management system using Blockchain public laser	3	3	2.33	2	2	2	2	2.6	2	3	2.5	2.25
2	Stock market Prediction and Analysis using machine learning Algorithms	3	3	2.33	2	2	2	2	2.5	2	3	2.5	2.25
3	Health care system using Smart Assistant	3	3	2.33	2	2	2.5	2	2.5	2	3	2.5	2.25
4	Implementation of IT Service Management Using AI Chat-bot and Data	3	3	2.33	2	2	2	2	2.5	2	3	2.5	2.25
5	Pneumonia Detection using VGG19 on Chest X-ray Images	3	3	2.33	2	2	2	2	2.5	2	3	1	2.25
6	Smart Online Voting System using Face Recognition	3	3	2.33	2	2	2	2	2.5	2	3	2.5	2.25

**Table 2.15 (B) Summary report of best projects mapped with PSOs for the AY-2021-22**

Sr. No.	Name of the Project	PSO 1	PSO 2	PSO 3
---------	---------------------	-------	-------	-------

1	Criminal Record Management system using Blockchain public laser	2	2.33	2.33
2	Stock market Prediction and Analysis using machine learning Algorithms	2	2.33	2.33
3	Health care system using Smart Assistant	2	2.33	2.33
4	Implementation of IT Service Management Using AI Chat-bot and Data	2	2.33	2.33
5	Pneumonia Detection using VGG19 on Chest X-ray Images	2	2.33	2.33
6	Smart Online Voting System using Face Recognition	2	2.33	2.33

### C. Process for monitoring and evaluation

- Project reviews are conducted four times in a year by a team of faculty members.
- Suggestions are given and documented in the project evaluation sheet by faculty members.
- Project guide is taking care of compliance of suggestions.
- As per project review reports internal evaluation is done.
- Final evaluation is done at the end of the semester by an external examiner.

The workbook used for monitoring & evaluation of the project is shown below:

**410248 & 410256: Project Work Book**  
**(Guidelines and Log)**

**Fourth Year Computer Engineering**

Year 2021 - 22


Group/Project ID: 06

Team Members: 1. Dipak Gaikwad  
2. Akshay Hamoir  
3. Shantana Chavan  
4. Gayatri Khedkar

Project Title : Real Estate Land Registration & Transaction System using Blockchain

Project Guide : Dr. Shreshnikant V. Athawade

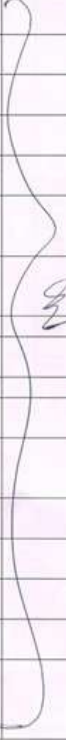


Area of the Project: Distributed System using Blockchain

  
Department of Computer Engineering

AISSMS College of Engineering,  
Near RTO, Kennedy Road, Pune  
Affiliated to Savitribai Phule Pune University, Pune

**Fig 2.27 Project Review Workbook**

**Project Review-IV: Design**  
Student is expected to deliver presentation covering Design

Sr. No.	Question	Date	Remark / Grade	Sign of Guide
1)	Are requirement reflected in the system architecture?	28/12/21	Yes	
2)	Does the design support both project (product) and project goals?	28/12/21	Yes	
3)	Does the design address all the issues form the requirement?	28/12/21	Yes	
4)	Is effective modularity achieved and modules are functionally independent?	28/12/21	Yes	
5)	Are structural diagrams (class, Object, etc) are well defined?	28/12/21	Yes	
6)	Are all class associations clearly defined and understood?(Is it cleat which classes provide which services)?	28/12/21	Yes	
7)	Are the classes in the class diagram clear? (What they represent in the architecture design document?)	28/12/21	Yes	
8)	Is inheritance appropriately used?	28/12/21	Yes	
9)	Are the multiplicities in the use case diagram depicted in the class diagram?	28/12/21	Yes	
10)	Are all objects used in sequence diagram?	28/12/21	Yes	
11)	Are the symbols used in all diagrams corresponding to UML standards?	28/12/21	Yes	
12)	Are behavioral diagrams (use case, sequence, activity, etc.) well defined and understood?	28/12/21	Yes	
13)	Does each case have clearly defined actors and input/ output?	28/12/21	Yes	
14)	Does the sequence diagram matches with class diagram?	28/12/21	Yes	
15)	Is aggregation/ containment (used) clearly defined and understood?	28/12/21	Yes	
16)	Whether State charts are capturing system's dynamic behavior correctly or not?	28/12/21	Yes	
17)	Related to procedural thinking whether DFDs and CFDs along with transaction and transformation flow are done correctly or not?	28/12/21	Yes	
<b>Remark and Suggestions:</b> Design covers all the cases.				
<b>Name and Sign of Reviewers:</b> 1. Dr. S. V. Atharade -  2. S. S. Jadhav - 				

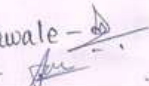
**Fig 2.28 Project Review sheet**




Internal Evaluation Sheet (Semester I)								
Sr. No.	Name(s) of the student in the project group	Problem Statement / Motivation / Objectives / Scope / Feasibility Requirement (05)	Literature Survey (05)	Requirement Analysis (05), Modeling & Designing (10)	Planning & Prototyping (05)	Presentation & Question - Answer (10)	Partial Project Report (10)	Total (50)
1.	Dipak Gaikwad	04	04	08 13	05	09	09	44
2.	Shantanu Chavan	04	03	14	05	08	09	48
3.	Akshay Hambir	04	04	12	05	10	09	44
4.	Gayatri Khedkar	03	05	13	05	10	08	44

(Refer Rubrics)


Name and Signature of Evaluation Committee:

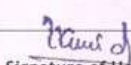
1. Prof. Dr. Shashikant V. Athawale - 

2. Prof. Swamiraj Jadhav - 

Examiners Feedback and Suggestions:

Use of latest technology is done  
Compare with existing systems

  
Signature of Guide  
[Name of Guide]

  
Signature of Head  
[Name of HoD]  
Head of Department

**Fig 2.29 Internal evaluation sheet**

Rubrics				
A. Idea Inception				
Grade (Grade Point)	Excellent (10-9)	Very Good (6-8)	Fair (3-5)	Poor (1-2)
Parameter				
Problem Definition and Scope of the Project				
Literature Survey				
Software Engineering Approach				
Requirement Analysis				
B. Implementation				
Grade (Grade Point)	Excellent (10-9)	Very Good (6-8)	Fair (3-5)	Poor (1-2)
Parameter				
Implementation- Design, platform, coding, Optimization considerations (Memory, time, Resources, Costing)				
Thorough Testing of all modules				
Integration of modules and project as whole				
C. Documents				
Grade (Grade Point)	Excellent (10-9)	Very Good (6-8)	Fair (3-5)	Poor (1-2)
Parameter				
Synopsis				
Project Report				
Quick references				
System manual				
Installation Guide				
Work Book				

**Fig 2.30 Rubrics for project evaluation**

**D. Process to assess individual and team performance**

The performance of the individual team member of the project is assessed at the time of meetings with guide and presentation in reviews by the following parameters:

- Communication
- Confidence
- Attainment of individual scope of work

The project team performance is assessed by following parameters:

- knowledge of the other team members
- contribution towards the project
- Coordination in consolidating work
- Time management

**E. Quality of completed projects/working prototype**

- The following parameters are used for assessment of quality of projects:
- Publication of paper based on project in reputed conference/journals

**Projects sponsored by Industry****Table 2.16 Project Stage -II Publications**

Sr.No.	Project Name	Name of the Students	Publication
1	"Detection of Malaria Parasite in Blood Using,"	SwaraliGujrathi ,NusaratTamboli, Pallavi Ganar, Anjali Chaudhari	Solid State Technology Indexed by Scopus
2	Criminal record management system using Blockchain public ledger	Pinak Pandit, Ashutosh Raykar,Rohit Sonar ,SuvasWagh	Presented paper in National Conference on Innovation in Engineering and Technology 2022 (NCIET 2022)
3	User-level Sentiment Analysis Technique on Social Network and E- commerce in One Go.	Dhanvij, N.H.,Gawande, S.H.Gajjal, P.S.	In Journal of Emerging Technologies and Innovative Research
4	Fake news detection	Rohan Diman,Ankita Shinde,Shreyas Ghorphade	Springer
5	Enabling authentication and Access Control-Based Data Sharing with personal Information Hiding for Secure Cloud Storage	Dhanpradha,bhoite, Ankita,Kamble, Vishakha Kamble	International Journal for Multidisciplinary Research (IJFMR)
6	Intelligent Agriculture System with Crop Selection Using IOT	Digraskar,Vikas Agarwal, Amit Deokar	International Journal for Research & Development In Technology

7	Dermatological Disorder Detection Using Machine Learning	Shivani Tilekar	International Journal of Innovative Science and Research Technology, Engineering (IJRECE)
8	Early-stage disease Detection systems	Pooja Hande	International Journal of Research and Analytical Reviews
9	Better course recommendation system	Prajwal Sorate, Abhishek Jantre, Aditya Waghmare, Bhushan Parkhi	Journal of Interdisciplinary Cycle Research (JICR)
10	Sentiment Analysis using Three different Algorithms	Shivani Pathak, Piyusha Mahajan, Ankita Patil, Rutuja Patil	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
11	Sentiment Analysis using Three different Algorithms	Shivani Pathak, Piyusha Mahajan, Ankita Patil, Rutuja Patil	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
12	Dermatological Disorder Detection Using Machine Learning	Ashlesha Gaikwad, Meghna Sonayallu, Shivani Tilekar	International Journal of Innovative Science and Research Technology,
13	Data augmentation on skin lesion image data using GAN for increased CNN performance	Shreyas Bhavsar, Ajinkya Bhalerao, Sameer Balkawade, Shantanu Chintawar	International Research Journal of Engineering and Technology (IRJET")

### Projects sponsored by Industry

**Table 2.17 Projects sponsored by Industry**

Sr. No.	Name of Project guide	Year	Title of Industry Sponsored Project	Name of Sponsoring Industry
1	Dr Madhavi Pradhan	2019-20	Voice enabled Personal Assistant as service utility kit	Finzly
2	Dr Madhavi Pradhan	2021-22	Implementation of IT Service Management Using AI Chat- bot and Data Visualizers.	Fladdra Technologies

## F. Evidences of papers published /Awards received by projects

All project batches published paper based on their project work.

Publication of paper based on project in reputed conference/journals

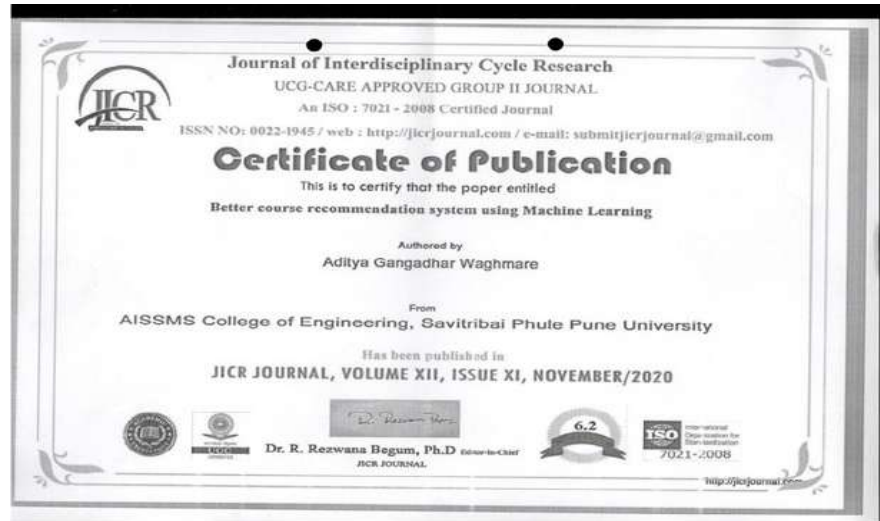


Fig 2.31 Paper Publication Certificate

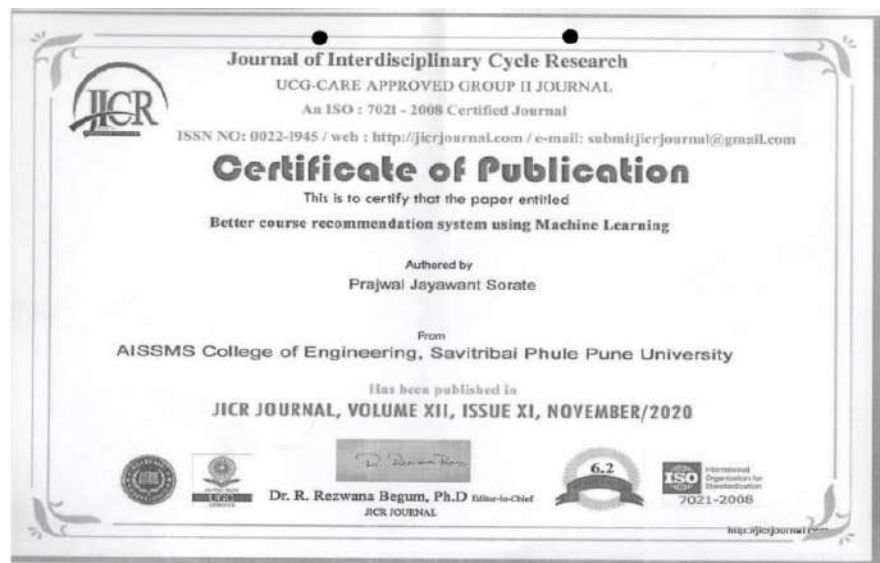


Fig 2.32 Paper Publication Certificate

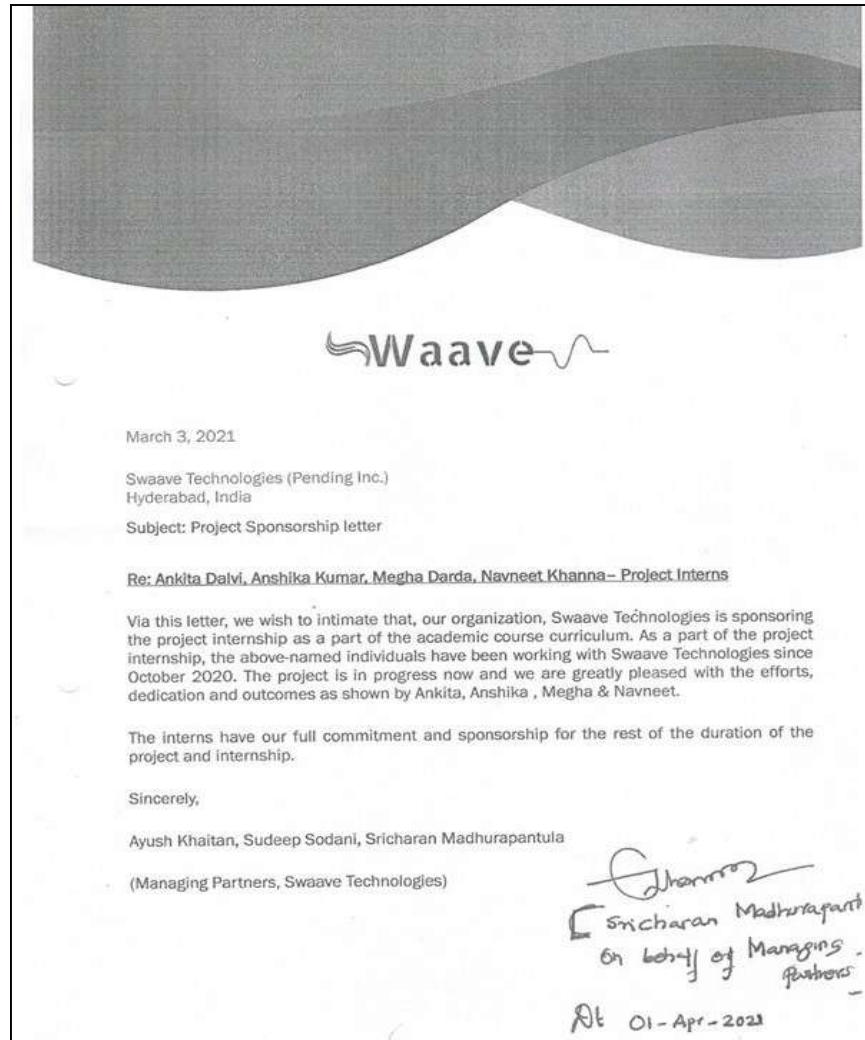


Fig 2.33 Evidences of papers published

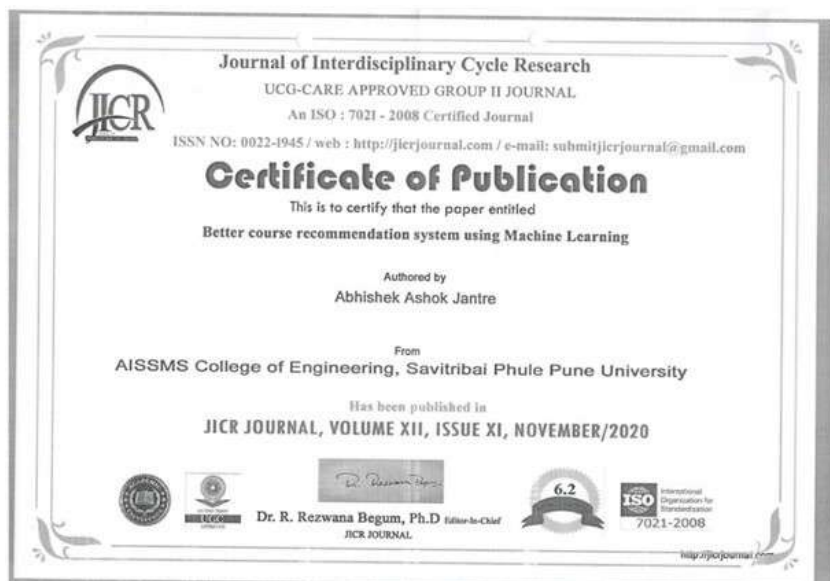


Fig 2.34 Paper Publication Certificate

### 2.1.4 Initiative related to industry interaction (15)

The Industry Institute Interaction activities conducted during the 4 years at college/department helps the students become aware about what they will be challenged with in the real-world and makes them industry ready. The formal platform helps the students & faculty members to identify industry expectations and upgrade their skillsets to meet the needs of jobs they will be required to perform. The industry experts and department alumni gracefully oblige in providing expert talks, guest lectures, workshops, projects and industrial training. Due to COVID- 19 pandemic situation (A.Y. 2019-20, 2020-21 and 2021-22) in the state / country, strict movement restrictions and controls was enforced by Government through Epidemic Act. Pune was one of the worst affected cities and most of the software companies was operating in “work from home” mode and was physically closed. Therefore, virtual industrial visit, online guest lectures and many webinars were conducted. The institute / department continued interacting with industries digitally in the pandemic period.

#### A. Industry Sponsored Laboratories/Centre of Excellence

The industry-supported laboratories develop the learning process using a comprehensive understanding of the industry’s best practices for both students and faculties. The laboratories or practical classes can be made meaningful by building small working proto models to demonstrate basic subject concepts and taking help of key industry who already have products in market for industrial application. This initiative builds professionalism in students, boosts confident behavior and awareness about industry expectations. It also aligns the aspirations of the students with the needs of the industries. To promote career counseling, guidance lectures by senior corporate personnel can also be organized.

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



**Fig 2.35.A Centre of excellence by Automation anywhere**





**Fig 2.35.B Centre of excellence by Automation anywhere**

#### 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.

#### MoU with Industries

To strengthen interaction with industries and to keep our students updated with the latest trends in computer engineering, the Department has entered into an MoU with the industries. Industry interactions help the students to acquire practical knowledge. So, in order to improve the technical abilities various industrial activities are carried out.

#### List of MoUs

**Table 2.18 MoU with Industries**

Sr.No	Details of the institution/Industry with whom MoU is signed	Duration	Date of MoU signing
1	Me Layer, Pune	1 year	23/03/2018
2	Codekul Pvt. Ltd	1 year	15/11/2018
3	Invoent It Solutions Pvt. Ltd, Pune	1 year	9/7/2018
4	Accord Software Solution	1 Year	13/09/2017
5	Lyftek Solutions Pvt. Ltd	1 Year	14/09/2017
6	Netgyani It Services Pvt. Ltd	1 Year	2/11/2017
7	NIIT Ltd	1 Year	29/09/2017
8	Intelliment Solution	1 Year	30/07/2019
9	Slogsite	3 years	17/1/2022
10	World Vision IT Infotech	3 years	9/10/2021
11	Audaz Pvt. Ltd.	3 years	22/9/2021
12	Elite Softwares	3 years	20/12/2021
13	Bag2Bag	1 year	21/12/21
14	VEDA EDU Consultant	1 year	24/11/2021

15	Sumago Infotech Pvt. Ltd, Nashik	1 year	13/04/2022
16	Brilliance Infotech	3 years	2/2/2022
17	The Code Culture	1 year	28/12/21

**One faculty one Industry:**

A. Each faculty of the department identifies an industry as per the field of interest and initiates various activities that provide industrial exposure to the students and faculty as well. The Institute appoints an administrative committee that coordinates this practice.

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

Besides regular lectures Industrial expert lectures are organized for students. Industrial visits are also organized to give exposure of industrial practices to students.

**Partial delivery of regular courses for students by Industry Experts:****Table 2.19 Expert lectures delivered by Industry Experts**

Sr. No.	Class	Topic	Name, Industry, designation and contact details of Expert	Date
1	SE (II) Computer	Searching & Sorting Techniques	Codekul Pvt Ltd Pune.Mr. Varun Kudalkar (Software Developer) 7588364088	16/9/19
2	SE Computer-II	SCADA	Mr. S Sjangkar Maestrotek Innovations Pvt Ltd, pune, Project Manager. 9890922536	31/07/19
3	BE Computer-II	Agile Project Management	Mr. Shardul S Jadhav TCS, Project Manager,9765403870	1/8/2019
4	TE I	Software Testing	Manasi Parakh, FIS Global solutions,8485035299	15 /8/ 19
5	TE II	TOC	Ms. Sherin Mathew Search Bourne Consulting Pvt Ltd, Pune	9/9/2019
6	BE-II	HPC	Netscout Systems Pvt Ltd. Mr.Shrikant Borude	9/10/2019
7	TE, BE	Internet of Things	Mr. Akshay Shinde, IOT Trainer, Tech Amplifiers	5/1/2020
8	SE I & II	Digital Marketing and Amazon Opportunities	Mr. KashinathBongarge, Mr.DheerajRathod Co-founder and CTO GlucoTech , Pune.	13/10/2020
9	TE	Latest Trends in Web Technology	Shrenik Kucheriya,Consulo Educare Pvt.ltd	28/02/22
10	SE,TE ,BE	Spring Microservices	Mr. Kushal Shukla Software Development Specialist Amdocs, Pune	14/ /2021



**Fig 2.36 Industry Expert Lecture**

**Table 2.20 Industry Sponsored Projects**

Sr. No.	Name of Project guide	Year	Title of Industry Sponsored Project	Name of Sponsoring Industry
1	Dr Madhavi Pradhan	2019-20	Voice enabled Personal Assistant as service utility kit	Finzly
2	Dr Madhavi Pradhan	2021-22	Implementation of IT Service Management Using AI Chat- bot and Data Visualizers.	Fladdra Technologies

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

Industry – Institute interaction helps to bridge the gap between industry and the academic institutions. The interaction between technical institutions and industry has a great bearing on the evolving the engineering curriculum, exposure of engineering students to the industrial atmosphere and subsequent placement of young graduate engineers in industries across the country.

The department of Computer Engineering has made efforts in the direction of making students ready for industry by enhancing their skill sets through training on recent tool and technologies. The said efforts are made through the following activities in collaboration with industry

- Workshops/seminar
- Guest lectures
- Industrial visits

**Table 2.21 Industry Institute Interaction**

Sr. No.	Industry Interaction Initiative	Industry Involved	Impact analysis
1	Invited talks from industry experts	<ol style="list-style-type: none"> <li>1. Codekul Pvt. Ltd Pune.</li> <li>2. Maestrotek Innovations Pvt. Ltd, pune, ProjectManager.</li> <li>3. FIS Global Solutions</li> <li>4. SearchBourne Consulting Pvt. Ltd,Pune</li> <li>5. Netscout Systems Pvt. Ltd.</li> <li>6. Tech Amplifiers</li> <li>7. AVP, Citicorp Pvt. Ltd. Pune.</li> <li>8. GlucoTech , Pune.</li> <li>9. TCS, Bangalore</li> <li>10. Qualitas Techno Sol. Pvt. Ltd. Chennai</li> <li>11. Shivaji University , Kolhapur.</li> </ol>	Awareness about current Industry needs.
2	MoU's signed with industries	Signed MoU with industries	Internship opportunities, Placement opportunities, Faculty development program.
3	Industrial Visits	<ol style="list-style-type: none"> <li>1. CDAC,PUNE</li> <li>2. Void Star India,Karvenagar,Pune</li> <li>3. Netscout Systems PVT LTD.,Pune</li> <li>4. GMRT Khodad</li> <li>5. Snapper Future Tech.21, Veda Center, D.P.Road, Aundh, Pune</li> <li>6. Paradise Telecom Ptv. Ltd, Pune</li> </ol>	Exposure of industrial practices to the students and staff
4	Industry Institute meet	Every year around 25 industries participates in industry institute meet organized by department.	Sponsored project
5	Workshop conducted in Association with industries	<ol style="list-style-type: none"> <li>1. Gulcotach, Pune</li> <li>2. TCS., Bangalore</li> <li>3. Anuvaa, Pune</li> <li>4. Amdocs,Pune.</li> <li>5. TechAmplifiers</li> <li>6. Indeyes, Pune</li> <li>7. Vittasampada, Pune</li> <li>8. Netflix, Pune</li> <li>9. HackersEra, Pune</li> <li>10. GTGP, Pune</li> <li>11. Ernst and Young LLP</li> <li>12. PanchshilTechParkYerwada, Pune</li> <li>13. Qubole ,Bengaluru</li> <li>14. Pitney Bowes</li> <li>15. L &amp; T Infotech,Pune</li> <li>16. BroadCom Ltd ,Pune</li> <li>17. Future Skills Consultant, Pune</li> </ol>	Exposure to modern tools and technologies to Students and faculty

		18. CompuCom Services Pvt Ltd Pune 19. Tech Hub Pune 20. Qualitia Software Pune 21. GTGP Pune 22. DesignBoat UI/UX school, Pune 23. IIT Bombay 24. Vittasampada Paradise telecom Pvt Ltd, NETSCOUT pvt Ltd	
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### 2.1.5 Initiative related to industry internship/summer training (15)

An internship provides a student with professional work experience, in a safe and structured environment, with help from experts. The academic knowledge students acquire in initial semesters of an engineering course should be seen getting implemented in a project or product in the industry. This will make them link the theoretical study with real industry environment, when they see its use during the internship program. The internship coordinator helps the student learn how to manage their expectations and implement successful work habits. Industry Training, Internships are given to the students through various companies

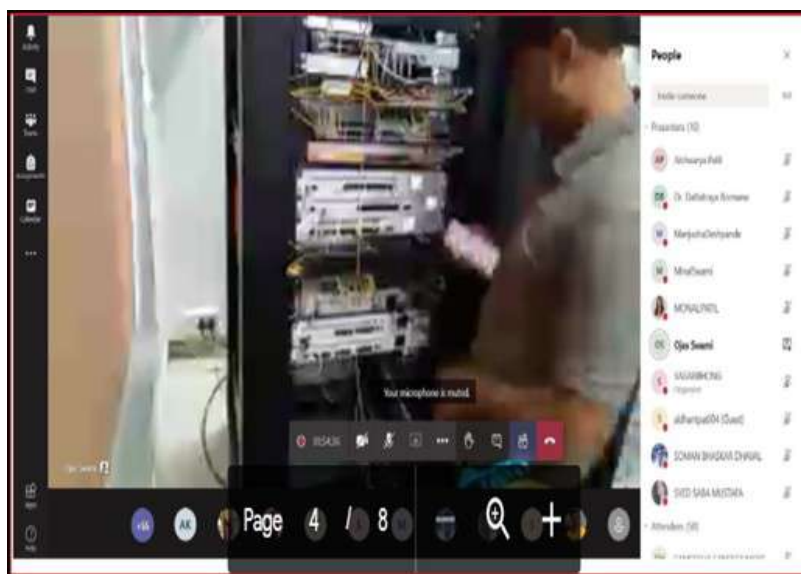
#### A. Industrial training/tours for students

##### Industrial Visits organized for students:

The actual industrial experience of experts enables students to modify their approach to problem solving from only academic or theoretical thinking, to a more practical and application/product oriented. The learnings of such interaction enhance their technical capability and gives them broader perspective of individual jobs. The industry visits organized by department supplements the course/curriculum knowledge with hands on, direct work environment interaction. They can identify the knowledge gaps and become prepared to face industry job interviews by final year. To overcome, COVID-19 pandemic situation (Academic years 2019-20, 2020-21 and 2021-22), virtual industrial visit, online guest lectures and webinars was conducted for the students.

**Table 2.22 Industrial Visits**

Sr. No.	Faculty Coordinator	Class	Industry Name and Address	Date of visit
1	Mr. S Devekar, B R Quazi V. V. Waykule	SE Computer-II	Void Star India,Karvenagar,Pune.	30/08/19
2	S Skolte,Dr. D P Gaikwad Dr. M A Pradhan,A S Deokar	TE COMPUTER	Netscout Systems PVT. LTD. ,Pune	1/10/19
3	Dr. S F Sayyad,B A Patil,A Gupta,A Jagtap	TE Computer-I	GmrtKhodad	24/01/2020
4	S.R.Nalamwar	SE and TE	Snapper Future Tech.21, Vedas Center, D.P.Road, Aundh, Pune	6/02/2020
5	M M Swami S S Kolte M M Phadatare	SE, TE, BE	Paradise Telecom Ptv. Ltd, Pune (Virtual mode)	13/02/2021


**Fig 2.37.A Industrial Visits (field visit & Virtual visit)**



**Fig 2.37.B Industrial Visits (field visit & Virtual visit)**

### **B. Industrial /internship /summer training of more than two weeks and post training Assessment**

The students are encouraged to take up internship programs during their semester break. Industry experts are giving guest lecture that helps the students to identify the latest technologies and current trends. Department internship coordinator / Centre for Information Training and Placement giving support to identify their reputed companies to take up their internship.

List for three years Industry training, Industrial visits, internship: -



Sr. No.	Name of the student	Name of the Industry	Class	Training duration		
				Start date	Last date	Duration (days)
1	Tejas Rajurkar	Finzly	BE	1 /7/ 2019	31/03/2020	180
2	Akshata Kadam	Finzly	BE	1 /7/ 2019	31/03/2020	180
3	Piyush Ingle	Finzly	BE	1 /7/ 2019	31/03/2020	180
4	Sharayu Yadav	Finzly	BE	1 /7/ 2019	31/03/2020	180
5	Aishwarya Patil	ISS	TE	29/01/2021	04/07/2021	150
6	Aishwarya Bhoj	Johnson Controls (JCI)	BE	17/06/2021	17/07/2021	30
7	Rahate Pooja	XERXEZ	BE	25/10/2020	02/12/2020	37
<b>All 165 students of third year computer engineering had completed internship of 2-4 weeks duration in A. Y. 2021-22.</b>						

**Table 2.23 Industrial Training**



### C. Impact analysis of industrial training


- Students grasp knowledge and implement it to their mini projects and final year projects.
- The experiences gained by students through these internships allow them to incorporate an entrepreneurial spirit and project-based thinking.
- Students learn about new technologies in the industry and get exposure to the same which assists them during their placements.
- The industry gets the benefit of hiring young technical manpower whom they can mold as per the industry requirements.


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<b>Institute Vision</b> "Service to Society through Quality Education"	
<b>IMPACT ANALYSIS OF INDUSTRIAL ACTIVITIES</b>	
<p>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;</p>	
<ul style="list-style-type: none"> <li>• <b>PO1 (Engineering Knowledge)</b> : Knowledge of current technical issues and</li> <li>• <b>PO5 (Modern tools )</b> : Availability of modern tools</li> <li>• <b>PO7 (Environment and sustainability )</b> : Ethic and responsibility,</li> <li>• <b>PO8 (Ethics )</b> : Ethic and responsibility,</li> <li>• <b>PO10 (Communication)</b> : Oral and writing communication skill</li> <li>• <b>PO12 (Life long learning)</b> : Life-long learning</li> </ul>	
<ul style="list-style-type: none"> <li>• Department : <u>Computer Engineering</u></li> <li>• Name of the student : <u>Onkar Anil Mirajkar</u></li> <li>• Activity details (Company name/Address):  <u>Industrial training - Mealasts Ltd Pune.</u></li> <li>• Date/ Duration : <u>25 Dec 2021 to 31 Jan 2022.</u></li> </ul>	

**Fig 2.38.A Impact analysis of industrial activities**

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  
 (Mrs. S. S. Jadhav)

  
 PI In charge  
 (Mr. S. G. Bhengre)




  
 HOD  
 (Dr. D. P. Gaikwad)  
 H.O.D.  
 Computer Engg Dept  
 AISSMS COE Pune

Fig 2.38.B Impact analysis of industrial activities

### Student feedback on initiative

Feedback on different initiatives related to industry institute interaction is collected from the students. It is use to do further improvement for the same. Sample feedback is shown below:


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<b>IMPACT ANALYSIS OF INDUSTRIAL ACTIVITIES</b>	
<p>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:</p> <ul style="list-style-type: none"> <li>• <b>PO1 (Engineering Knowledge)</b> : Knowledge of current technical issues and</li> <li>• <b>PO5 (Modern tools )</b> : Availability of modern tools</li> <li>• <b>PO7 (Environment and sustainability )</b> : Ethic and responsibility,</li> <li>• <b>PO8 (Ethics )</b> : Ethic and responsibility,</li> <li>• <b>PO10 (Communication)</b> : Oral and writing communication skill</li> <li>• <b>PO12 (Life long learning)</b> : Life-long learning</li> </ul>	
<ul style="list-style-type: none"> <li>• Department : <u>Computer Engineering</u></li> <li>• Name of the student : <u>Aishwarya A. Patil</u></li> <li>• Activity details (Company name/Address):  <u>Virtual Industrial Visit at Paradise Telecom Pvt. Ltd.</u>  <u>Date - 13<sup>th</sup> Feb, 21, 12 hrs</u> </li> <li>• Date/ Duration : <u>13<sup>th</sup> Feb, 21, 12 hrs</u></li> </ul>	

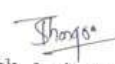
**Fig 2.39.A Feedback on Virtual Industrial Visit**


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?					✓	


Patil

  
 Guide  
 (Industrial Visit  
 Co-ordinator)  
 (Mrs. M. M. Swami)

  
 PI In charge  
 (Mr. S. G. Bhengre)

  
 HOD  
 (Dr. D. P. Gaikwad)  
 H.O.D.  
 Computer Engg Dept  
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**Fig 2.39.B Feedback on Virtual Industrial Visit**



# AISSMS

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**DEPARTMENT OF COMPUTER ENGINEERING**

**✓ FEEDBACK ON INDUSTRY INTERACTIONS**  
(INDUSTRIAL VISIT / IN PLANT TRAINING / INTERNSHIP / INDUSTRY PROJECTS)

Academic Year: 2019 – 2020 Term: I / II

Mode of Interaction with Industry: Offline

Class: FE/SE/TE/BE/ME Faculty Coordinator: S. S. Kulkarni

Name and Address of Industry: Netscout, Wakade Road, Shivajinagar, Pune.

Date and Duration of Interaction: 01/10/19 to 01/10/19 (1 day)

**FEEDBACK ON INDUSTRY INTERACTION**  
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	Duration of interaction was satisfactory for you to acquire enough Knowledge.	5	
2	Need and usefulness of the interaction.	5	
3	Rate your practical exposure during the interaction / training.	5	
4	Interaction was helpful for you to select your field after education.	5	
5	Courses you finished in the college helped you to execute the projects given by the industry.	5	
6	Additional personality development / training initiatives needed at the college / department level for industry readiness.	5	
7	Knowledge and skills gained after this industrial exposure.	5	
8	Rate your overall interaction with industry.	5	
9	Lifelong learning and exposure to social awareness	5	
10	Acquired ability to solve industrial problems and exposure to modern technology / tools.	5	
<b>Total</b>		<b>50</b>	

Signature of Student: Akshay Bator

Name of the Student: Akshay Bator

Date: 11/10/19

**Fig 2.40 Feedback on Industrial visit**

<b>CRITERION 3</b>	<b>COURSE OUTCOMES AND PROGRAM OUTCOMES</b>	<b>120</b>
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### 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)

#### List of Programme Outcomes:

<b>PO1</b>	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO2</b>	Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO3</b>	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.
<b>PO4</b>	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.
<b>PO5</b>	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.
<b>PO6</b>	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.
<b>PO7</b>	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.
<b>PO8</b>	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO9</b>	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO10</b>	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.
<b>PO11</b>	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.
<b>PO12</b>	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.

#### List of Programme Specific Outcomes:

<b>PSO1</b>	Students are able to devise, analyze and implement algorithms.
<b>PSO2</b>	Students are able to exhibit their IT based knowledge for the development of Society.



<b>PSO3</b>	Enhance communication and leadership skills to get good position in National and International Organizations.
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**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)**

**Note: Number of Outcomes for a Course is expected to be around 6.**

**Class: SE Subject Term: I Computer Graphics**

<b>CO210244.1</b>	Implement the basic primitives of Computer Graphics
<b>CO210244.2</b>	Use polygon filling and clipping algorithms in a given object.
<b>CO210244.3</b>	Apply the transformations and projections in Computer Graphics.
<b>CO210244.4</b>	Distinguish between different illumination model and shading algorithms
<b>CO210244.5</b>	Design different objects using fractals and Bezier curve.
<b>CO210244.6</b>	Create effective programs using concepts of animation and gaming.

**Class SE: Subject DSA Term: II**

<b>CO210252.1</b>	Identify and articulate the complexity goals and benefits of good hashing scheme for real world applications.
<b>CO210252.2</b>	Apply non-linear data structures for solving of various domain.
<b>CO210252.3</b>	Design and specify the operations of nonlinear based abstract data type and implement them in a high level programming language.
<b>CO210252.4</b>	Analyze the algorithmic solutions for resource requirements and optimization.
<b>CO210252.5</b>	Use the efficient indexing method and multiway search techniques to store and maintain data.
<b>CO210252.6</b>	Use appropriate modern tools to understand and analyze the functionalities confined to the secondary storage.

**Class: TE Subject: CNS Term: I**

<b>CO310245(D).1</b>	Summarize fundamental concepts of Computer Networks, architectures, protocols and technologies
<b>CO310245(D).2</b>	Illustrate the working and functions of data link layer
<b>CO310245(D).3</b>	Analyze the working of different routing protocols and mechanisms
<b>CO310245(D).4</b>	Implement client-server applications using sockets



<b>CO310245(D).5</b>	Illustrate role of application layer with its protocols, client-server architectures
<b>CO310245(D).6</b>	Comprehend the basics of Network Security

**Class: TE Subject: AIR Term: II**

<b>CO310252.1</b>	Apply the suitable algorithms to solve AI problems
<b>CO310252.2</b>	Simulate an air cargo transportation planning problem using PDDL.
<b>CO310252.3</b>	Distinguish propositional and predicate logic with suitable example.
<b>CO310252.4</b>	Identify and apply suitable Intelligent agents for various AI applications
<b>CO310252.5</b>	Identify knowledge associated and represent it by ontological engineering to plan a strategy to solve given problem.
<b>CO310252.6</b>	Design smart system using different informed search / uninformed search or heuristic approaches.

**Class: BE Subject: DS Term: I**

<b>CO410245(A).1</b>	Learn and apply the concept of remote method invocation and Remote Procedure Calls
<b>CO410245(A).2</b>	Analyze the mechanism of peer to peer systems and Distributed File Systems
<b>CO410245(A).3</b>	Demonstrate an understanding of the challenges faced by current and future distributed systems
<b>CO410245(A).4</b>	Design distributed environments for real life problems
<b>CO410245(A).5</b>	Architect data consistency model for distributed communication system
<b>CO410245(A).6</b>	Simulate the distributed events in various platforms, e.g. social media etc.

**Class: BE Subject: ML Term: II**

<b>CO410250.1</b>	Define different learning based applications
<b>CO410250.2</b>	Describe different pre-processing methods to prepare training data set for machine learning.
<b>CO410250.3</b>	Apply different regression techniques.
<b>CO410250.4</b>	Compare different supervised and unsupervised machine learning algorithm.

<b>CO410250.5</b>	Demonstrate the knowledge of Meta Classifier.
<b>CO410250.6</b>	Design and implement clustering techniques, recommender system and deep learning.

### 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)

#### Class SE Subject: CG Term I

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>CO210244.1</b>	2	2	2					1				1
<b>CO210244.2</b>	2	2	2					1				1
<b>CO210244.3</b>	2	2	2	1								2
<b>CO210244.4</b>	2	2	2	1						1		1
<b>CO210244.5</b>	2	2		2	2			1			1	
<b>CO210244.6</b>	2	2	2	2	2			1	2			1

#### Class SE Subject: DSA Term II

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>CO210252.1</b>	2	1	2	1								
<b>CO210252.2</b>	1	2										
<b>CO210252.3</b>	2											
<b>CO210252.4</b>		2		1								
<b>CO210252.5</b>	1		1	1								
<b>CO210252.6</b>	2	1	1	1								

#### Class: TE Subject: CNS Term: I

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>CO310245(D).1</b>	2	2	3	1				1				1
<b>CO310245(D).2</b>	1	2	3			2			2		1	2
<b>CO310245(D).3</b>	1	1	2		1							1
<b>CO310245(D).4</b>	2	2	2	2						1		1
<b>CO310245(D).5</b>	1	2	3	1	1				2		1	1
<b>CO310245(D).6</b>	2	2		1	2		1					1

#### Class: TE Subject: AIR Term: II

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO310252.1	3	2	2	2						1		1
CO310252.2	2	2	2	2		2						1
CO310252.3	2	2	2	2		2						1
CO310252.4	2	2	2	2								1
CO310252.5	2	2	2	2						2		1
CO310252.6	2	2	2	2								1

**Class: BE Subject: DS Term: I**

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO410245(A).1	2	2	1									
CO410245(A).2	3	2	1									
CO410245(A).3	2	2	3									
CO410245(A).4	2	2	2		3							
CO410245(A).5	2	2										
CO410245(A).6	2	2	2	1								

**Class BE Subject: ML Term II**

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO410250.1	3											
CO410250.2	2	3							2			
CO410250.3		1	2		2							
CO410250.4		1	2		2				2			
CO410250.5		1	2		2				2			
CO410250.6	2	1	1		1				1			

1. *Similar table is to be prepared for PSOs*

**Class SE Subject: CG Term I**

CO	PSO1	PSO2	PSO3
CO210244.1	1	2	
CO210244.2	1	1	2

<b>CO210244.3</b>	1	1	1
<b>CO210244.4</b>	1	1	2
<b>CO210244.5</b>		1	2
<b>CO210244.6</b>			2

**Class SE Subject: DSA Term II**

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>CO210252.1</b>	3	1	
<b>CO210252.2</b>	3	1	
<b>CO210252.3</b>	3	1	
<b>CO210252.4</b>	3	1	
<b>CO210252.5</b>	3	1	
<b>CO210252.6</b>	3	2	

**Class: TE Subject: CNS Term: I**

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>CO310245(D).1</b>	3	2	
<b>CO310245(D).2</b>	3	2	
<b>CO310245(D).3</b>	2		
<b>CO310245(D).4</b>	2		
<b>CO310245(D).5</b>		1	
<b>CO310245(D).6</b>		1	

**Class: TE Subject: AIR Term: II**

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>CO310252.1</b>	2	1	1
<b>CO310252.2</b>	2	2	1
<b>CO310252.3</b>	2	2	1
<b>CO310252.4</b>	2	2	1
<b>CO310252.5</b>	2	2	1
<b>CO310252.6</b>	2	2	1

**Class: BE Subject: DS Term: I**

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>CO410245(A).1</b>	2		
<b>CO410245(A).2</b>	2		1
<b>CO410245(A).3</b>	3	3	
<b>CO410245(A).4</b>	1	3	
<b>CO410245(A).5</b>	3	2	2
<b>CO410245(A).6</b>	3	3	

**Class: BE Subject: ML Term: II**

<b>CO</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>CO410250.1</b>		3	
<b>CO410250.2</b>	2	2	
<b>CO410250.3</b>		3	
<b>CO410250.4</b>	2	1	
<b>CO410250.5</b>		2	
<b>CO410250.6</b>	2	2	

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

Sr No	Course Code	Subject	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	107001	Engineering Mathematics - I	3	2	1									
2	107002	Engineering Physics - I	2	1.33	1		1							
3	102006	Engineering Graphics - I	2	2								1		
4	103004	Basic Electrical Engineering	1.67	1	1									
5	101005	Basic Civil and Environmental Engineering	1	1	1		1							
6	110003	Fundamentals of Programming Language-I	2	1	1		1							
7	111007	Workshop practise	1	1	1	1		1						
8	107008	Engineering Mathematics - II	3	2	1									
9	107009	Engineering Chemistry	2	1	1									
10	102013	Basic Mechanical Engineering	2	2										
11	101011	Engineering Mechanics	2	1										
12	104012	Basic Electronics Engg.	2	1	1		1							
13	110010	Fundamentals of Programming Language - I	2	1	1		1							
14	102014	Engineering Graphics II	1	1			1							
15	210241	Discrete Mathematics	2.67	2.33	3	2		3	2	2			1.33	1
16	210242	Digital Electronics and Logic Design	2.5	3	1.83						1			1.33
17	210243	Data Structures and Algorithms	3	2	2					1	1	2.17		
18	210244	Computer Organization and Architecture	2.33	2.33	2.67					2			1.33	1
19	210245	Object Oriented Programming - SE(I)	2	2	2.67	2.5	2.67						2	2.33
20	207003	Engineering Mathematics III	2	2.5	1	1	2							
21	210251	Computer Graphics	3	3	2.33	2	2				2			1.75
22	210252	Advanced Data Structures	2.33	3	2	2		2				1		1
23	210253	Microprocessor	1.17	1.83	2.6	1	2	1	1	1	1	1	2	1
24	210254	Principles of Programming Languages	2.14	2.44	2.21	1.7	2.17						1.78	1.42
25	310241	Theory of Computation	1.67	1.67	0.67		0.33							
26	310242	Database Management System	1		2.6		2.75	2	2	3				
32	310243	Software Engineering and Project Management	2.17	2	1.83	2.5	2.25							1
27	310244	Information Systems and Engineering Economics	1.17	1.83	2.17		1.67	0.17						0.5
28	310245	Computer Network	2	2.5	1	1	2	1	1	1	1	1	3	1
29	310250	Design and Analysis of Algorithms	2	1.5	2.33	1	1.67				1	0	0.17	0.333
31	310251	System Programming and operating system	2	1.5	1.75	1.5	2				1			1.25
30	310252	Embedded System and Internet of Things	1.6	2.1	1.78	1.42	1.8	1.24	1.33	1.81	1.28	1.15	2.18	1.01
33	310253	Software Modeling and Design	1.17	0.33	1	0.33	0.67	0.17	0.33	0.17	0.17	0.17	0.17	0.5
34	310254	Web Technology	2	1.5	2.33	1	1.67				1		0.17	0.33
35	310255	Seminar and Technical Communications	1.5	1.25	1.75	1	1	1	1	1	1	1	1	1
36	410241	High Performance Computing	2.17	2	1.5	0.67	0.5						0.17	0.17
37	410242	Artificial Intelligence and Robotics	1.75	1.5	1.5	1.5	1.33							1.5
38	410243	Data Analytics	1		2.6		2.75	2	2	3				
39	410244	Data Mining and Warehousing	1.33	1.17	1.16	1.16	1.01							1.16
40	410245(A)	Distributed System	2.17	2	1.8	1.33	3						1	1
41	410245(D)	Mobile Communication	1.33	1	0.67	0.67								
42	410250	Machine Learning(shift 2)	1.16	1.16	1.16	0	1.16				0.93			
43	410251	Information and cyber security	2	1.5	1.33	1	1.33	0.33	0.33	0	0.17	0	0.67	2
44	410252	Soft Computing and Optimization Algorithms	1.17	1.17	1.17		1.17				1.17			
45	410253	Cloud Computing	1.33	1.83	1.8	1	3							3
46	410248	Project-I	1	0.5	0.5	0.17	1	1	0.5	0.5	1	1	0.5	0.33
47	410256	Project-II	0.5	0.33	0.5	1	1	1	0.5	0.33	1	0.5	1	0.17
		Average	1.81	1.62	1.56	1.21	1.57	1.21	1.09	1.29	0.98	0.833	1.15	1.083

Sr No	Course Code	Subject	PSO1	PSO2	PSO3
1	107001	Engineering Mathematics - I	1		1
2	107002	Engineering Physics - I			
3	102006	Engineering Graphics - I			
4	103004	Basic Electrical Engineering			
5	101005	Basic Civil and Environmental Engineering			
6	110003	Fundamentals of Programming Language-I	1	1	
7	111007	Workshop practise			
8	107008	Engineering Mathematics - II	1		1
9	107009	Engineering Chemistry			
10	102013	Basic Mechanical Engineering			
11	101011	Engineering Mechanics			
12	104012	Basic Electronics Engg.			
13	110010	Fundamentals of Programming Language - I	1	1	
14	102014	Engineering Graphics II			
15	210241	Discrete Mathematics	2	2	2
16	210242	Digital Electronics and Logic Design		2	
17	210243	Data Structures and Algorithms	2	1.5	1
18	210244	Computer Organization and Architecture	1.2	2	2
19	210245	Object Oriented Programming - SE(I)	3	3	
20	207003	Engineering Mathematics III	1		
21	210251	Computer Graphics	1	1	2
22	210252	Advanced Data Structures	2	2.5	2.33
23	210253	Microprocessor	2.25	2	1
24	210254	Principles of Programming Languages	1.89	2.1	
25	310241	Theory of Computation	3	0.83	
26	310242	Database Management System	2	2	1
32	310243	Software Engineering and Project Management		2	1.67
27	310244	Information Systems and Engineering Economics	0.33	1.5	1.67
28	310245	Computer Network	2	2	1
29	310250	Design and Analysis of Algorithms	2	0.33	
31	310251	System Programming and operating system	2		1
30	310252	Embedded System and Internet of Things	1.85	1.69	1.22
33	310253	Software Modeling and Design	0.67	1.33	0.33
34	310254	Web Technology	2	0.33	
35	310255	Seminar and Technical Communications	1	1	1
36	410241	High Performance Computing	2	2	0.5
37	410242	Artificial Intelligence and Robotics	2	2	1
38	410243	Data Analytics	2	2	1
39	410244	Data Mining and Warehousing	1.53	1.51	0.75
40	410245(A)	Distributed System	2	2	1.5
41	410245(D)	Mobile Communication	3	1.17	
42	410250	Machine Learning(shift 2)	1	2.16	
43	410251	Information and cyber security	1.33	0.83	0.5
44	410252	Soft Computing and Optimization Algorithms	1	2.17	0.33
45	410253	Cloud Computing	1.25	1.83	2.17
46	410248	Project-I	0.67	1	0.33
47	410256	Project-II	0.67	1	0.33
		Average	1.59	1.6	1.14



### 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.)*

#### 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, projects, through surveys.
4. Analyze data: Once data has been collected, it is analyzed 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.

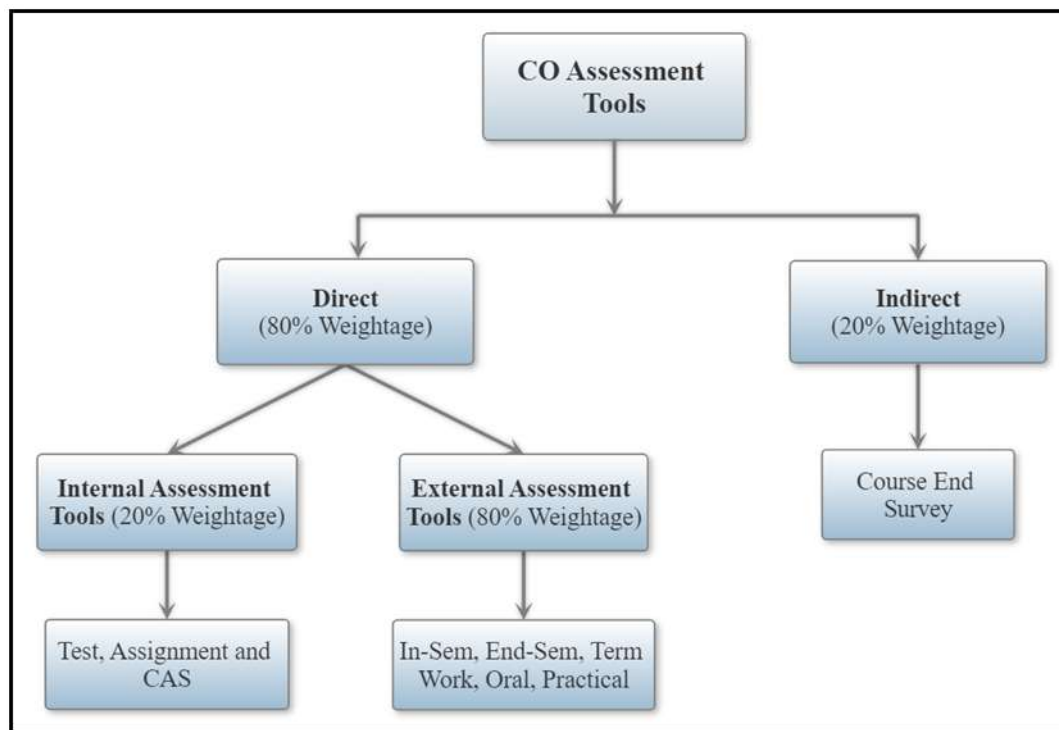
Assessing course outcomes is an iterative process that involves continuous refinement and improvement. By carefully defining course outcomes, developing appropriate assessment tools, and analysing data, course teacher ensure that their courses are effective in achieving their intended goals.

#### 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 B3.2.1a: 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 three units of the course and assesses three specific Course Outcomes (COs), while the end-semester examination covers the entire syllabus and evaluates all of the 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 may take the form of a term work, oral examination, or practical examination. This evaluation is conducted by both an external examiner and an internal examiner to ensure that the assessment is fair and objective. 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 3.2.1a 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.

<b>Sr. No.</b>	<b>Assessment Tool</b>	<b>Description</b>	<b>Evaluation of Course Outcomes</b>	<b>Related POs/PSOs</b>	<b>Frequency of</b>
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					<b>assessment per term</b>
<b>Internal Assessment Tools</b>					
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.
<b>External Assessment Tools</b>					
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	One (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	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)
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	Based on the COs mapped	Corresponding mapped POs/PSOs with the COs	One (End of the Term)

		– CAS is used			
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	External – One (End of the Term) and Internal Review – Two in Term

### 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.

The particulars of Assessment tools used for the evaluation of Course Outcomes, Program Outcome and Program Specific Outcome is given in **Table – B 3.2.1a**. 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.

Sr. No.	Assessment Tool	Description	Evaluation of Course Outcomes	Related POs/PSOs	Frequency of assessment per term
<b>Internal Assessment Tools</b>					
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	Questions in	Corresponding	Three (one

		solve to home. (Open Book)	the assignment are mapped against two CO of respective course.	mapped POs/PSOs with the COs	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.
<b>External Assessment Tools</b>					
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	One (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	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)
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	One (End of the Term)
9	Project	Based on the	Based on the	Corresponding	External –

		continues assessment during internal review and university exams, CAS and rubrics are used	COs mapped	mapped POs/PSOs with the COs	One (End of the Term) and Internal Review – Tw0 in Term
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**Table – 3.2.1a: Mapping of assessment tools to COs, POs/PSOs with frequency**

### **3.2.2 Record the attainment of Course Outcome 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)*

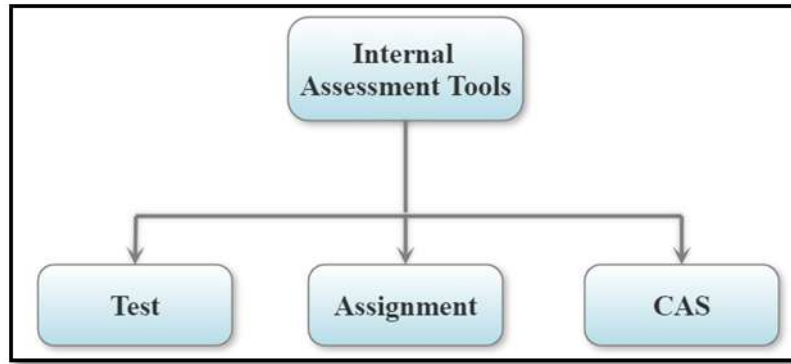
#### **Evaluation of CO Attainment by Direct Assessment Tool**

The evaluation of course outcome (CO) attainment by assessment tool involves a systematic process of collecting and analyzing data to determine the extent to which the course objectives have been met. The following steps are taken for this evaluation:

- 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.
- 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.
- Administer assessment: The assessment tools are administered in a fair and consistent manner.
- 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.
- 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

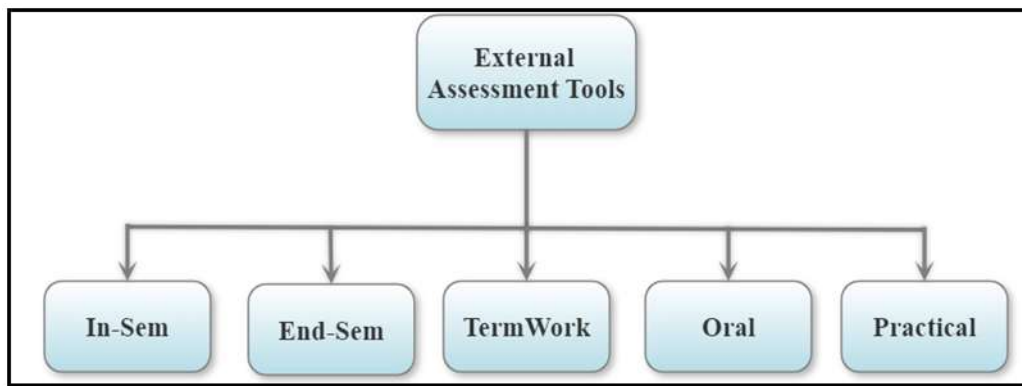
Internal assessment tools consist of Test, Assignment, Continuous Assessment Sheet for Practical (CAS) to evaluate CO attainment level.





**Figure B 3.2.2a: Internal assessment tools**

External assessment tools consist of university examination such as In-Sem Exam, End Semester Exam, Oral, Practical, Seminar and Project examinations.



**Figure B3.2.2b: 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:

$$\text{Weighted average CO attainment} = (2 * 20/90) + (1 * 30/90) + (3 * 40/90) = 2.11$$

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 ( $M_i$ ), 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  $A_i$ .

Assessment Tool	Internal				External		
	Test-1	Test-2	Assignment	CAS	In-Sem	End Sem	Term Work
COs Mapped	<i>CO.1</i>	<i>CO.2</i>	<i>CO.1 &amp; 2</i>	<i>All COs</i>	<i>CO.1 &amp; 2</i>	<i>All COs</i>	<i>All COs</i>
Maximum Marks	<i>M1</i>	<i>M2</i>	<i>M3</i>	<i>M4</i>	<i>M5</i>	<i>M6</i>	<i>M7</i>
CO Attainment Level	<i>A1</i>	<i>A2</i>	<i>A3</i>	<i>A4</i>	<i>A5</i>	<i>A6</i>	<i>A7</i>

**Table B3.2.2a: 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

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

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 = $M1 / (1 * \text{Mint1})$	WA1 = $M1 / (2 * \text{Mint1})$	WCS = $M4 / (6 * \text{Mint1})$	1
CO Attainment	A1	A3	A4	
Average CO Attainment ( <u>Aint</u> )		= WT1*A1 + WA1*A3 + WCS*A4		

**Table B3.2.2b: 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 B3.2.2c: 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 =  $0.2 \times \text{Aint} + 0.8 \times \text{Aext}$

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



### 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 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 courses are listed in table below:

Cycle - I(2016-17 to 2019-2020)							
Course Code	Course	CO1	CO2	CO3	CO4	CO5	CO6
<b>First Year(2016-17)</b>							
107001	Engineering Mathematics - I	2.02	2.02	1.37	1.37	1.31	1.31
107002	Engineering Physics - I	1.88	1.85	2.19	2.35	1.61	1.60
102006	Engineering Graphics - I	1.29	1.29	1.37	1.45	1.45	1.37
103004	Basic Electrical Engineering	1.68	1.89	1.92	1.92	1.59	1.58
101005	Basic Civil and Environmental Engineering	2.26	2.38	2.42	2.58	1.97	1.95
110003	Fundamentals of Programming Language-I	1.4	1.5	1.8	1.8		
111007	Workshop practise	2.97	2.97	2.97	2.97		
107008	Engineering Mathematics - II	1.72	1.71	1.56	1.56	1.505	1.505
107009	Engineering Chemistry	1.35	1.33	1.56	1.56	1.08	1.08
102013	Basic Mechanical Engineering	2.51	2.46	2.06	2.06	1.42	1.41
101011	Engineering Mechanics	1.785	1.615	1.79	1.785	1.89	1.865
104012	Basic Electronics Engg.	2.33	2.22	2.23	2.23	1.97	1.95
110010	Fundamentals of Programming Language - II	1.72	1.72	1.32	1.32		
102014	Engineering Graphics II	2.97	2.97	2.97	2.97	2.97	2.97
<b>Second Year(2017-18)</b>							
210241	Discrete Mathematics	1.24	1.22	1.24	1.66	1.64	1.62
210242	Digital Electronics and Logic Design	1.71	1.72	1.73	1.73	1.84	1.82
210243	Data Structures and Algorithms	1.50	1.51	1.58	1.50	1.57	1.58
210244	Computer Organization and Architecture	1.02	0.99	1.02	1.02	0.48	0.48
210245	Object Oriented Programming	1.77	1.79	1.71	1.51	1.55	1.81
207003	Engineering Mathematics III	1.95	1.95	1.77	1.44	1.37	1.28
210251	Computer Graphics	1.97	1.93	1.97	1.99	2.14	2.08
210252	Advanced Data Structures	1.53	1.50	1.55	1.51	1.57	1.52
210253	Microprocessor	1.02	1.00	1.02	1.02	1.16	1.13
210254	Principles of Programming Languages	1.33	1.35	1.41	1.33	1.33	1.33
<b>Third Year(2018-19)</b>							
310241	Theory of Computation	1.53	1.52	1.54	1.40	1.44	1.44
310242	Database Management System	1.63	1.63	1.58	1.56	1.57	1.55
310244	Information Systems and Engineering Economics	1.86	1.86	1.77	0.71	0.69	0.65
310245	Computer Network	1.76	1.72	1.75	1.77	1.77	1.75
310250	Design and Analysis of Algorithms	1.16	1.16	1.09	0.61	0.59	0.53
310252	Embedded System and Internet of Things	2.48	2.50	2.44	1.89	1.86	1.85
310252	System Programming and operating system	2.22	2.23	2.16	1.86	1.86	1.86
310253	Software Engineering and Project Management	0.774	0.774	0.88	1.306	1.274	1.326
310253	Software Modeling and Design	1.812	1.826	1.75	1.328	1.292	1.308
310254	Web Technology	2.17	2.19	2.10	1.93	1.89	1.83
310255	Seminar and Technical Communications	2.96	2.934	2.92	2.95	2.934	2.886
<b>Final Year(2019-20)</b>							
410241	High Performance Computing	2.36	2.36	2.31	1.86	1.86	1.82
410242	Artificial Intelligence and Robotics	2.55	2.36	2.29	2.13	2.29	2.17
410243	Data Analytics	2.38	2.42	2.38	2.01	2.01	2.15
410244	Data Mining and Warehousing	2.00	2.00	1.93	1.98	1.97	1.99
410245(A)	Distributed System	2.38	2.38	2.31	2.01	1.99	1.98
410245(D)	Mobile Communication	1.62	1.62	1.60	2.10	2.07	2.07
410250	Machine Learning	2.9	2.92	2.94	2.9	2.92	2.92
410251	Information and cyber security	2.44	2.45	2.46	2.93	2.96	2.93
410252	Soft Computing and Optimization Algorithms	2.92	2.91	2.92	2.92	2.90	2.92
410253	Cloud Computing	2.66	2.68	2.64	2.55	2.66	2.66
410248	Project-I	2.9	2.9	2.9	2.9	2.9	2.9
410256	Project-II	2.97	2.96	2.94	2.966	2.96	2.96
	Average	1.99	1.98	1.96	1.90	1.82	1.81

**Table B 3.2.2d: CO – Attainment for Cycle – 1 2016-17 to 2019-20**



Cycle - 2(2017-18 to 2020-21)							
Course Code	Course	CO1	CO2	CO3	CO4	CO5	CO6
<b>First Year(2017-18)</b>							
107001	Engineering Mathematics - I	1.73	1.73	1.73	1.73	1.63	1.63
107002	Engineering Physics - I	1.65	1.54	1.65	1.56	1.45	1.43
102006	Engineering Graphics - I	2.15	2.12	1.96	1.96	1.57	1.56
103004	Basic Electrical Engineering	1.55	1.53	1.73	1.73	1.40	1.37
101005	Basic Civil and Environmental Engineering	2.80	2.80	2.64	2.64	2.70	2.70
110003	Fundamentals of Programming Language-I	1.4	1.4	1.5	1.5		
111007	Workshop practise	2.89	2.89	2.89	2.89		
107008	Engineering Mathematics - II	1.23	1.23	1.23	1.23	1.2	1.2
107009	Engineering Chemistry	1.66	1.64	1.66	1.66	1.66	1.64
102013	Basic Mechanical Engineering	1.77	1.75	1.71	1.71	1.68	1.67
101011	Engineering Mechanics	1.50	1.49	1.44	1.44	1.53	1.51
104012	Basic Electronics Engg.	1.83	1.81	1.83	1.83	1.76	1.74
110010	Fundamentals of Programming Language - II	1.35	1.35	1.43	1.43		
102014	Engineering Graphics II	2.885	2.885	2.885	2.885	2.885	2.885
<b>Second Year(2018-19)</b>							
210241	Discrete Mathematics						
210242	Digital Electronics and Logic Design	1.97	1.99	1.84	1.96	1.76	1.76
210243	Data Structures and Algorithms	1.28	1.24	1.28	0.97	0.97	0.93
210244	Computer Organization and Architecture	1.27	1.285	1.155	0.715	0.53	0.535
210245	Object Oriented Programming	1.38	1.38	1.46	1.38	1.24	1.22
207003	Engineering Mathematics III	2.27	2.27	2.27	2.27	2	2
210251	Computer Graphics	1.65	1.64	1.64	1.73	1.72	1.76
210252	Advanced Data Structures	1.76	1.79	1.76	2.01	1.85	1.81
210253	Microprocessor	0.62	0.63	0.62	0.52	0.53	0.53
210254	Principles of Programming Languages	1.07	1.09	1.13	1.07	1.05	1.05
<b>Third Year(2019-20)</b>							
310241	Theory of Computation	1.11	0.90	0.76	1.15	1.19	1.05
310242	Database Management System	2.14	2.14	2.16	2.12	2.16	2.14
310244	Information Systems and Engineering Economics	1.76	1.79	1.80	1.47	0.95	0.96
310245	Computer Network	1.78	1.78	1.60	1.67	1.72	1.71
310250	Design and Analysis of Algorithms	1.70	1.73	1.86	1.88	1.87	1.86
310252	Embedded System and Internet of Things	2.83	2.84	2.92	2.88	2.70	2.75
310252	System Programming and operating system	2.71	2.64	2.54	2.45	2.60	2.60
310253	Software Engineering and Project Management	1.47	1.49	1.51	1.04	1.05	1.03
310253	Software Modeling and Design	2.33	2.395	2.145	1.58	1.61	1.59
310254	Web Technology	2.46	2.58	2.48	2.66	2.73	2.66
310255	Seminar and Technical Communications	2.9	2.88	2.9	2.28	2.9	2.9
<b>Final Year(2020-21)</b>							
410241	High Performance Computing	2.79	2.79	2.95	2.91	2.91	2.86
410242	Artificial Intelligence and Robotics	2.94	2.84	2.77	2.75	2.95	2.76
410243	Data Analytics	2.93	2.87	2.93	2.88	2.93	2.71
410244	Data Mining and Warehousing	2.92	2.83	2.89	2.86	2.90	2.84
410245(A)	Distributed System	2.56	2.57	2.56	2.58	2.96	2.57
410245(D)	Mobile Communication	2.88	2.88	2.88	2.88	2.88	2.88
410250	Machine Learning	2.92	2.91	2.91	2.9	2.9	2.91
410251	Information and cyber security	2.82	2.81	2.93	2.78	2.92	2.77
410252	Soft Computing and Optimization Algorithms	2.92	2.74	2.84	2.75	2.90	2.75
410253	Cloud Computing	2.67	2.66	2.61	2.54	2.74	2.63
410248	Project-I	2.78	2.78	2.77	2.77	2.76	2.77
410256	Project-II	2.72	2.74	2.8	2.8	2.8	2.8
	Average	2.10	2.09	2.09	2.03	2.03	1.99

**Table B 3.2.2e: CO – Attainment for Cycle – II 2017-18 to 2020-21**

Cycle - 3(2018-19 to 2021- 22)							
Course Code	Course	CO1	CO2	CO3	CO4	CO5	CO6
<b>First Year(2018-19)</b>							
107001	Engineering Mathematics - I	1.73	1.73	1.73	1.73	1.63	1.63
107002	Engineering Physics - I	1.65	1.55	1.65	1.56	1.45	1.43
102006	Engineering Graphics - I	2.15	2.12	1.97	1.97	1.57	1.56
103004	Basic Electrical Engineering	1.55	1.53	1.73	1.73	1.40	1.37
101005	Basic Civil and Environmental Engineering	2.80	2.80	2.64	2.64	2.70	2.70
110003	Fundamentals of Programming Language-I	1.4	1.4	1.5	1.5		
111007	Workshop practise	2.89	2.89	2.89	2.89		
107008	Engineering Mathematics - II	1.23	1.23	1.23	1.23	1.2	1.2
107009	Engineering Chemistry	1.67	1.65	1.67	1.67	1.66	1.64
102013	Basic Mechanical Engineering	1.99	1.96	1.91	1.91	1.81	1.79
101011	Engineering Mechanics	1.49	1.48	1.43	1.43	1.53	1.51
104012	Basic Electronics Engg.	1.83	1.81	1.83	1.83	1.76	1.74
110010	Fundamentals of Programming Language - II	1.35	1.35	1.43	1.43		
102014	Engineering Graphics II	2.91	2.91	2.91	2.91	2.91	2.91
<b>Second Year(2019-20)</b>							
210241	Discrete Mathematics	2.70	2.68	2.69	2.24	2.28	2.28
210242	Digital Electronics and Logic Design	2.37	2.27	2.44	2.34	1.77	1.83
210243	Data Structures and Algorithms	2.10	1.84	2.01	2.36	2.25	2.51
210244	Computer Organization and Architecture	2.19	2.09	2.24	1.94	1.92	1.78
210245	Object Oriented Programming	2.12	2.14	2.20	2.12	1.91	1.93
207003	Engineering Mathematics III	2.25	2.44	2.44	2.44	2.3	2.3
210251	Computer Graphics	2.68	2.64	2.61	2.64	2.62	2.72
210252	Advanced Data Structures	2.63	2.61	2.63	2.23	2.23	2.22
210253	Microprocessor	2.73	2.80	2.68	2.76	2.89	2.89
210254	Principles of Programming Languages	2.67	2.69	2.75	2.70	2.68	2.72
<b>Third Year(2020-21)</b>							
310241	Theory of Computation	2.93	2.93	2.94	2.92	2.90	2.91
310242	Database Management System	2.95	2.85	2.76	2.76	2.95	2.66
310244	Information Systems and Engineering Economics	2.86	2.83	2.84	2.90	2.86	2.89
310245	Computer Network	2.90	2.70	2.71	2.64	2.94	2.69
310250	Design and Analysis of Algorithms	2.83	2.84	2.92	2.95	2.95	2.93
310252	Embedded System and Internet of Things	2.90	2.93	2.92	2.94	2.95	2.93
310252	System Programming and operating system	2.95	2.95	2.84	2.86	2.95	2.66
310253	Software Engineering and Project Management	2.74	2.75	2.74	2.77	2.71	2.69
310253	Software Modeling and Design	2.68	2.475	2.49	2.46	2.65	2.47
310254	Web Technology	2.63	2.47	2.57	2.13	2.27	2.27
310255	Seminar and Technical Communications						
<b>Final Year(2021-22)</b>							
410241	High Performance Computing	2.80	2.79	2.87	2.75	2.80	2.76
410242	Artificial Intelligence and Robotics	2.94	2.93	2.91	2.85	2.94	2.86
410243	Data Analytics	2.95	2.89	2.95	2.90	2.95	2.73
410244	Data Mining and Warehousing	2.87	2.80	2.84	2.83	2.87	2.79
410245(A)	Distributed System	2.72	2.70	2.70	2.71	2.72	2.72
410245(D)	Mobile Communication	2.92	2.94	2.94	2.84	2.96	2.82
410250	Machine Learning	2.68	2.66	2.64	2.24	2.26	2.27
410251	Information and cyber security	2.67	2.63	2.58	2.46	2.45	2.42
410252	Soft Computing and Optimization Algorithms	2.36	2.33	2.35	2.68	2.59	2.63
410253	Cloud Computing	2.35	2.35	2.36	2.15	2.33	2.13
410248	Project-I	1.88	1.86	1.89	1.86	1.88	1.885
410256	Project-II	2.78	2.76	2.8	2.74	2.76	2.78
	Average	2.42	2.39	2.41	2.36	2.37	2.34

**Table B 3.2.2f: CO – Attainment for Cycle – 1II 2018-19 to 2021-22**

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

#### **3.3.1 Describe the assessment tools and processes used for measuring the attainment of each of the Program Outcomes and Program Specific Outcomes**

(Describe the assessment tools and processes used together 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)

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.

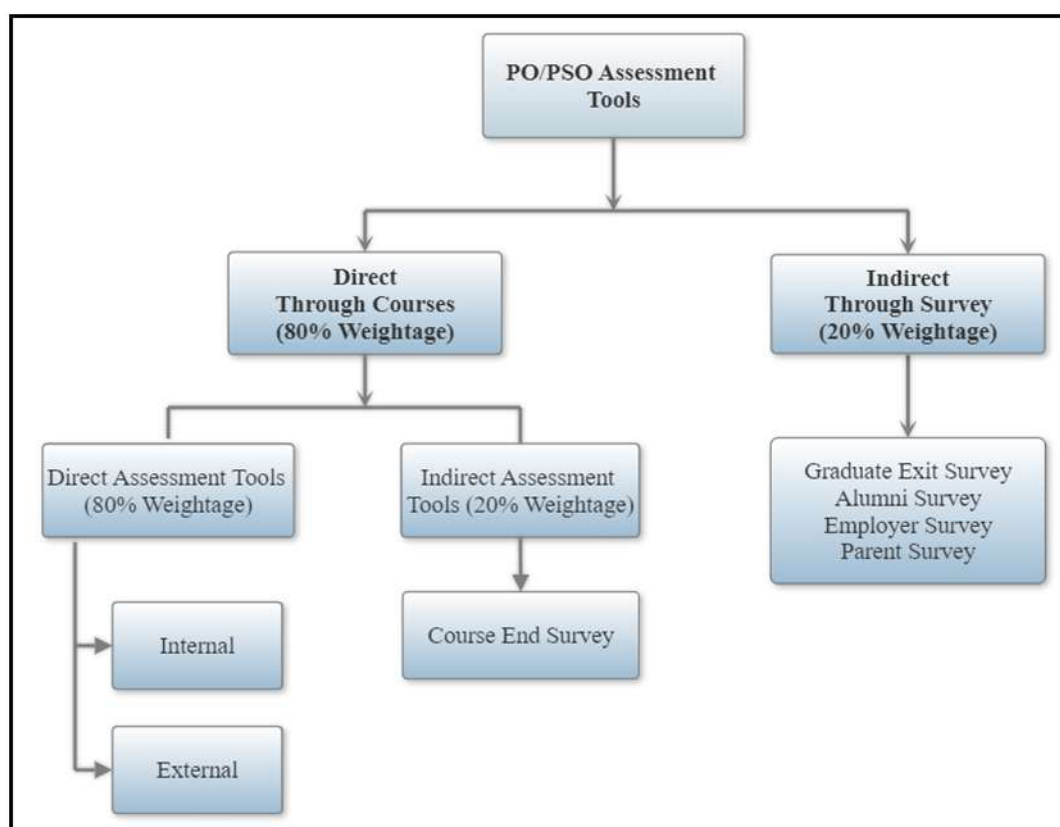
## PO and PSO Assessment tools

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, Oral, Term work, Practical, Seminar, 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 3.2.1a.



**Figure B3.3.1a: PO/PSO assessment tools**

The steps taken are

**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.

- a) **Direct Assessment:** Direct assessment of POs and PSOs is based on the attainment of COs, where COs are mapped to POs and PSOs.
- b) **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 1.

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 B3.3.1a: 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:

$$\text{PO/PSO attainment} = (\text{Level of Mapping of PO with CO} \times \text{CO attainment Level}) / 3$$

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		

**TableB3.3.1b: 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 B3.3.1c: 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

**The templates used to execute different surveys are as follows.**

**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).

#### **i. 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

Q1	Ability acquired by you to apply knowledge of Mathematics, Science and Engineering in real time from value added certifications, workshops and training programs conducted during your stay in college.
Q2	Ability acquired to apply engineering knowledge to design experiments, analyze

	and interpret data to obtain valid conclusions.
Q3	Ability to identify and design a solution for Computer Engineering problem with an appropriate consideration for the public health and safety and the cultural, societal, and environmental considerations.
Q4	Ability acquired to conveniently investigate complex problems using research-oriented knowledge and methods to provide appropriate solution through design-oriented courses and project.
Q5	Ability to use techniques, skills and modern engineering and IT tools necessary for engineering practice through internship, state of art labs..
Q6	Ability to grasp the impact of professional engineering solutions in the context of society and environment and apply it for sustainable development.
Q7	Ability to understand that you have about the available resources and ensure judicious use of them without affecting the environment for sustainable progress.
Q8	Ability to apply ethical principles and commitment to professional ethics and responsibilities acquired through courses, project, seminar and Gymkhana activities.
Q9	Ability acquired to lead team / work in team / work as an individual gained from the co-curricular and extracurricular activities.
Q10	Ability developed to communicate effectively, write precise reports, design documentation applying the engineering knowledge, speaking in a large group which you have acquired.
Q11	Ability to do interdisciplinary projects and carry them out in time and utilize fund in a meaningful way with the training provided by the department, through various activities of student chapter such as IE, Google DSC ,Codigo Madrid club.
Q12	Ability to work as a successful self-reliant engineer with the training



	provided by department, entrepreneurship development cell, Innovation cell and Audit courses etc.
Q13	Competencies acquired in design and development of software solutions through National Level Events.
Q14	Skills acquired to develop software projects
Q15	Skills acquired to analyze and evaluate performance of software system

### Relation of POs and PSOs with questionnaire

Question	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
Question	Q9	Q10	Q11	Q12	Q13	Q14	Q15	
PO/PSO	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO	

**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).

#### i. 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

Q. No.	Question
Q1	Your ability to apply knowledge and design and analyse Mechanical system or process to meet desired specifications and needs.
Q2	Benefit from value added certifications, workshops and training programmes conducted during your course.
Q3	Your ability to use techniques, skills and modern engineering tools necessary for engineering practice.
Q4	Benefit from communication skills, presentation skills and leadership qualities gained from the co-curricular and extracurricular activities.

Q5	Your ability to engage in, to resolve contemporary issues and acquire lifelong learning.
Q6	Skills attained to create, select and apply appropriate techniques, resources and modern engineering and IT tools.
Q7	Extent of Ethical, social and environmental values inculcated, helping you to relate Mechanical engineering issues with societal needs.
Q8	Ability acquires to meet the industry needs.

#### 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
PO/PSO	PO12	PO2, PO4	PO6, PO7, PO8	PSO1, PSO2, PSO3

**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).

#### i. 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

Q No.	Parameters
Q1	AISSMS COE <i>Mechanical</i> Engineering graduate exhibits an ability to apply engineering knowledge to design and develop the product.
Q2	AISSMS COE <i>Mechanical</i> Engineering graduate has the ability to communicate effectively both written and verbal communication
Q3	AISSMS COE <i>Mechanical</i> Engineering graduate is well aware of Modern Engineering Tools(PO5)
Q4	AISSMS COE <i>Mechanical</i> Engineering graduate has an understanding of ethical and social responsibility
Q5	AISSMS COE <i>Mechanical</i> Engineering graduate has desire for learning new areas, engaging in professional development, and adapting to technological changes to

	solve complex engineering problems
Q6	AISSMS COE <i>Mechanical Engineering</i> graduate has an ability to function as a member or leader in multi-disciplinary teams
Q7	AISSMS COE <i>Mechanical Engineering</i> graduate has an ability to manage multidisciplinary projects
Q8	AISSMS COE <i>Mechanical Engineering</i> graduate is able to provide solutions to societal problems for sustainable development.
Q9	AISSMS COE <i>Mechanical Engineering</i> graduate have competencies in usage of modern tools to optimally design, develop and manufacture product and/or process
Q10	AISSMS COE <i>Mechanical Engineering</i> graduate have skills to enhance employability in the automotive and thermal engineering fields.

### Relation of POs and PSOs with questionnaire

<b>Question</b>	Q1	Q2	Q3	Q4	Q5
<b>PO</b>	PO1, PO2, PO3, PO4	PO 10	PO 5	PO 8, PO6	PO 12
<b>Question</b>	Q6	Q7	Q8	Q9	Q10
<b>PSO</b>	PO 9	PO 11	PO 7	PSO 1	PSO 2

**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).

### i. 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

Q. No.	Parameter
Q1	My ward has gained Engineering knowledge through teaching learning process at the institute.
Q2	My ward will be able to pursue research and higher studies.
Q3	Co-curricular and Extra-curricular activities conducted in institute helped to develop my wards communication, leadership and team work skills.
Q4	My ward is aware of social, cultural, environmental, global, public health and safety related issues and tries to resolve them.
Q5	My ward has ability to manage activities and financial issues.
Q6	My ward follows professional ethics.
Q7	My ward is able to use modern tools and techniques.
Q8	My ward converted into a lifelong learner.
Q9	My ward has professional abilities to meet industrial needs

**Relation of POs and PSOs with questionnaire**

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

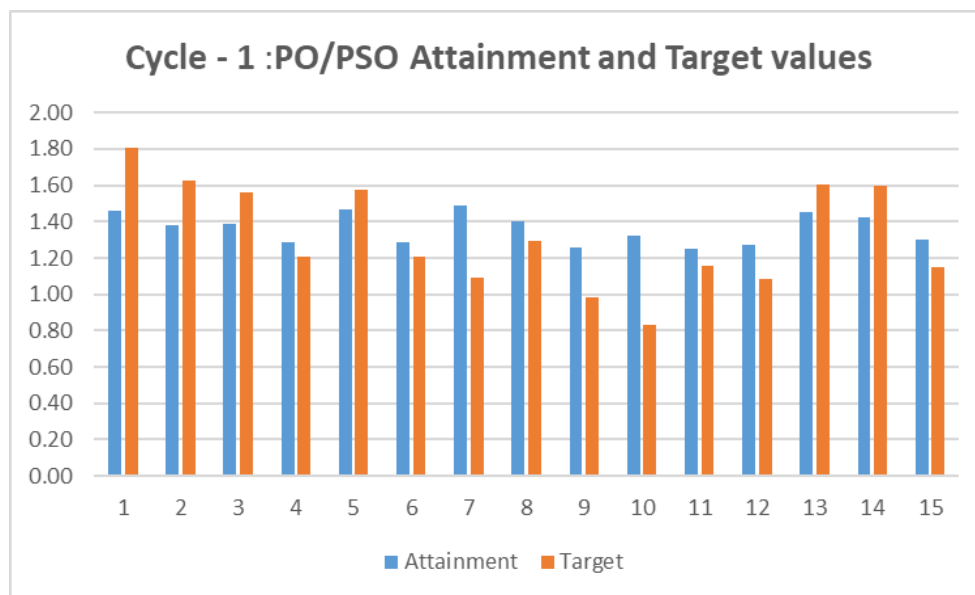
Course Code	Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
<b>First Year</b>																
107001	Engineering Mathematics - I	1.565	1.045	0.52										0.85		
107002	Engineering Physics - I	1.28	0.88	0.64		0.73										
102006	Engineering Graphics - I	0.915	0.925								0.46					
103004	Basic Electrical Engineering	0.995	0.6	0.58												
101005	Basic Civil and Environmental Engineering	0.75	0.73	0.66		0.8										
110003	Fundamentals of Programming Language-I	1.075	0.565	0.57		0.5								0.43	0.43	
111007	Workshop practise	0.99	0.99	0.99	0.99		0.99									
107008	Engineering Mathematics - II	1.595	1.065	0.53										0.7		
107009	Engineering Chemistry	0.89	0.49	0.45												
102013	Basic Mechanical Engineering	1.33	0.95													
101011	Engineering Mechanics	1.19	0.60													
104012	Basic Electronics Engg.	1.435	0.73	0.7		0.7										
110010	Fundamentals of Programming Language - II	1.01	0.505	0.51		0.5								0.88	0.88	
102014	Engineering Graphics II	0.99	0.99			1										
<b>Second Year</b>																
210241	Discrete Mathematics	1.28	1.18	1.50	1.03		1.24	1.08	0.96			0.64	0.54	0.96	0.96	0.95
210242	Digital Electronics and Logic Design	1.49	1.78	1.09						0.59			0.78		1.18	
210243	Data Structures and Algorithms	1.54	1.02	1.03					0.51	0.51	1.11			1.01	0.76	0.50
210244	Computer Organization and Architecture	0.64	0.50	0.72					0.50			0.33	0.16	0.33	0.68	0.50
210245	Object Oriented Programming	1.05	1.13	1.50	1.41	1.50						1.11	1.31	1.69	1.69	
207003	Engineering Mathematics III	0.89	1.05	0.59	0.59	1.21						0.33				
210251	Computer Graphics	1.98	1.96	1.57	1.40	1.42				1.39			1.14	0.65	0.66	1.41
210252	Advanced Data Structures	1.18	1.53	1.02	1.02		1.02				0.51		0.51	1.01	1.28	1.19
210253	Microprocessor	0.41	0.64	0.92	0.34	0.71	0.34	0.34	0.34	0.36	0.34	0.74	0.35	0.81	0.68	0.35
210254	Principles of Programming Languages	0.90	0.90	1.20	1.12	1.20						0.90	1.05	1.35	1.35	
<b>Third Year</b>																
310241	Theory of Computation	0.99	0.99	0.96		0.96								1.48	0.50	
310242	Database Management System	0.53		1.37		1.47	1.07	1.06	1.56					1.06	1.06	0.53
310244	Information Systems and Engineering Economics	0.52	0.86	1.20		0.76	0.59						0.48	0.42	0.73	0.76
310245	Computer Network	1.16	1.45	0.58	0.58	1.16	0.59	0.59	0.58	0.58	0.59	1.77	0.59	1.15	1.17	0.59
310250	Design and Analysis of Algorithms	0.57	0.48	0.72	0.50	0.53				0.28		0.39	0.39	0.57	0.77	
310252	Embedded System and Internet of Things	1.65	1.64	1.23	0.69	0.91	0.90		1.26		0.83	0.83		1.44	1.44	
310252	System Programming and operating system	1.48	1.11	1.17	1.03	1.44				0.74			0.86	1.35		0.68
310253	Software Engineering and Project Management	0.75	0.70	0.66	0.92	0.90							0.36		0.70	
310253	Software Modeling and Design	0.97	0.61	0.86	0.52	0.75	0.44	1.22	0.43	0.44	0.43	0.44	0.90	1.05	1.04	0.52
310254	Web Technology	1.35	1.04	1.84	1.32	1.32				0.67		0.72	0.73	1.35	1.45	
310255	Communications	1.47	1.23	1.72	0.98	1.95	0.97	0.97	1.95	0.96	1.95	0.96	1.95	0.98	0.98	0.97
<b>Final Year</b>																
410241	High Performance Computing	1.53	1.40	1.27	0.88	1.86						0.79	0.61	1.40	1.40	1.10
410242	Artificial Intelligence and Robotics	1.37	1.21	1.19	1.20	1.08							1.23	1.56	1.55	0.75
410243	Data Analytics	0.74		1.95		2.13	1.48	1.51	2.01					1.49	1.49	0.72
410244	Data Mining and Warehousing	1.16	1.00	0.99	1.00	0.89							0.99	1.33	1.32	0.66
410245(A)	Distributed System	1.58	1.45	1.31	0.93	2.01						0.79	0.66	1.45	1.45	1.13
410245(D)	Mobile Communication	0.95	0.93	0.82	0.65									1.85	0.73	
410250	Machine Learning(shift 2)	2.26	1.36	1.70		1.70				1.62				1.94	2.11	
410251	Information and cyber security	1.80	1.60	1.44	1.75	1.88	1.97	1.97		0.98		1.96	1.80	1.72	1.58	1.47
410252	Soft Computing and Optimization Algorithms	2.27	1.36	1.70		1.70				1.70				1.95	2.11	0.97
410253	Cloud Computing	1.17	1.61	1.58	0.89	2.55		2.11					2.64	1.09	1.61	1.91
410248	Project-I	1.61	1.93	1.93	1.16	0.97	0.97	1.29	1.61	1.45	1.93	1.35	1.35	0.97	0.97	1.93
410256	Project-II	1.64	1.97	1.97	1.18	0.99	0.98	1.31	1.65	1.48	1.97	1.38	1.38	0.99	0.99	1.97
	Average	1.21	1.08	1.10	0.96	1.22	0.97	1.22	1.11	0.92	1.01	0.91	0.95	1.15	1.14	0.98

**Table B3.3.1d: PO/PSO Attainment for 2016-17 to 2019-20 Batch (Cycle – 1)**

## Overall PO/PSO Attainment for 2016 to 2020 Batch

PO/PSO Attainment: Cycle - 1															
PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
<b>Direct</b>	1.21	1.08	1.10	0.96	1.22	0.97	1.22	1.11	0.92	1.01	0.91	0.95	1.15	1.14	0.98
<b>Total Indirect</b>	2.51	2.59	2.57	2.56	2.59	2.57	2.56	2.56	2.61	2.56	2.47	2.57	2.60	2.54	2.57
<b>Attainment</b>	1.46	1.38	1.39	1.28	1.47	1.29	1.49	1.40	1.26	1.32	1.25	1.27	1.45	1.42	1.30
<b>Target</b>	1.81	1.62	1.56	1.21	1.57	1.21	1.09	1.29	0.98	0.83	1.15	1.08	1.61	1.60	1.15
<b>Gap</b>	-0.01	-0.08	-0.14	-0.32	-0.21	-0.32	-0.62	-0.37	-0.47	-0.66	-0.33	-0.41	-0.16	-0.14	-0.38

**Table B3.3.1e: PO/PSO Attainment**



**Figure B3.3.1b: PO/PSO Attainment and Target Values**

Course Code	Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
<b>First Year</b>																
107001	Engineering Mathematics - I	1.69	1.13	0.56										1		1
107002	Engineering Physics - I	1.03	0.69	0.52		0.55										
102006	Engineering Graphics - I	1.26	1.22								0.63					
103004	Basic Electrical Engineering	0.88	0.51	0.52												
101005	Basic Civil and Environmental Engineering	0.90	0.89	0.90		0.88										
110003	Fundamentals of Programming Language-I	0.99	0.50	0.50		0.49										
111007	Workshop practise	0.97	0.97	0.97	0.97											
107008	Engineering Mathematics - II	1.22	0.82	0.4												
107009	Engineering Chemistry	1.10	0.55	0.55												
102013	Basic Mechanical Engineering	1.26	1.20													
101011	Engineering Mechanics	0.99	0.49													
104012	Basic Electronics Engg.	1.20	0.60	0.60												
110010	Fundamentals of Programming Language - II	0.93	0.46	0.46	0.5											
102014	Engineering Graphics II	0.96	0.96			0.96										
<b>Second Year</b>																
210241	Discrete Mathematics															
210242	Digital Electronics and Logic Design	1.55	1.88	1.14						0.63			0.85		1.25	
210243	Data Structures and Algorithms	1.11	0.77	0.75					0.39	0.39	0.79			0.80	0.64	0.32
210244	Computer Organization and Architecture	0.71	0.56	0.71					0.57			0.40	0.18	0.41	0.85	0.49
210245	Object Oriented Programming	1.17	1.07	1.40	1.09	0.95	1.63	1.04	1.07			0.80	0.78	1.16	1.12	0.53
207003	Engineering Mathematics III	1.66	1.33	1.01	1.66	1.64	1.62							1.00		
210251	Computer Graphics	1.38	1.83	1.22	1.19		1.19				0.61		0.61	1.21	1.49	1.41
210252	Advanced Data Structures	1.38	1.83	1.22	1.19		1.19				0.61		0.61	1.21	1.49	1.41
210253	Microprocessor	0.45	0.43	0.49					0.38			0.26	0.18	0.24	0.41	0.37
210254	Principles of Programming Languages	0.72	0.72	0.87	0.84	0.87						0.60	0.77	0.72	0.72	0.40
<b>Third Year</b>																
310241	Theory of Computation	0.67	0.67	0.75		0.70								1.01	0.34	
310242	Database Management System	1.90	1.19	1.06	1.25	1.43				1.43				1.42	1.29	
310244	Information Systems and Engineering Economics	0.58	0.94	1.32		0.89	0.63						0.53	0.47	0.79	0.84
310245	Computer Network	1.20	1.60	0.94	1.17	1.31	0.83	0.83	0.81	0.53	1.21	0.89	1.14		0.85	0.55
310250	Design and Analysis of Algorithms	1.18	1.20	0.96	0.61	0.72	0.82		1.25		0.58	0.58		1.21	1.21	0.63
310252	Embedded System and Internet of Things	1.91	1.92	1.51	0.92	1.13	1.26		1.92		0.95	0.95	0.92	1.88	1.88	0.91
310252	System Programming and operating system	1.54	1.56	1.23	0.76	0.92							0.92	1.55		0.77
310253	Software Engineering and Project Management	0.85	0.67	0.63		0.72		0.45		0.47		0.44	0.68	0.51	0.82	0.59
310253	Software Modeling and Design	0.87	1.09	0.93	0.98	0.64	0.92	0.95	0.86	0.76	1.30	0.86	1.30	0.79	0.80	0.58
310254	Web Technology	1.73	1.29	2.43	1.77	1.73				0.87		0.82	0.84	1.73	1.64	1.14
310255	Seminar and Technical Communications	1.44	1.20	1.68	0.96	0.97	0.97	0.97	0.97	0.97	0.95	0.97	0.97	0.97	0.96	0.96
<b>Final Year</b>																
410241	High Performance Computing	1.60	1.55		0.97								0.96	0.97	0.96	1.68
410242	Artificial Intelligence and Robotics	1.65	1.44	1.43	1.44	1.30							1.44	1.90	1.92	0.93
410243	Data Analytics	1.04	1.79	2.49	0.99	2.28	1.44	1.42	1.90	0.97	0.99	1.93	0.97	2.04	1.93	0.97
410244	Data Mining and Warehousing	2.30	1.88	2.21	1.50	1.64						1.29	1.24	1.97	1.97	1.47
410245(A)	Distributed System	1.90	1.76	1.54	1.23	2.58						1.29	0.86	1.76	1.76	1.29
410245(D)	Mobile Communication	1.54	1.44	1.28	0.96									2.88	1.12	
410250	Machine Learning	2.13	2.16	1.72	0.98	1.72				1.72			0.98	1.96	2.13	
410251	Information and cyber security	2.88	2.88	1.76	2.57	2.42				0.96			1.92		1.92	0.95
410252	Soft Computing and Optimization Algorithms	1.94	1.38	1.55	1.44	1.47				1.63			1.46	1.87	1.99	0.94
410253	Cloud Computing	1.67	1.81	1.70	1.11	2.78		2.09				1.00	1.82	1.54	1.81	1.71
410248	Project-I	2.78	2.77	2.16	2.76	2.76	1.85	1.84	2.08	2.77	2.46	1.85	2.30	2.08	2.77	2.31
410256	Project-II	2.77	2.78	2.18	1.87	1.87	1.81	1.81	2.31	1.84	2.80	2.33	2.08	2.14	2.16	2.18
	Average	1.38	1.27	1.18	1.25	1.37	1.24	1.27	1.21	1.14	1.15	1.01	1.05	1.34	1.36	1.01

**Table B3.3.1f: PO/PSO Attainment for 2017-18 to 2020-21 Batch (Cycle – 2)**

## Overall PO/PSO Attainment for 2017 to 2021 Batch

PO/PSO Attainment: Cycle - 2															
PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Direct	1.38	1.27	1.18	1.25	1.37	1.24	1.27	1.21	1.14	1.15	1.01	1.05	1.36	1.36	1.01
Indirect	2.58	2.65	2.64	2.60	2.58	2.56	2.55	2.53	2.60	2.55	2.48	2.56	2.59	2.51	2.58
Attainment	1.62	1.54	1.47	1.52	1.61	1.51	1.52	1.47	1.43	1.43	1.31	1.35	1.60	1.59	1.32
Target	1.45	1.30	1.25	0.97	1.26	0.97	0.87	1.03	0.79	0.67	0.92	0.87	1.29	1.28	0.92
Gap	-0.17	-0.24	-0.22	-0.55	-0.35	-0.54	-0.65	-0.44	-0.64	-0.77	-0.38	-0.48	-0.32	-0.31	-0.40

Table B3.3.1g: PO/PSO Attainment

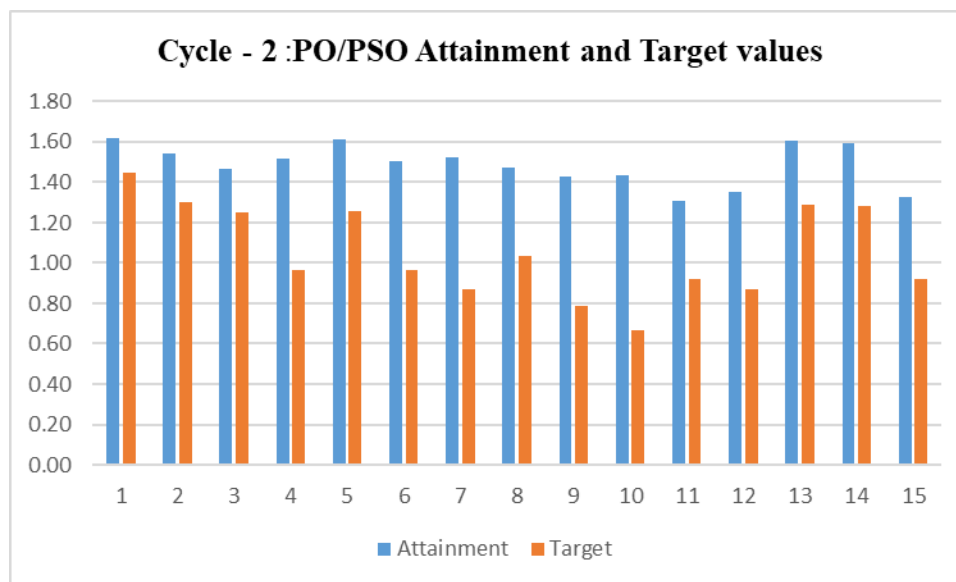


Figure B3.3.1c: PO/PSO Attainment and Target Values



	Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
<b>First Year</b>																
107001	Engineering Mathematics - I	1.70	1.13	0.57												
107002	Engineering Physics - I	1.03	0.70	0.52		0.55										
102006	Engineering Graphics - I	1.26	1.23								0.63					
103004	Basic Electrical Engineering	0.88	0.52	0.52												
101005	Basic Civil and Environmental Engineering	0.91	0.89	0.90		0.88										
110003	Fundamentals of Programming Language-I	0.99	0.50	0.50		0.50										
111007	Workshop practise	0.58	0.58	0.58	0.58		0.58									
107008	Engineering Mathematics - II	1.22	0.815	0.41												
107009	Engineering Chemistry	1.11	0.56	0.55												
102013	Basic Mechanical Engineering	1.26	1.20													
101011	Engineering Mechanics	0.99	0.49													
104012	Basic Electronics Engg.	1.20	0.61	0.60		0.61										
110010	Fundamentals of Programming Language - II	0.93	0.46	0.46		0.47										
102014	Engineering Graphics II	0.96	0.96			0.96										
<b>Second Year</b>																
210241	Discrete Mathematics															
210242	Digital Electronics and Logic Design	1.55	1.88	1.14						0.63			0.85		1.25	
210243	Data Structures and Algorithms	1.11	0.77	0.75					0.39	0.39	0.79			0.80	0.64	0.32
210244	Computer Organization and Architecture	0.71	0.56	0.71					0.57			0.40	0.18	0.41	0.85	0.49
210245	Object Oriented Programming	1.57	1.45	1.82	1.50	1.31	2.28	1.09	1.34			1.14	1.07	1.64	1.58	0.66
207003	Engineering Mathematics III	1.66	1.33	1.01	1.66	1.64	1.62							1.00		
210251	Computer Graphics	1.38	1.83	1.22	1.19		1.19				0.61		0.61	1.21	1.49	1.41
210252	Advanced Data Structures	1.38	1.83	1.22	1.19		1.19				0.61		0.61	1.21	1.49	1.41
210253	Microprocessor	0.45	0.43	0.49					0.38			0.26	0.18	0.24	0.41	0.37
210254	Principles of Programming Languages	0.72	0.72	0.87	0.84	0.87						0.60	0.77	0.72	0.72	0.40
<b>Third Year</b>																
310241	Theory of Computation	1.71	1.55	1.39		1.30								1.95	1.95	
310242	Database Management System	2.36	1.90	1.78	1.42	2.12				1.39				1.86	1.18	
310244	Information Systems and Engineering Economic	1.12	1.75	2.48		1.91	0.95						0.96	1.59	1.68	1.26
310245	Computer Network	2.03	2.04	1.52	1.92	1.78	1.15	1.15	1.20	0.99	1.74	1.34	1.84		1.38	1.14
310250	Design and Analysis of Algorithms	1.91	1.92	1.54	0.97	1.16	1.30		1.97		0.95	0.95		1.94	1.94	0.98
310252	Embedded System and Internet of Things	1.94	1.46	1.27	0.98	1.08	1.14		1.47		0.97	0.97	0.98	1.47	1.47	0.92
310252	System Programming and operating system	1.97	1.48	1.65	1.42	1.89				0.99			1.21	1.91		0.93
310253	Software Engineering and Project Management	1.82	1.37	1.51		1.60				0.92			1.52	0.92		1.21
310253	Software Modeling and Design	1.12	1.42	1.25	1.24	1.00	1.13	1.12	1.14	1.26	1.69	1.28	1.69	1.27	0.83	1.42
310254	Web Technology	1.60	1.22	2.20	1.56	1.58				0.80		0.88	0.85	1.60	1.76	1.08
310255	Seminar and Technical Communications															
<b>Final Year</b>																
410241	High Performance Computing	1.55	1.50		0.93								0.93	0.93	0.93	1.62
410242	Artificial Intelligence and Robotics	1.30	2.10	2.10	1.30	1.95	0.97	0.97	2.91	0.97	1.94			2.26	2.26	0.95
410243	Data Analytics	1.13	1.77	2.50	0.99	1.91	0.99	0.99	0.98	0.96	0.98	1.91	0.96	2.17	1.97	0.97
410244	Data Mining and Warehousing	1.89	1.41	1.42	1.43	1.27							1.43	1.90	1.89	0.94
410245(A)	Distributed System	1.96	1.81	1.63	1.21	2.71						1.36	0.91	1.81	1.81	1.35
410245(D)	Mobile Communication	2.10	1.76	0.97									2.16	1.22		2.40
410250	Machine Learning	1.79	1.79	1.39	0.76	1.39				1.38			0.75	1.60	1.82	
410251	Information and cyber security	2.43	2.27	1.89	1.58	1.48			1.57	0.90		1.53	2.05	0.78	1.30	1.25
410252	Soft Computing and Optimization Algorithms	1.89	1.15	1.49		1.49				1.49				1.70	1.77	0.83
410253	Cloud Computing	1.65	1.52	1.36	1.02	2.15						0.79	0.71	1.52	1.52	1.14
410248	Project-I	1.88	1.87	1.47	1.72	1.72	1.26	1.26	1.44	1.72	1.72	1.33	1.53	1.42	1.77	1.54
410256	Project-II	1.44	1.76	2.31	1.20	1.29		1.92	0.97	1.92	0.95	0.96	0.96	1.92	2.09	1.93
	Average	1.42	1.29	1.25	1.24	1.40	1.21	1.21	1.25	1.11	1.13	1.04	1.07	1.41	1.47	1.11

**Table B3.3.1h: PO/PSO Attainment for 2018-19 to 2021-22 Batch (Cycle – 3)**

## Overall PO/PSO Attainment for 2018 to 2022 Batch

PO/PSO Attainment: Cycle - 3															
PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
<b>Direct</b>	1.42	1.29	1.25	1.24	1.40	1.21	1.21	1.25	1.11	1.13	1.04	1.07	1.41	1.47	1.11
<b>Indirect</b>	2.53	2.60	2.60	2.56	2.61	2.58	2.60	2.56	2.63	2.56	2.50	2.61	2.61	2.55	2.57
<b>Attainment</b>	1.61	1.53	1.46	1.51	1.61	1.51	1.53	1.48	1.44	1.43	1.31	1.36	1.61	1.60	1.32
<b>Target</b>	1.45	1.30	1.25	0.97	1.26	0.97	0.87	1.03	0.79	0.67	0.92	0.87	1.29	1.28	0.92
<b>Gap</b>	-0.16	-0.23	-0.21	-0.54	-0.36	-0.54	-0.66	-0.44	-0.65	-0.77	-0.39	-0.49	-0.32	-0.32	-0.40

Table B3.3.1i: PO/PSO Attainment

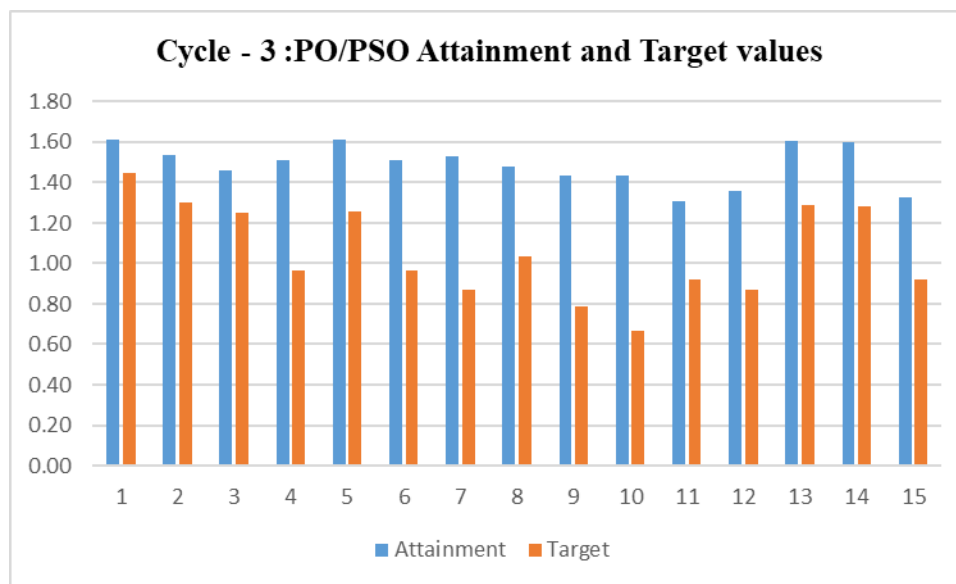


Figure B3.3.1d: PO/PSO Attainment and Target Values

<b>4</b>	<b>STUDENTS' PERFORMANCE (150)</b>	<b>(150)</b>
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#### 4.1 Enrolment Ratio (20)

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2021-22 (CAY)	2020-21 (CAY m1)	2019-20 (CAY m2)	2018-19 (CAY m3)	2017-18 (CAY m4)	2016-17 (CAY m5)	2015-16 (CAY m6)
Sanctioned intake of the program(N)	<b>120</b>	120	120	120	120	120	120
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 (N1)	<b>137</b>	142	140	121	122	124	123
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	<b>17</b>	16	18	16	26	28	26
Separate division students, If applicable (N3)	-	-	-	-	-	-	-
Total number of students admitted in the programme(N1 + N2 + N3)	<b>154</b>	158	158	137	149	152	149
Enrolment Ratio= N1/N in (%)	<b>114%</b>	118%	116%	103%	103%	103%	103%

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)

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

*Average SI = Mean of Success Index (SI) for past three batches Success rate*

*without backlogs in any year of study =  $25 \times \text{Average SI}$*

Year of entry	Total No of students admitted in the program (N1 + N2 + N3)	Number of students who have successfully graduated without backlogs in any semester/ year of study (Wi Backlog means no compartment or failures in any semester/ year of study)			
		I year	II year	III year	IV year
2021-22 (CAY)	137				
2020-21 (CAYm1)	158	14 2			
2019-20 (CAYm2)	158	90	108		
2018-19 (CAYm3)	137	72	88	88	<b>88</b>
2017-18 (LYG)	149	61	80	77	77
2016-17 (LYGm1)	152	63	76	72	72
2015-16 (LYGm2)	149	42	49	45	45

**Table B.4.2**

Item	Latest Year of Graduation, LYG (2017-18)	Latest Year of Graduation minus 1, LYGm1 (2016-17)	Latest Year of Graduation minus 2 LYGm2 (2015-16)
X Number of students admitted in the corresponding First year + admitted in 2nd year via lateral entry and separated division, if applicable	149.00	152.00	149.00
Y Number of students who have graduated without backlogs in the stipulated period	77.00	72.00	45.00
Success Index [ $SI = Y / X$ ]	0.52	0.47	0.30
	<b>Success Rate: Avg. SI *25 = 0.43*25 = 10.77</b>		

**Table B.4.3**

### 4.2.2 Success rate with backlog in stipulated period of study (15)

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 Success rate =  $15 \times \text{Average SI}$

Year of entry	Total No of students admitted in the program (N1 + N2 + N3)	Number of students who have successfully graduated in stipulated period of study) [Total of Backlog + without Backlog]			
		I year	II year	III year	IV year
2021-22 (CAY)	137				
2020-21 (CAYm1)	158	142			
2019-20 (CAYm2)	158	131	149		
2018-19 (CAYm3)	137	107	119	118	117
2017-18 (LYG)	148	114	132	131	120
2016-17 (LYGm1)	152	103	112	112	109
2015-16 (LYGm2)	149	108	137	133	133

**Table B.4.4**

Item	Latest Year of Graduation, LYG (2017-18)	Latest Year of Graduation minus 1, LYGm1 (2016-17)	Latest Year of Graduation minus 2, LYGm2 (2015-16)
X Number of students admitted in the corresponding First year + admitted in 2nd year via lateral entry and seperated division, if applicable	149.00	152.00	149.00
Y Number of students who have graduated in the stipulated period	120.00	114.00	133.00
Success Index [ SI = Y / X ]	0.81	0.75	0.89

**Table B.4.5**

Average SI = [ (SI1 + SI2 + SI3) / 3]: 0.82

Assessment = [15 \* Average SI]: 12.25

### 4.3. Academic Performance in Third Year (15)

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

**API** = ((Mean of 3<sup>rd</sup>. 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.*

Academic Performance	CAYm3 (2018-19)	LYG (2017-18)	LYGm1 (2016-17)
Mean of CGPA or mean percentage of all successful students(X)	9.94	7.21	7.64
Total number of successful students(Y)	123.00	120.00	114.00
Total number of students appeared in the examination(Z)	123.00	120.00	114.00
API [ X*(Y/Z) ]:	9.94	7.21	7.64

**Table B.4.6**

Average AP I= [ (AP1 + AP2 + AP3)/3]: 8.26

Assessment = 1.5\*8.26 = 12.39

### 4.4 Academic Performance in Second Year (15)

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

**API** = ((Mean of 2<sup>nd</sup> 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.

Academic Performance	CAYm2 (2019-20)	CAYm3 (2018-19)	LYG (2017-18)
Mean of CGPA or mean percentage of all successful students(X)	7.58	8.80	7.70
Total number of successful students (Y)	114	123.00	134
Total number of students appeared in the examination (Z)	114	123.00	148
API [ X * (Y/Z) ]	7.58	8.80	6.97

**Table B.4.7**

Average API [ (AP1 + AP2 + AP3)/3]: 7.78

Assessment [ 1.5 \* Average API]: 11.67

#### 4.5 Placement, Higher Studies and Entrepreneurship (40)

Assessment Points =  $40 \times \text{average placement}$

Item	CAY 2021-22	LYG (2017-18) CAYm1 2020- 21	LYGm1 (2016- 17) CAYm1 2019- 20	LYGm2 (2015-16) CAYm1 2018-19
Total No of Final Year Students(N)	123	120	114	133
No of students placed in the companies or government sector(X)	111	114	108	127
No of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level tests, GRE, GMAT etc.) (Y)	02	04	06	03
No of students turned entrepreneur in engineering/technology (Z)	0	02	00	03
$x + y + z =$	113	120	114	133
Placement Index $[(X+Y+Z)/N] :$	0.92	1	1	1

**Table B.4.8**

Average Placement  $[(P1 + P2 + P3+P4)/4]: 0.98$

Assessment  $[40 * \text{Average Placement}]: 39.2$

#### 4.6 Professional Activities (20)

##### 4. 6.1. Professional societies/chapters and organizing engineering events (5)

Our department runs The Institution of Engineers (India) [IEI] student chapter, Indo Universal Collaboration for Engineering Education (IUCEE) and Indian Society for Technical Education (ISTE). These are the largest multi-disciplinary professional bodies of engineers. The Charters endowed the institution with the responsibility to promote the general advancement of engineering amongst its members and persons attached to the Institution.

The aim of chapters of our Computer Engineering department is to develop 'Strategy' and 'Implementation Plan' to deal with technology transition management in the country for rapid absorption, adaptation and assimilation of technologies.

##### Objectives

- To facilitate the exchange of information and ideas, amongst the members and the persons attached to the Institution
- To inculcating and promoting the technical instinct among the students and as a platform for the technical proceedings
- To get the students more acquainted with the existing technology and to make familiar with the state-of-art technology.
- To promote the general advancement of engineering their applications.

##### Outcomes

AISSMS COE Computer Department Student Chapters provides students with the opportunity to:

- Implement the technical knowledge which they get from guest lecture, workshops and project exhibitions.
- Enhance their thinking ability and build a leadership quality to pursuit their career growth.

### Professional societies/chapters

Sr. No.	Professional societies/chapters	Faculty Coordinators	Student Coordinators	Student Members	Faculty Members
1	Institution of Engineers (India) (IEI)	<u>A.A.Gupta</u>	<u>Akshay Baser</u> <u>Ishwari</u> <u>Chankeshwara</u> <u>Nikita Jakhete</u>	120	02
2	Indo Universal Collaboration for Engineering Education (IUCEE)	<u>M M Swami</u>	<u>Siddhant Patil</u> <u>Athrva Jamdar</u>	94	05
3	Indian Society for Technical Education (ISTE)	Mr. N. R. Talhar	Mr. Sanket Shinde Ms. Sameedha More	141	18

### Indian Society for Technical Education (ISTE) Activities

2021-22

Sr. No.	Name of the Activity	Date of Activity	No. of Participants
1	International Youth Day	12 Aug 2021	117
2	International Sign Language Day	23 Sept 2021	96
3	Navratnas of Time Management	31 Oct 2021	120
4	Navy Day Kahoot Quiz	04 Dec 2021	112
5	Indian Army Day	15 Jan 2022	88

### Institution of Engineers (India) (IE(I)) Activities

2020-21

Sr. No.	Name of the Activity	Date of Activity	No. of Participants
1	Emerging Technology in Engineering(Mr. Rajendra Prasad, Miss. Sayali Bhandare, Directors Qualitas Techno Sol. Pvt. Ltd. Chennai)	3rd sep20	112 SE ,TE
2	Renewable Energyconservation	28th DEC 2020	136
3	Software Testing	14 Sepetmber,2020	110
4	Future of Design	24 Aug 2020	140
5	Information Security – Test Data management forstudents	23 May,2020	150



6	Digital Marketing and Amazon Opportunities	13 October,2020	120
7	Intellectual PropertyRights	5th June2021	135
8	Front End Development	21st May 2021	150
9	Webinar on Career Opportunities in IT and Application of Data Mining	10 June 2020	155
10	Webinar on Digital Marketing and AmazonOpportunities	13 Oct. 2020	176
11	Seminar on MicrosoftTeam Security	1 Day	21
12	Ethics and Managementin Industry	9th may21	101
13	Workshop on SpringMicroservices	1 Day	141
14	Webinar	26/04/21	143
15	Virtual Industrial Visit	23/02/21	193

**2019-20**

Sr. No.	Name of Activities/Events	Date/ Duration	Participant Numbers
1	Seminar on Python for Data science	04/07/2019	67
2	Seminar on Test Preparation for Higher Education	05-07-2019	52
3	Expert Lecture on Theory of Computation	09-09-2019	47
4	Expert Lecture on SCADA Technology	31-07-2019	45
5	Expert Lecture: Knowledge sharing about SCADA and automation.	31st July, 2019 at 10:30 am to 11.30 am.	57
6	Seminar on “Knowledge based Internship”	07-08-2019	67
7	Expert Lecture on Python Programming	30-08-2019	52
8	Hide n C'K	18-09-2019	46
9	Code Blooded	18-09-2019	54
10	Internet Hunters	18,19-09-2019	20 Groups
11	Mini Hackathon	18,19-09- 2019	20 Groups
12	Science Exhibition	20-09-2019	18 teams
13	Debate Competition Phase I	09-09-2019	SE,TE
14	Debate Competition Phase I	10-09-2019	BE
15	Debate Competition Phase II	11-09-2019	SE,TE,BE
16	Live Demonstration on Penetration Testing	16-08-2019	TE
17	Expert Lecture on Parallel Computing	09-10-2019	50
19	Demonstration Lecture on Debugging Tools	20-12-2019	42
20	Seminar on Internet of Things	07-01-2020	70
21	Motivational Lecture on Positive Thinking	03-01-2020	54

22	Industrial Visit to GMRT	24-01-2020	65
23	Seminar on Block Chain Technology	04-02-2020	50
24	Alumni Interaction with “Akhilesh Mishra” on Topic “Challenges in this Pandemic Situation”	28 -04-2020	BE
25	Expert Lecture on “Career in Cyber Security” by Alumni Paras Shah	08-05-2020	40
26	Alumni Interaction with Mr. Pushpak Kathkhede on the topic “Campus Interview and Aptitude Test Preparation”	12-05-2020	45
27	National Level Webinar on “Data Science with Machine Learning”	26-05-2020	210 Faculties and Students
28	STTP on Digital Transformation	11-13 June 2020	240 faculties and Students

### Student's Clubs

Sr. No	Professional Clubs	Faculty Coordinators	Student Coordinators	Number of Student Members
1	Google's Developer Student Club India (DSC Club India)	Mr. N R Talhar Mr. A J Kadam	Harsh Oswal, Lead  1) Ankita Ugale 2) Darshan Tholiya 3) Tejas Arvind Patil 4) Dhanashree Kate 5) Jahnvi Shejul 6) Pratik Pingale 7) Anushka Joshi 8) Neha Agarwal 9) Aashay Bhujbal 10) Roshan kumar 11) Abhishek Mulik 12) Tejas Shinde 13) Omkar Jagtap 14) Amrit Kumar 15) Amaan Khan 16) Sharayu Rasal 17) Jaysheel Dodia 18) Saba Syed 19) Kshitij Bhilare 20) Pranav Hari Jadhav	21
2	Codigo-Madrid Club	Dr. D P Gaikwad Mr. N R Talhar Mr. A J Kadam Ms A A Gupta Ms. S S Kolte	1) Prajwal Wable 2) Sahil Gandhi 3) Ajinkya Bhalerao 4) Sagar Salvi 5) Paras Shah 6) Pushpak Kathkhede 7) Dipesh Desadla 8) Rahul Sharma	60

			9) Pranav Atre 10) Ajay Indani 11) Prashant Tribhuvan 12) Yogesh Kolape	
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## Google's Developer Student Club (DSC Club)

### About DSC

Google Developer Student Clubs (GDSC) are community groups for college and university students interested in Google developer technologies. Students from all undergraduate or graduate programs with an interest in growing as a developer are welcome. By joining a GDSC, students grow their knowledge in a peer-to-peer learning

environment and build solutions for local businesses and their community. A development club build by students for students at AISSMS College of Engineering, Pune.

### Website

<https://dsc-aissmscoe.web.app/>

### 2020-21

Sr. No.	Name of the Activity	Date of Activity	No. of Participants
1	DSC Intro-meet	28/09/2020	101
2	Workshop on UX/UI Design and Prototyping	04/10/2020	161
3	Open Source Webinar	20/10/2020	98
4	Roadmap to be a Full Stack Android Developer	22/11/2020	145
5	Android Study Jam –I	06/12/2020	45
6	Android Study Jam -II	27/12/2020	35
7	Android Study Jams- III	16/01/2021	70

## Codigo Madrid Club

### Objectives of the Club are

- Creating a team for Hackathon
- Mentoring Students for Research Activity
- Expert Lectures from Industry People
- Cracking Coding Interview
- Exposure to the Upcoming Technologies such as AI, Machine Learning and Data Science.

## 2021-22

Sr. No.	Name of the Activity	Date of Activity	Speaker	No. of Participants
1	Be placement ready and building digital resume	1 <sup>st</sup> June 2021	Mr. Manish Tiwari Founder and CEO Mr. Avinash Gawali	76
2	Workshop on Entrepreneurship Development Phases	12 <sup>th</sup> March 2022 at 11:00 am	Mr. Akash Gangadhare	121
3	An Introduction to the Drone Ecosystem	31 <sup>th</sup> August 2021	Prateek Srivastava Amit Takte Gaurav Sharma	124

## 2020-21

Sr. No.	Name of the Activity	Date of Activity	Speaker	No. of Participants
1	Four day Hands-on Workshop on Programming in C++	19/05 to 22/05/2021	Dept. student coordinators	110
2	Financial Nirvana	01/09/2020	Mr. Ashwin Sorte Founder of Vittasampada	105
3	Digital Transformation	11/06/2020	Mr. Swapnil Pase, Mr. Akshay Shinde, Mr. Rohit Kukreja, Mr. Milind Ujalamkar, Mr. Ashish Singh, Mr. Prince Arora	106

## 2019-20

Sr. No.	Name of the Activity	Date of Activity	Speaker	No. of Participants
1	Introduction to Machine Learning	24/07/2019	Mr. Shrirang Karandikar (Founder of Algoasylum)	73
2	Right Choice-Motivational Talk	30/05/2020	Mr. Ashwin Sorte Founder of Vittasampada	85

## 2018-19

### Lecture Series conducted by Club student

1. Introduction and hands-on on Python Language
2. Basics of C /C++.
3. Registration for Online Coding Platform (Hackerrank, Codechef, HackerEarth)
4. Practice Session & Tests on Online Coding Platform.
5. Experienced Share by placed students.

Sr. No.	Computer Engineering Program	No. of Sessions	Date of Activity	Speakers	No. of Student Participants
1	Shift-1	15	19/02/2018-28/02/2018	Paras Shaha	26
2	Shift-2	15	20/03/2018-16/03/2018	Pushpak Katkhede	30

Sr.No.	Topic Name	Date of Activity	Conducted By	No. of Student Participants
1.	C++ Syntax	24/09/18	Prajwal Wable	20
2.	Loops	25/09/18	Prajwal Wable	18
3.	Function and Class	26/09/18	Mangesh Kumar	19
4.	Array	27/09/18	Ashutosh Raut	20
5.	String	28/09/18	Mohit Patil	17
6.	Stack	01/10/18	Mohit Patil	18
7.	Queue	03/10/18	Mohit Patil	17
8.	Linked List	04/10/18	Mohit Patil	19

Sr. No.	Name of the Activity	Date of Activity	Speaker	No. of Participants
1	Ethical Hacking	08/09/2018 09/09/2018	Mr. Paras Shaha (Google certified ethical hacker, CEO of Script-N-Hack)	73
2	Python Workshop	15/09/2018 16/09/2018	Mr. Deepesh Desalada (python developer)	85

### NSS Activities (involved the Students of computer Department)

This scheme is under the Ministry of Youth Affairs and Sports, Government of India and NSS cell, Higher and technical education, Govt. of Maharashtra. Aim of National Service Scheme: Development of personality of students through Community Service. National Service Scheme (NSS) has been introduced at University of Pune since 1969 as a part of the academic programs and since then NSS has been functioning as a regular feature in the realm of our university education. The overall objective of the scheme is educational and service to the community is the activity through which the objective is sought to be achieved. It is a student-cantered program in which projects are implemented by the NSS volunteers in the community in close collaboration with the community and thereby it provides vast scope for the student's interaction with the people. The cardinal principle of the NSS program is that it is organized by the students themselves, and both students and teachers through their combined participation in community service, get a sense of involvement in the tasks of nation building.

**2021-22**

<b>Sr. No.</b>	<b>Event Name</b>	<b>Event Date</b>	<b>Event Venue</b>	<b>No. of Student Participation</b>
1.	Campus Cleanliness Drive	20 August 2021	AISSMS COE	20
2.	Tree Plantation Drive	13 October 2021	AISSMS COE	09
3.	Blood Donation Drive	11 January 2022	AISSMS Management	12

**2020- 21**

<b>Sr. No.</b>	<b>Event Name</b>	<b>Event Date</b>	<b>Event Venue</b>	<b>No. of Student Participation</b>
1.	Road Safety Drive	15 August 2020	Pune	07
2.	Swachh Bharat Drive	02 October 2020	Kalyan	06
3.	Tree Plantation Drive	16 February 2021	Kalyan	07

**2019- 20**

<b>Sr. No.</b>	<b>Event Name</b>	<b>Event Date</b>	<b>Event Venue</b>	<b>No. of Student Participation</b>
1.	Kolhapur Flood Relief Activity	9 August 2019 to 22 August 2019	Kolhapur	22
2.	Science Exhibition	18 September 2019	AISSMS COE Pune	12
3.	Yug Foundation Distribution Drive	16 October 2019	Vishrantwadi, Pune	04

**2018- 19**

<b>Sr. No.</b>	<b>Event Name</b>	<b>Event Date</b>	<b>Event Venue</b>	<b>No. of Student Participation</b>
1.	Tree Plantation	6 June 2018	Tulapur	22
2.	Kargil Vijay Diwas	27 July 2018	AISSMS COE Pune	12
3.	Metro Project	23 October 2018	AISSMS COE Pune	10
4.	Flash Mob	15 January 2019	FTII	10

**Spoken Tutorial Programme**

We have IIT Bombay Spoken Tutorials membership for our institute since 2019. It offers Partnership opportunity to Computer Institutes/Centres to give their learners a range of 75+ relevant Basic and Specialized Courses. These cover General IT skills, Programming, Web development, Multimedia, Mathematics, Sciences, Industrial process simulation packages and many more. Institutes can train unlimited students in many courses along with Certificates. This offered at one nominal annual subscription fee. We have a strong presence at all the educational places where Skill & High Quality Remote Learning Courses are relevant. We take forward the power of ICT in Education. Niche Courses offered by IIT Bombay Spoken Tutorials comes in following exciting packages:

- IT Industry Skill Programs
- Advanced Programming
- Application Development
- Basic Website Development
- Office Automation & Accounting and many more

**Couse Registration and Participation****January - June, 2020**

<b>Sr. No.</b>	<b>Semester Start Date</b>	<b>Software Course</b>	<b>Participant List Status</b>
1	Jan. 1, 2020	Python - Python 3.4.3	83
2	Jan. 1, 2020	Python - Python 3.4.3	61
3	Jan. 1, 2020	QCAD	141
4	Jan. 1, 2020	Scilab	85

**January - June, 2019**

<b>Sr. No.</b>	<b>Semester Start Date</b>	<b>Software Course</b>	<b>Participant List Status</b>
1	Jan. 1, 2019	Python	9
2	Jan. 1, 2019	C and CPP	76
3	Jan. 1, 2019	C and CPP	67

**July - December, 2019**

<b>Sr. No.</b>	<b>Semester Start Date</b>	<b>Software Course</b>	<b>Participant List Status</b>
1	July 1, 2019	Python - Python 3.4.3	74

2	July 1, 2019	Python - Python 3.4.3	65
3	July 1, 2019	Python - Python 3.4.3	136
4	July 1, 2019	C and Cpp	34
5	July 1, 2019	PHP and MySQL	1
6	July 1, 2019	PHP and MySQL	65

#### 4.6.2. Publication of Technical magazines, Newsletters, etc. (5)

Department towards imparting quality education to our students we conduct, various activities like expert lecture, seminar, workshop and industrial visit, to make teaching process effective. We provide a platform to our students to participate in many extra-curricular activities through various technical, non- technical contests for their overall personality development. The objective of the magazine is to provide platform for our students to augment the technology focus and scope of it. The technical section of this magazine elaborates the advancement of technology. To fulfil the vision and mission of our department.

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

##### A. Events within the state

##### 2019-20

Sr. No.	Name of the student	Event
1.	Swarali Salunke	Firodiya Karandak 2020
2.	Swarali Salunke	Firodiya Karandak 2020

##### 2020-21

Sr. No.	Name of the student	Event
1.	Amir Mukeri	cPGCON-2021

##### 2021-22

Sr. No.	Name of the student	Event	Organized by
1.	Harsh Oswal	4 <sup>th</sup> IEEE International Conference on Emerging Smart Computing & Informatics (IEEE-ESCI 2022) By	AISSMS IOIT on 09-11 March 2022
2.	Sameedha More	Project Competition, IUCEE Foundation	IUCEE Foundation

#### AISSMS Engineering Today- National Level Technical Symposium

Every year, college organize an Annual Event AISSMS Engineering Today (AISSMS ET). The engineering students from all over India are invited to exhibit their talents by participating in various competitions, viz. poster, paper, project, quiz, robotics, programming, model making, debate, design, technical meet, cultural and sports meet. In the event, 28 technical competitions are organized in collaboration with the industry, which



sponsors the awards for the competitors.

Technical Symposium	Year	No. of Competitions	Competition Name	No. of Participants
<b>AISSMS Engineering Today (National Level Technical Symposium)</b>	2018-19	<b>8</b>	Quizzlers	60
			Technical Paper Presentation	13
			Internet Treasure Hunt	72
			Hide & C'k	47
			Code Blooded	61
			Battle Zone	30
			Mock Interview	27
			Science Exhibition	25
	2019-20	4	Code Blooded	66
			Hide n CK	55
			Mini Hackathon	28
			Internet Hunters	94
	2021-22	3	Internet Treasure Hunt	156
			Game Challenge- Place Station	144
			Code Debugging	68

**A. Events outside the state**

**2019-20**

Sr. No.	Name of the student/s	Event	Award
<b>1</b>	Saurabh Dawkhar Shubham Badhe Vinaya Salunkhe Yadnyesh Kulkarni Atharva Reshimwale Aparva Lonkar	Smart India Hackathon-2019 8-12 July 2019 at IIT, Hyderabad. Ministry of Human Resources and Development (MHRD), Govt. of India, MHRD's Innovation Cell	First prize

**B. Award Received in above participation**

**2019-20**

Sr. No.	Name of the student	Event	Award
1.	Swarali Salunke	Firodiya Karandak 2020	Second prize for Background Score
2.	Swarali Salunke	Firodiya Karandak 2020	Consolation prize as female Vocalist

## 2020-21

Sr. No.	Name of the student	Event	Award
1.	Amir Mukeri	cPGCON-2021	Best Research Paper

## 2021-22

Sr. No.	Name of the student	Event	Award
1.	Harsh Oswal	4 <sup>th</sup> IEEE International Conference on Emerging Smart Computing & Informatics (IEEE-ESCI 2022) By AISSMS IOIT on 09-11 March 2022	Best paper of the session
2.	Sameedha More	Project Competition, IUCEE Foundation	Recognition of Securing Excellent position in project.

## AISSMS Engineering Today 2021- Winners

Sr. No.	Name of Event with code	Name of Winners	Prizes
1	Internet Treasure Hunt (CM1)	Jaysheel Dodia	Second
2	Game Challenge (CM2)	Prithviraj Gaikwad and Nexus team	First
		Harsh Oswal	Second
3	Code Debugging (CM3)	Jaysheel Dodiya	First
		Venkatesh Soni	Second-1
		Ishwari Chankeshwara	Second-2

## 2019-20

Sr. No.	Name of the student/s	Event	Award
1	Saurabh Dawkhar Shubham Badhe Vinaya Salunkhe Yadnyesh Kulkarni Atharva Reshimwale Apurva Lonkar	Smart India Hackathon-2019 8-12 July 2019 at IIT, Hyderabad. Ministry of Human Resources and Development (MHRD), Govt. of India, MHRD's Innovation Cell	First prize

<b>CRITERION 5</b>	<b>Faculty Information and Contributions</b>	<b>200</b>
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### 5.1 Student- Faculty Ratio (SFR) (20)

<b>Name</b>	<b>PAN No.</b>	<b>University Degree</b>	<b>Date of Receiving Degree</b>	<b>Area of Specialization</b>	<b>Current Designation</b>
Dr D P Gaikwad	ABBPG4427B	ME/M. Techand PhD	08/05/2017	Machine Learning	Associate Professor
Dr M A Pradhan	AJMPP4493R	ME/M. Techand PhD	03/08/2015	Soft Computing	Associate Professor
Mr N R Talhar	AEMPT1619L	M.E/M.Tech	23/06/2010	Cloud Computing	Assistant Professor
Mr A J Kadam	APRPK2105G	M.E/M.Tech	04/01/2013	Computer Network	Assistant Professor
Dr S F Sayyed	BDHPS2827Q	ME/M. Techand PhD	28/02/2017	Computer Graphics	Associate Professor
Dr S V Athawale	AHQPA4838F	ME/M. Techand PhD	15/02/2020	Wireless Network	Assistant Professor
Ms A S Deokar	AJIPD1542P	M.E/M.Tech	04/05/2015	Data Mining	Assistant Professor
Ms S R Nalamwar	AFBPN9414M	M.E/M.Tech	04/10/2011	Machine Learning	Assistant Professor
Mrs V A Gire(Waykule)	AARPW0640H	M.E/M.Tech	28/11/2014	Data Structure	Assistant Professor
Mr A M Jagtap	AJDPJ3289Q	M.E/M.Tech	26/11/2015	Web Technology	Assistant Professor
Dr D M Ujlambkar	ABKPU0570G	ME/M. Techand PhD	30/09/2021	Sensor Network	Assistant Professor

Mr S G Dhengre	AKEPD0851C	M.E/M.Tech	04/08/2012	Ad Hoc Network	Assistant Professor
Mrs S J Pachouly	BAOPP9584M	M.E/M.Tech	02/05/2011	Cloud Computing	Assistant Professor
Ms M M Phadatare	CRLPP9707P	M.E/M.Tech	10/10/2014	Digital Electronics	Assistant Professor
Mrs B A Patil	AIFPC8828D	M.E/M.Tech	28/11/2014	System Programming	Assistant Professor
Mrs A Gupta	AUKPA1590R	M.E/M.Tech	31/05/2014	Natural Language Processing	Assistant Professor
Mr N S Devekar	AKHPD9628C	M.E/M.Tech	07/07/2015	Advance Database Systems	Assistant Professor
Mrs S S Deshmukh	AYMPD6053E	M.E/M.Tech	15/07/2014	System Programming	Assistant Professor
Ms M M Swami	FWFPS4196K	M.E/M.Tech	11/12/2014	Digital Electronics	Assistant Professor
Ms S S Kolte	CCVPK5326G	M.E/M.Tech	26/11/2015	Cloud Computing	Assistant Professor
Ms N Rai	BHPPR8772M	M.E/M.Tech	09/01/2012	Computer Network	Assistant Professor
Mr S S Jadhav	ARJPJ4906E	M.E/M.Tech	20/10/2016	Web Technology	Assistant Professor
Mrs M P Deshmukh	ATXPD3324L	M.E/M.Tech	10/08/2015	Machine Learning	Assistant Professor
Mrs R S	BIPPK7619R	M.E/M.Tech	10/09/2013	Data Structure	Assistant

Dudhmal					Professor
Mr P W Gedam	BLBPG2706G	M.E/M.Tech	08/08/2017	Image Processing	Assistant Professor
Ms A S Bhosale	BFRPB5833F	M.E/M.Tech	09/11/2017	Software Testing	Assistant Professor
Mrs V V Navale	AMVPN2859D	M.E/M.Tech	13/12/2014	Computer Network	Assistant Professor
Ms A S Ghorpade	BLCPG0259H	M.E/M.Tech	01/03/2018	Network Security	Assistant Professor
Mrs S C Pawar	BYWPM4772 L	M.E/M.Tech	26/03/2015	Computer Network	Assistant Professor

**BE Computer Engineering**

Year of Study	CAY		CAYm1		CAYm2	
	(2021-22)		(2020-21)		(2019-20)	
	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students
2ndYear	120	17	120	16	120	18
3rdYear	120	0	120	0	120	0
4thYear	120	0	120	0	120	0
<b>Sub-Total</b>	<b>360</b>	<b>17</b>	<b>360</b>	<b>16</b>	<b>360</b>	<b>18</b>
<b>Total</b>	<b>377</b>		<b>376</b>		<b>378</b>	

**ME Computer Engineering**

Year of Study	CAY(2021-22)	CAYm1(2020-21)	CAYm2(2019-20)
	Sanction Intake	Sanction Intake	Sanction Intake

1stYear	18	18	18
2ndYear	18	18	18
<b>Total</b>	<b>36</b>	<b>36</b>	<b>36</b>

Description	CAY(2021-22)	CAYm1(2020-21)	CAYm2(2019-20)
Total No .of Students in the Department(S)	<b>413</b> <b>Sum total</b> <b>of all(UG+PG)students</b>	<b>412</b> <b>Sum total</b> <b>of all(UG+PG)students</b>	<b>414</b> <b>Sum total</b> <b>of all(UG+PG)students</b>
No. of Faculty in the Department(F)	22 F1	22 F2	22 F3
Student Faculty Ratio(SFR)	<b>18.77</b> <b>SFR1=S1/F1</b>	<b>18.72</b> <b>SFR2=S2/F2</b>	<b>18.71</b> <b>SFR3=S3/F3</b>
Average SFR	<b>18.76</b> <b>SFR=(SFR1+SFR2+SFR3)/3</b>		
<b>F=TotalNumberofFacultyMembersintheDepartment(excludingfirstyearfaculty)</b>			

5.1.1. Provide the information about the regular and contractual faculty as per the format mentioned below:

	Total number of regular faculty in the department	Total number of contractual faculty in the department
CAY(2021-22)	22	0
CAYm1(2020-21)	22	0
CAYm2(2019-20)	22	0

## 5.2 Faculty Cadre Proportion (25)

Year	Profess ors		Associate Professors		Assistant Professors	
	RequiredF1	Available	RequiredF2	Available	RequiredF3	Available
CAY(2021-22)	2	0	4	3	13	19
CAYm1(2020-21)	2	0	4	2	13	20
CAYm2(2019-20)	2	0	4	2	13	20
Average Numbers	2.00	0.00	4.00	2.33	13.00	19.67

### 5.3 Faculty Qualification (25)

Year	X	Y	F	$FQ=2.5*[10X+4Y]/F$
CAY(2021-22)	5	17	19.00	15.53
CAYm1(2020-21)	4	18	20.00	14.00
CAYm2(2019-20)	3	19	20.00	13.25
Average Assessment	14.26			

### 5.4 Faculty Retention (25)

Description	2020-21	2021-22
No. of Faculty Retained	21	19
Total No. of Faculty	22	22
% of Faculty Retained	95	86

## 5.5 Innovations by the faculty in Teaching and Learning (20)

### Initiatives in teaching and learning process followed by the department:

#### GOALS:

In order to improve students' learning experience aside from traditional classroom teaching, the department uses novel concepts and their subsequent execution by means of quantifiable programs. 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, and contemporary and 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:

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

1. **Student Chapter/Club Activities:** The department has four professional chapters, as listed below, which provide a good platform for the students to take active part in the various competitions, 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 each student chapter for mentoring, guidance and overall governance.

- i. Codigo Madrid Student Club
- ii. IEI Student Chapter
- iii. IUCEE Student Chapter
- iv. Google DSC India Club





Student Chapter Activities: Webinar and Expert lectures conducted on Advanced technologies

### List of Student Chapters

Sr.No	Student Chapter	Faculty Advisor
1.	Codigo-Madrid Club	Dr. D.P.Gaikwad
2.	IEI Student Chapter	A.A.Gupta
3.	IUCEE student Chapter	M. M.Swami
4.	DSC Club	Dr. D.P.Gaikwad

**Outcome:** Enrich students learning skills like communication, presentation, leadership etc.

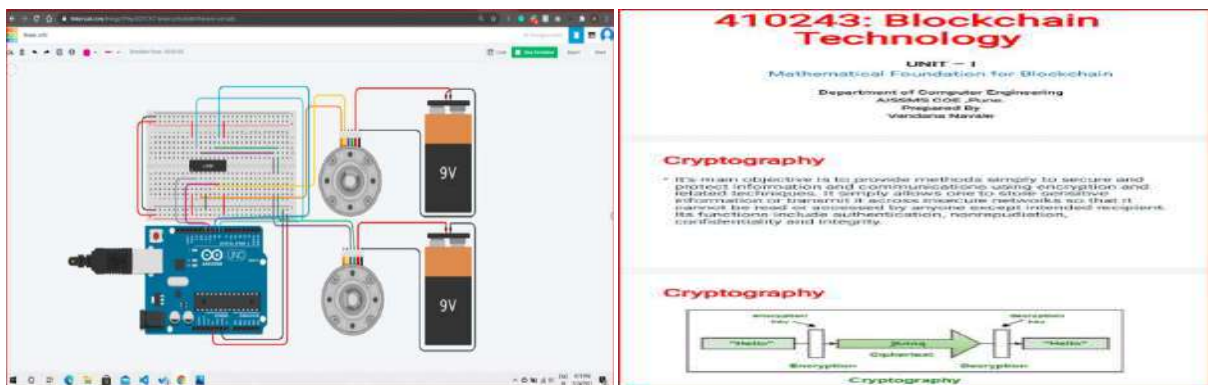
- 2. Virtual labs:** In certain labs like the Digital Electronics lab, some relevant experiments are conducted online on web browsers with the help of simulators. Such online facilities are called as virtual labs (<http://www.vlab.co.in/>), and are a part of an excellent innovative initiative taken by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



Fig: Virtual Lab used to explain assignments to students

**Outcome:** Improve students' understanding and learning.

3. **Use of Animations/ Mini projects/PPTs/CASE studies/notes:** The department has simulation for IOT mini-projects and digital electronics. Department also has license softwares for developing application softwares. Some faculty members develop applications 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.



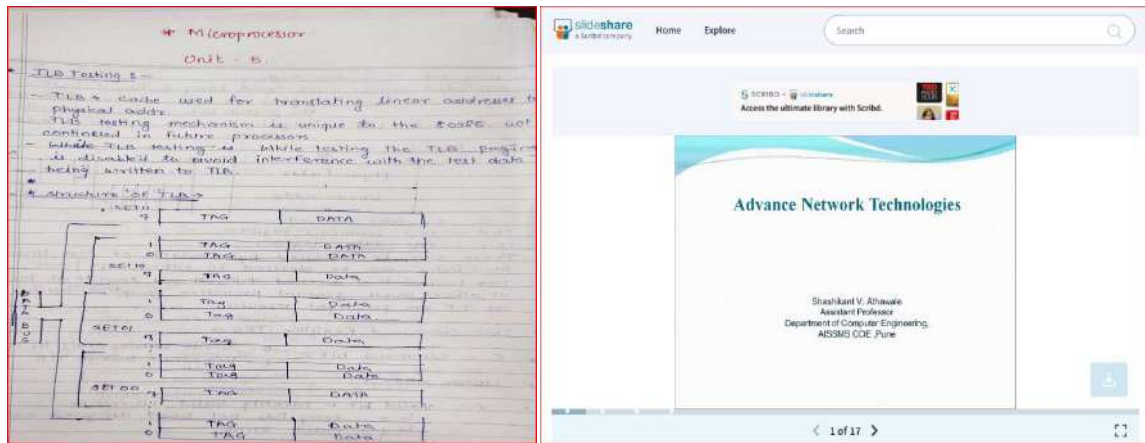


Fig: Simulators and PPTs used by faculties

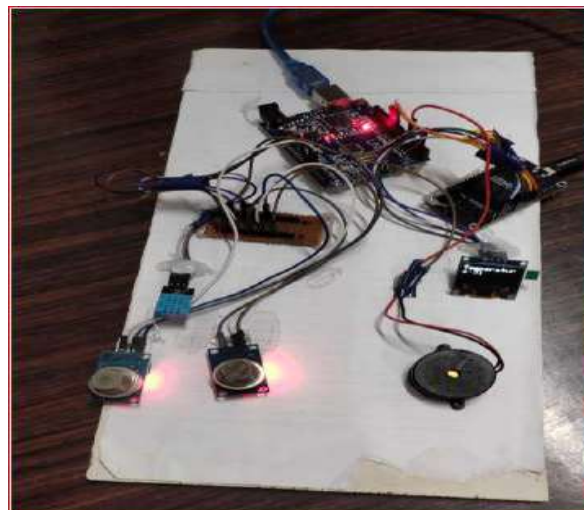


Fig: Working model

**Outcome:** Improve students' understanding and learning

4. **E content on Google Classroom and YouTube Channel:** Faculty have also created their own Google classrooms and YouTube channels where 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. Faculties used google classrooms for giving assignments and taking online submission during pandemic.

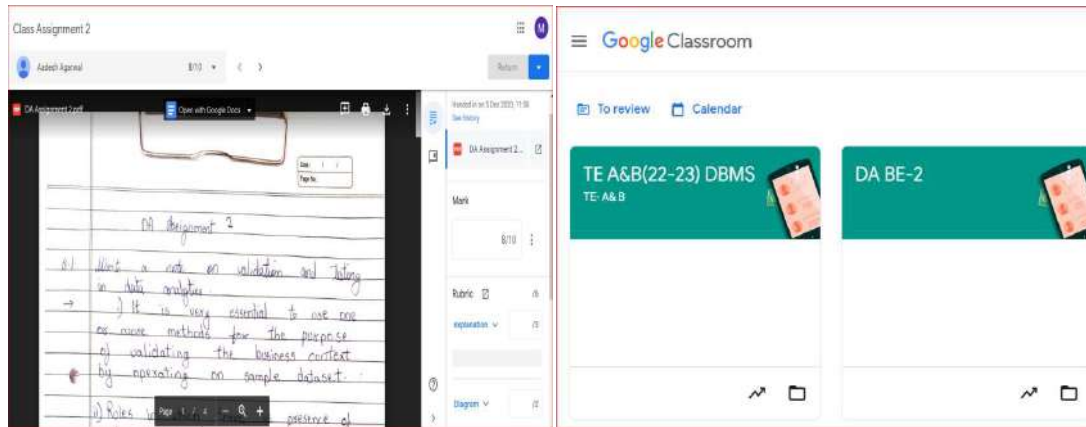


Fig: Assignments and Study material uploaded on Google Classroom

**Outcome:** Improve students' understanding and learning

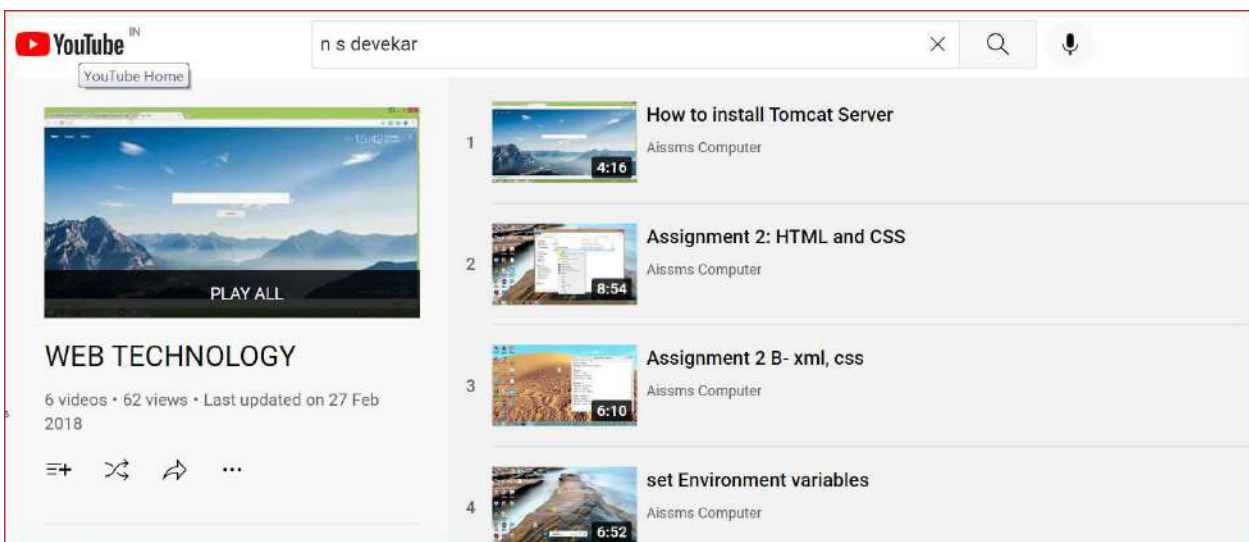
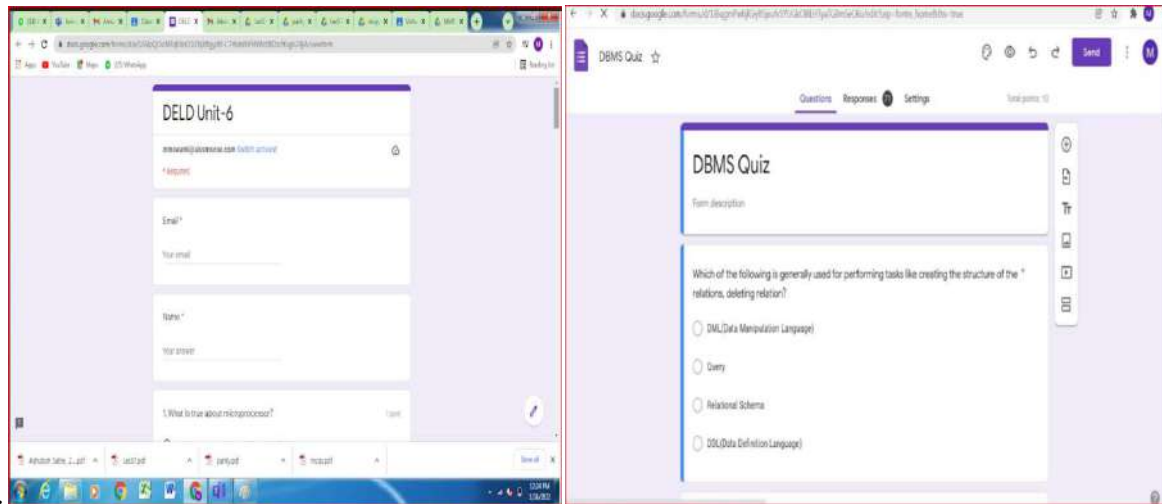


Fig: YouTube channel of faculty

**Outcome:** It contributes to students' knowledge and opportunity for self-study.

5. **Classroom quiz sessions:** These help in creating interest by breaking monotony of regular classes while enhancing the learning experience during pandemic





**Outcome:** Subject knowledge enhancement

6. **Students Symposium:** The department conducts **Engineering Today (BITS N BYTES)**, an annual national level student symposium, in the month of September every year to encourage the students organizing and participating in various events to enhance their skills. The institute also conducts **science exhibition** where the projects are exhibited to SE and TE students as well as to students invited from nearby schools.



**“Mini Hackathon”,**



### Engineering Today (Bits n Bytes)

**Outcome:** Improving skills so that they can participate in more events.

### 7. Industry Visits:

Students are exposed to latest developments through regular visits to industry. Faculties organize industrial visits under One Faculty One Industry Programme.



### Industrial Visits (field visit & Virtual visit)

**Outcome:** It contributes to students' knowledge and opportunity for self-study

### 8. Project Based Learning:

PBL has been introduced for SE students with the goal of motivating students to learn by working cooperatively in groups to solve a social problem. PBL is a student- centric pedagogy that employs a dynamic classroom approach in which students gain a deeper understanding through active exploration of real-world challenges and problems. Students gain knowledge about a subject by investigating and responding to a complex question, challenge, or problem over time. It is an inquiry-based and active learning style. Faculties are assigned as mentor to each project group. The role of faculty is to motivate students to exploration of real-world challenges and problems, provide the guidance related to project development

**Outcome:** Students can complete projects and develop expertise of creative methods.

**9. Cutting-edge initiative:** Today's education system is rapidly evolving in order to introduce new teaching techniques and strategies that promote a culture of diversity and inclusion. Similarly, each teacher has a distinct teaching style. However, all teachers have the same goal: to instill a love of learning in their students. Department have a few Cutting- edge initiatives as given below that use modern technology

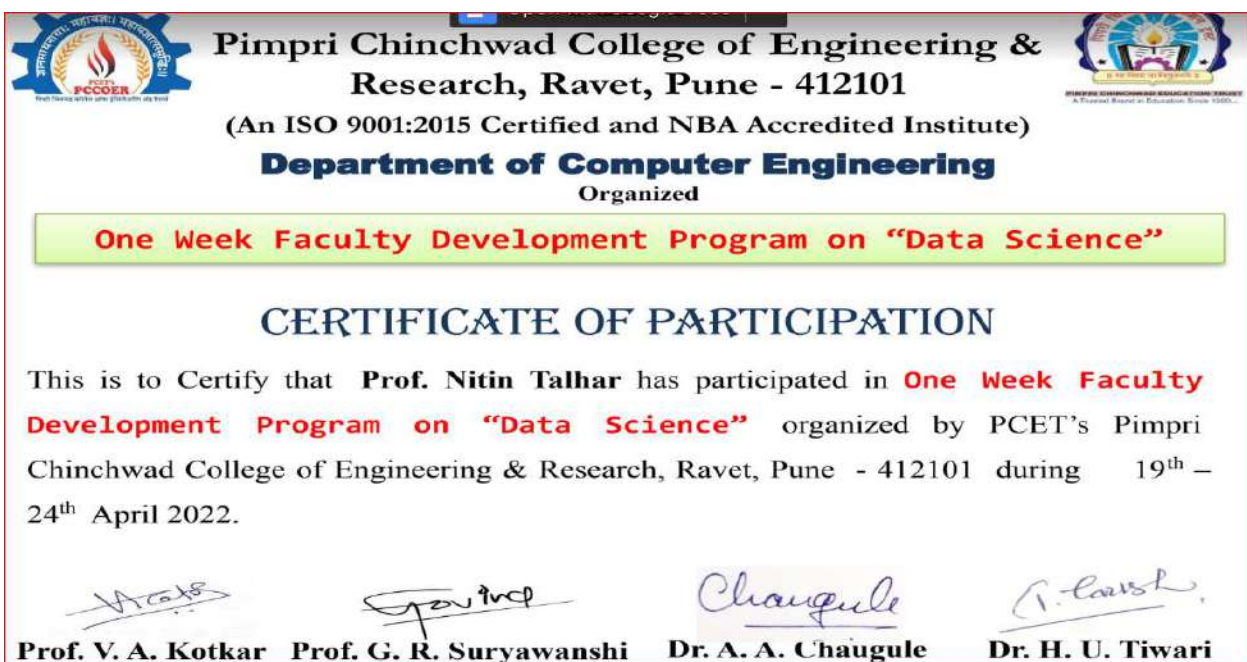
- Avishkar
- Hackathon
- Unnat Bharat Abhiyan



**5.6 FacultyasparticipantsinFacultydevelopment/trainingactivities/STTPs**

<b>Sr No</b>	<b>Name</b>	<b>Max 5 per faculty</b>		
		<b>CAY (2021-22)</b>	<b>CAY (2020-21)</b>	<b>CAYm1 (2019-20)</b>
1	Dr D P Gaikwad	05	05	05
2	Dr M A Pradhan	05	05	05
3	Mr N R Talhar	05	05	05
4	Mr A J Kadam	05	05	05
5	Dr S F Sayyed	05	05	05
6	Dr S V Athawale	05	05	05
7	Ms A S Deokar	05	05	05
8	Ms S R Nalamwar	05	05	05
9	Mrs V A Gire(Waykule)	05	05	05
10	Mr A M Jagtap	05	05	05
11	Dr D M Ujlambkar	05	05	05
12	Mr S G Dhengre	05	05	05
13	Mrs S J Pachouly	05	05	05
14	Ms M M Phadatare	05	05	05
15	Mrs B A Patil	05	05	05
16	Mrs A Gupta	05	05	05
17	Mr N S Devekar	05	05	05
18	Mrs S S Deshmukh	05	05	05
19	Ms M M Swami	05	05	05
20	Ms S S Kolte	05	05	05
21	Ms N Rai	05	05	05
22	Mr S S Jadhav	05	05	05
23	Mrs M P Deshmukh	05	05	05
24	Mrs R S Dudhmal	05	05	05
25	Mr P W Gedam	05	05	05
26	Ms A S Bhosale	05	05	05
27	Mrs V V Navale	05	05	05
28	Ms A S Ghorpade	05	05	05
29	Mrs S C Pawar	05	05	05





**5.7 Research and Development (30)****5.7.1. Academic Research (10)**

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

**Number of PhD awarded in assessment years : 02**

<b>Name of the Faculty</b>	<b>Details of Faculty</b>	<b>Year in which PhD awarded</b>	<b>University</b>
Dr. S.V.Athawale	Assistant Professor	February 2020	Sant Gadge Baba Amravati University
Dr. D.M.Ujlambkar	Assistant Professor	September 2021	Swami Ramanand Teerth Marathwada University

**Number of quality publications in refereed/SCI Journals/Patents/Books/chapters**

<b>Sr No</b>	<b>Name of Faculty</b>	<b>CAY (2021-22)</b>	<b>CAYm1 (2020-21)</b>	<b>CAYm2 (2019-20)</b>
1	Dr. D P Gaikwad	06	05	06
2	Dr. M A Pradhan	05	04	02
3	Mr. N R Talhar	02	02	01
4	Mr. A J Kadam	02	03	04
5	Dr. S F Sayyed	04	03	05
6	Dr. S V Athawale	10	03	02
7	Ms. A S Deokar	02	02	02
8	Ms. S R Nalamwar	02	04	03
9	Mrs. V A Gire(Waykule)	04	02	01
10	Mr. A M Jagtap	02	02	02
11	Dr. D M Ujlambkar	03	04	03
12	Mr. S G Dhengre	03	04	02
13	Mrs. S J Pachouly	03	03	02
14	Ms. M M Phadatare	03	03	01
15	Mrs. B A Patil	02	01	02
16	Mrs. A Gupta	01	03	02
17	Mr. N S Devekar	00	01	01
18	Mrs. S S Deshmukh	05	05	05
19	Ms. M M Swami	02	03	03
20	Ms. S S Kolte	04	02	02
21	Ms. N A Rai	02	00	00
22	Mr. S S Jadhav	04	01	02
23	Mrs. R SDudhmal	01	01	01

24	Ms. A S Ghorpade	00	00	01
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**Citation Details:**

Sr No	Name of the Faculty	CAY (2021-22)	CAY (2020-21)	CAYm1 (2019-20)
1	Dr. D.P.Gaikwad	362	285	201
2	Dr. M A Pradhan	142	136	57
3	N R Talhar	94	66	48
4	A J Kadam	74	50	49
5	Dr. S F Sayyad	10	9	9
6	Dr. S V Athawale	332	161	130
7	S R Nalamwar	1	1	1
8	V VWaykule	70	55	35
9	A M Jagtap	2	2	2
10	Dr. D M Ujalambkar	5	5	5
11	S G Dhengre	31	14	14
12	S J Pachouly	9	9	8
13	M M Phadatare	7	5	5
14	B A Patil	17	17	17
15	S S Jadhav	1	1	1
16	M M Swami	3	3	3
17	S. S. Kolte	2	2	1

**List of Publications:**

CAY 2021-22				
SN	Title of paper	Author	Name of journal	ISBN /ISSN
1.	Prediction of Chronic Kidney Disease Using Convolution Neural Network	Dr Madhavi Pradhan	International Journal of Research	ISSN NO: ISSN 2236-6124
2.	Personality prediction based on social media user behaviour	S. G. Dhengre	International journal for research & development in technology	ISSN (O) 2349-3585
3.	Support Vector Regression for Mobile Target Localization in Indoor Environments	Dr S V Athawale	MDPI Sensors	1424-8220

4.	Plant Leaf Disease Detection using Inception Resnet V2 -CNN	V V Wayukule	International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)	2581-5425
5.	Study on Corrosion Properties of Epoxy Polymer Composite Coating for Marine Application	Dr S F Sayyad	Design Engineering	0011-9342
6.	A Comparative Study of the Performance Appraisal Systems of India's Public and Private Sector Banks	Dr S F Sayyad	Asian Journal of Organic & Medicinal Chemistry	Online: 2456-8937
7.	The Movie Recommendation on System using Content Based Filtering with TF-IDF-Vectorization and Levenshtein Distance	M M Swami	IJARSCT,	2581-9429
8.	A Chatbot for Medical purpose using Deep learning	A S Deokar	International Journal of Engg. Research and Technology, Volume 10, Issue 5,	ISSN:2278-0181
9	Designing of application for detection of face mask and social distancing during covid-19 using CNN and Yolo v3	A S Deokar	International Research Journal of Engineering and Technology, Volume 9, Issue 1	ISSN 2395-0056
10	Stubble Aggregation : An E-Commerce Website	A S Dokar	International Research Journal of Engineering and Technology, Volume: 09 Issue: 03	2395-0056

11	X-Ray Image Enhancement Using CLAHE Method	S R Nalamwar	International Research Journal of Engineering and Technology (IRJET)	e-ISSN: 2395-0056 p-ISSN: 2395-0072
12	Prediction of Autism Spectrum Disorder using Deep Learning: Survey	S R Nalamwar	International Research Journal of Engineering and Technology	ISSN: 2395-0056
13	Prediction of spark ignition engine performance with bio ethanol-gasoline mixes using a multilayer perception model	Dr D P Gaikwad	Petroleum Science and Technology	1437-1461
14	Online fake review detection based on multiple feature using machine learning techniques	S.S.Kolte	IJASRET	ISSN (Online) 2456-0774
15	Genius – Personal Assistant	S.S.Kolte	IJRASET	ISSN: 2321-96

#### CAYm1 2020-21

SN	Title of paper	Author	Name of journal	ISBN /ISSN
1.	Detection of Malaria Parasite in Blood Using Deep Learning	Dr D P Gaikwad	Solid State Technology	ISSN 0038-111X
2	Instance Segmentation of Lung Infection of Coronavirus in CT scan Lungs	Dr D P Gaikwad	International Journal of Engineering Inventions.	e-ISSN: 2278-7461, p-ISSN: 2319-6491 Volume 9, Issue
3.	Parkinson Detection using Image Convolutional Neural Network and Transfer Learning	Dr D P Gaikwad	Journal of Network Security Computer Networks	-ISSN: (2581-639X) Volume-6, Issue-3

4.	Efficient Alphabetic Text-based Tree Indexing,”	Dr D P Gaikwad	Journal of Environmental Science, Computer Science and Engineering & Technology	Vol.10. No.1, 001-010. . E-ISSN: 2278–179X
5.	Support Vector machine and Principal Component Analysis for Intrusion Detection System Machine	Dr D P Gaikwad	manager’s Journal on Software Engineering	ISSN: 2214 -7853
6.	Intrusion Detection System Using Ensemble of Decision Trees and Genetic Search Algorithm as a Feature Selector	Dr D P Gaikwad	International Journal of Information Security Science,,9	Vol.9, No.2, pp.104-113
7.	Intrusion Detection System Using Ensemble of Rule Learners and First Search Algorithm as Feature Selectors	Dr D P Gaikwad	International Journal of Computer Network and Information Security	10.5815/ijcnis.2021.04.03
8.	An intermediate security service	Dr S V Athawale	<b>IJAEMA Why Choose Us</b> International Journal of Advances in Engineering and Management	0886-9367 1674-862X
9.	Better course RECOMMENDATION SYSTEM	Dr S V Athawale	<b>Journal of Interdisciplinary Cycle Research (JICR)</b>	0022-1945
10	Open Banking using Voice Enabled Personal Assistants	Dr M A Pradhan	International Journal for Research in Applied Science and Engineering Technology IJRASET	2321-9653
11	Fake news detection	Dr M A Pradhan	Springer	1674-862X
12	Dermatological Disorder Detection Using Machine Learning	A.S.Deokar	International Journal of Innovative Science and Research	ISSN No:- 2456-2165
13	IoT Trash Bin	A.S.Deokar	Iconic Research And Engineering Journals	ISSN No:- 2456-8880

14	Review on Techniques of Incremental Mining of High Utility Patterns	M.M.Phadatare	IJRASET	ISSN: 2321-96
15	A Survey on Bridge Health Monitoring Systems	M.M.Phadatare	International Research Journal for Engineering Technology	ISSN: 2395-00
16.	.Closed Domain Question Answering and Automatic Slide Generation using Natural Language Processing	M.M.Swami	IRJEIT	e-ISSN: 2395
17.	Closed Domain Question Answering Summarization and Automatic Slide Generation using Natural Language Processing	M.M.Swami	IRJEIT	ISSN No: 25
18.	Efficient Alphabetic Text-based Tree Indexing	S.S.Kolte	Journal of Education and Special Education Technology (JESET)	
19	Automated unit test cases generation using machine learning	S.S.Kolte	IRJET	2395-0056
20	Face Mask Detection Using Deep Learning	N.A.Rai	International Journal For Research And Development in Technology (IJRDT)	ISSN No 2349
21	Face Mask Detection Using Deep Learning	N.A.Rai	International Journal For Research And Development in Technology (IJRDT)	ISSN No 2349
<b>CAYm2 2019-20</b>				

SN	Title of paper	Author	Name of journal	ISBN /ISSN
1	Ensemble of Rule Learner and Sequential Minimum Optimization Algorithm for Intrusion Detection System	Dr D P Gaikwad	International Journal of Engineering and Advanced Technology (IJEAT),	ISSN: 2249 – 8958, Volume-9 Issue-2,
2.	Performance of Multilayer Perceptron Based Sentiment Analysis on Hyper Parameters and optimizers	S SVadgeri	Journal of Emerging Technologies and Innovative Research.	ISSN NO. 2349-5262, Page No: 408-416
3.	Enabling authentication and Access Control-Based Data Sharing with personal Information Hiding for Secure Cloud Storage	SumedhDhengre	International <b>Journal</b> For Multidisciplinary Research ( <b>IJFMR</b> )	ISSN: 2582-2160
4.	Intelligent Agriculture System With Crop Selection Using IOT	Bhakti Patil, VedantDigraskar ,Vikas Agarwal, Amit Deokar	International Journal For Research & Development In Technology	ISSN (O) :- 2349-3585
5.	Dermatological Disorder Detection Through Machine Learning	A S Deokar	International Journal of Research In Electronics And Computer Engineering (IJRECE)	ISSN: 2393-9028 , ISSN: 2348-2281
6.	NATURAL DISASTER MONITORING ALERT USING IOT	Mr. A. J. Kadam	Journal of Emerging Technologies and Innovative Research	ISSN : 2349-5162
7.	EARLY STAGE DISEASE DETECTION SYSTEMs	Mr. A.J.Kadam	International Journal of Research and Analytical Reviews	ISSN 2349-5138
8.	Sentiment Analysis using Three different Algorithms	Mrs. M. M. Swami	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	ISSN: 2321-9653
9.	Energy saving cluster based approach for load balancing in WSN"	S S Jadhav	Green Energy Technology for Sustainable Environment)	ISBN-978-81-924990-7-9 IeI (India)



10	Prediction of cardiovascular disease using Deep Learning	S R Nalamwar	National conference on computational Intelligence and Automation NCCIA	
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**(b) Number of books/book chapter published:**

CAYm1 2020-21				
SN	Title of Book	Author	Name of Publisher	ISBN /ISSN
1.	Computer Graphics	Dr. S. F. Sayyad	TechKnowledge	978-93-89889-54-3
CAYm2 2019-20				
SN	Title of Book	Author	Name of Publisher	ISBN /ISSN
1.	Theory and Applications of Mathematical Science,	Dr D P Gaiikwad	Springer Nature	ISBN 978-93-89562-12-5, DOI:10.9734/bp i/tams/v1.Vol. No.1,
2	Theory and Applications of Mathematical Science,	Dr D P Gaiikwad	Springer Nature	ISBN 978-93-89562-12-5, DOI:10.9734/bp i/tams/v1.Vol. No.1,
3	Software Testing : 180+ Most Frequently asked Interview Questions with Answers	Dr.S.V. Athawale	Jeto Max Publishers	ASIN : B08718PM52
4	Technical Interview Programs for Core and Advance Java	Dr.S.V. Athawale	Jeto Max Publishers	ASIN : B085WVY1TV
5	Python Interview Questions with Answers	Dr.S.V. Athawale	Jeto Max Publishers	ASIN : B085WTVR6Q

6	Robotic Process Automation	Dr.S.V. Athawale	Jeto Max Publishers	ASIN : B085XJPZ2X
7	7 Ways to Create Your Own Success	Dr.S.V. Athawale	Jeto Max Publishers	ASIN : B087JL65DP

**(c) Patents Published:**

Sr No	Title of the patent	Name Of Faculty	Indian/ Other	Date of filing of patent	Application No	Present status
1	Velocity and acceleration analysis of four bar chain mechanism graphically	Dr S F Sayyad	Indian	2020	201921024416	Published Dated 31/01/2020
2	Smart Washroom System	Dr S F Sayyad	Indian	Dated 14/10/2020	patent Journal 3 2020 Patent No 2020102315	granted
3	Method and System for Managing Social Distancing 2020	Dr S F Sayyad	Indian	Dated 07/08/2020	Patent Journal No 32/2020	granted
4	A method and system for saving water using water level indicator and smart limiter water level indicator and smart limiter	Dr S F Sayyad	Australian	Dated 24/08/2021	Australian Patent Journal No 34/39 Patent No 2021106694	granted
5	Method and system for managing social distancing	Dr S F Sayyad	Australian	Dated 14/10/2020	Australian Patent Journal No 34/39 Patent No 2020102319	granted

**(d) Copyrights:**

S. N	Name of the Faculty	Diary Number	Work Title	Class of Work	Registration Date	Status
1.						

**Number of PhD holders in the department: 05**

Name of the Faculty	Year in which PhD completed
Dr. D.P.Gaikwad	February 2016
Dr. M.A.Pradhan	August 2015

Dr. S.F.Sayyad	February 2016
Dr. S.V.Athawale	February 2020
Dr. D.M.Ujlambkar	September 2021

### 5.7.2 Sponsored Research (5) 0 Marks

### 5.7.3 Development activities (10) 7 Marks

- **Product Development:** faculties guide students for product development



Fig : Air pollution detection system dedeveloped by students and faculty

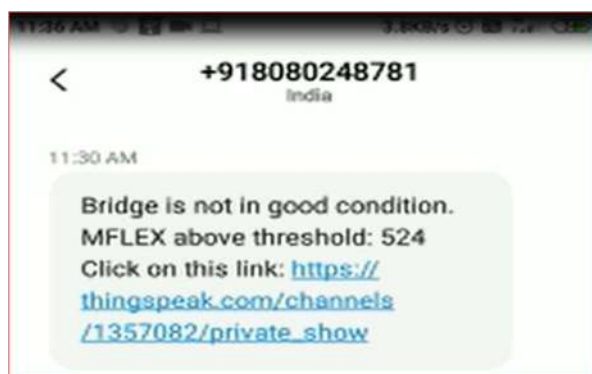


Fig: Brigde health monitoring system developed by students and faculty

- **Research laboratories:**

#### **PG & Research Computer Laboratory:**

The objective of this lab is to motivate and encourage students to do their major and mini project. This lab provides a place where the students can make projects while working in groups and as an individual. Laboratory equipped with all facilities required for the project work like advance softwares and high performance i7 PCs. All PCs having internet connection and Wi-Fi facility is also provided in a Lab. It is maintained by the respective Lab Assistant under the guidance of Lab In charge. The project laboratory of the department offers the opportunity to gain valuable

hands-on experience where students become proficient in Technical Training, Mathematical Skills, Problem-Solving, Decision-Making skills etc needed in the field of Computer Engineering. The Project Laboratory has a key role in promoting practical learning experience, where students develop creative proposals and execute their final projects. For this reason, the Department of Computer Engineering has a separate Project laboratory within its premises. Professional personnel are always available to give help and support to students in projects and Experiments. Hence a free access policy beyond the regular lab hours in a safe and secure Facilities and Utilizations is available

Lab Name	Lab No	Hardware	Software		
PG & Research Lab	227	No of PC- 20 Lenovo Edge 73 Intel core i7 8GB	<b>Operating System-</b> Windows 10	<b>Licence Software-</b> 1.Matlab 2.Turnitin 3.Rational Rose	<b>Open Source Software</b> Python Eclipse Anaconda Weka MySQL MongoDB

- **Instructional materials:**

Faculty members have created Lab Manuals for each subject which help students to perform practical during Laboratory hours.



## Department of Computer Engineering

### Group A

### Assignment No: 8

**Aim:** MYSQL/ORACLE database connectivity.

**Problem Statement:** Implement MYSQL/Oracle database connectivity with PHP/python/Java Implement Database navigation operations (add, delete, edit,) using ODBC/JDBC.

**Objective:**

1. To learn and understand MYSQL/ORACLE connectivity with PHP.
2. To implement add, delete, edit operations using ODBC/JDBC.

- **Working models & charts:**

- (1) Charts prepared by faculty members are displayed in the respective laboratory.
- (2) Knowledge wall flex boards are displayed outside each laboratory.

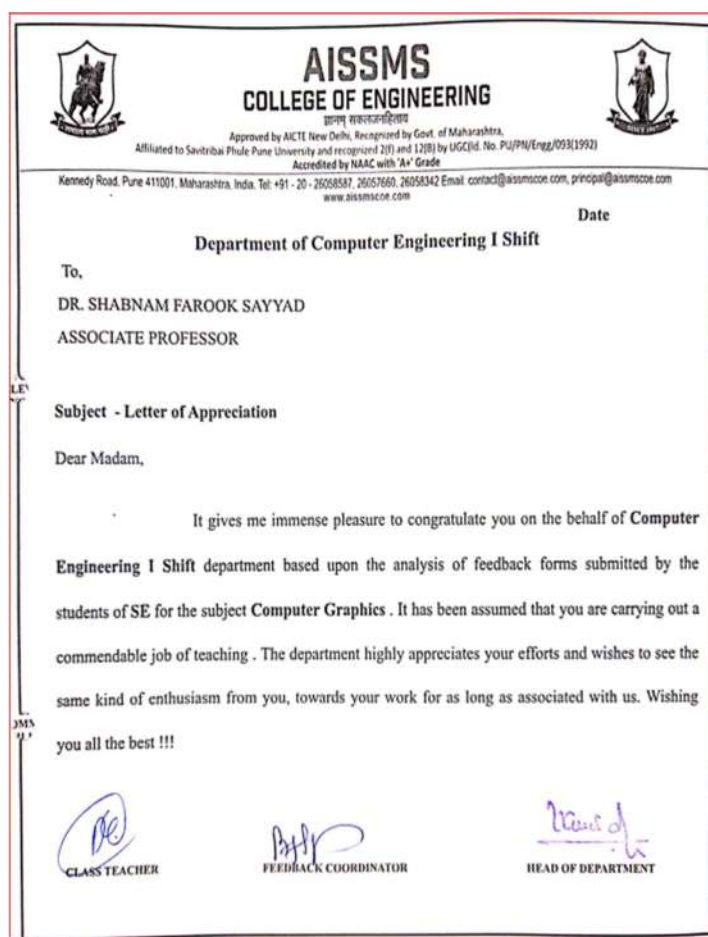
#### 5.7.4 Consultancy (from Industry) (5) 0 Marks

(Provide a list with Project Title, Funding Agency, Amount and Duration)

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

The college has following appraisal and development schemes for faculty:

- (1) **Performance based appraisal scheme (PBAS):** The college has well defined faculty appraisal system. 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.
- (2) **Best Teacher award:** The applications are invited from the faculty members are invited at the institute every year. The applications are scrutinized and assessed by the panel of experts/committee on the basis of academic performance, research activities and contribution at institute level. The top scoring faculty is awarded as best teacher with Cash prize and certificate.



• Fig: Faculty Appreciation Letter



Fig: Faculty Appreciation by Head of Department



- (1) Recognition of Excellence award:** The faculty members completing PhD and significant contribution in academics are awarded by the AISSMS Society every year with Recognition of excellence award with memento and certificate on the occasion of Shahu Jayanti.
- (2) Research Promotion Scheme:** The institute has research promotion scheme which encourage the faculty to undertake research projects, consultancy work and training programs. The faculty involved is awarded with appropriate amount as per the policy decided at the institution level.
- (3) Support for Higher Studies:** The faculty members pursuing 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 and rest of the time can be utilized for study.
- (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 financial assistance is provided for payment of registration fees, travel fare and accommodation.

The contents of the self-appraisal are mentioned below:

- i. Steps taken to advance technical knowledge
- ii. Research contribution & other publications
- iii. Capacity to guide research UG/PG/Ph.D.
- iv. Development work in the Lab/Workshop
- v. Contributions to the Department/College
- vi. Additional information related to their academic excellence. Any other



All India Shri Shivaji Memorial Society's  
College of Engineering, Pune – 1.

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**Internal Quality Assurance Cell (IQAC)**

**PBAS Proforma  
(Year 2020-21) Semester – I**

**PART A : GENERAL INFORMATION AND ACADEMIC BACKGROUND**

1. **Name (in Block Letters) :-**
2. **Father's Name / Mother's Name :-**
3. **Department :-**
4. **Current Designation & Grade Pay :-**
5. **Date of last Promotion :- NIL**
6. **Address for correspondence (with Pincode) :-**
7. **Permanent Address (with Pincode) :-**
8. **Telephone No:-                      Email:-**
9. **Whether acquired any degree or academic qualification during the year**  
**NIL**
10. **Academic college Orientation / refresher Course attended during year**

### 5.9 Visiting/Adjunct/Emeritus Faculty etc.

Sr.No.	Visiting Faculty	Designation	Contents	Year	Duration (Hrs)
1.	Shruti Purandare	Adjunct Faculty	Campus to Corporate Readiness Program	2021-22	72 hrs
2.	Jay Prakash	Adjunct Faculty	Campus to Corporate Readiness Program	2021-22	
3.	Sagar Deshmukh	Adjunct Faculty	Campus to Corporate Readiness Program	2019-20	72hrs
4.	Miss. M.Tapadia	Adjunct Faculty	Campus to Corporate Readiness Program	2019-20	

<b>CRITERION 6</b>	<b>FACILITIES AND TECHNICAL SUPPORT</b>	<b>80</b>
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### 6.1 Adequate and Well Equipped and Manpower (30)

Sr. No.	Name of the Laboratory	No. of students per setup (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	Linux Laboratory (115)	20	PC, Printer, UPS, switch, speaker	95%	Mr. Jitendra Mohite	Laboratory Assistant	Diploma
2	Computer Network Laboratory (116)	20	PC, Printer, UPS, switch, speaker	95%	Mr. Jitendra Mohite	Laboratory Assistant	Diploma
3	Computer Design Laboratory (120)	20	PC, Printer, UPS, Web Cam, switch, speaker	90%	Mr. Jitendra Mohite	Laboratory Assistant	Diploma
4	Computer software Laboratory (121)	20	PC, Printer, UPS, switch, speaker	100%	Mr. Vinayak Unune	Laboratory Assistant	Diploma
5	Microprocessor Laboratory (101)	20	PC, Printer, UPS, switch, speaker	60%	Mr. Prasad Mulay	Laboratory Assistant	Diploma
6	Digital & Hardware Laboratory (102)	20	PC, Printer, UPS, switch, speaker	80%	Mr. Prasad Mulay	Laboratory Assistant	Diploma
7	Multimedia Laboratory (119)	20	PC, Printer, UPS, switch, speaker	95%	Mr. Vinayak Unune	Laboratory Assistant	Diploma
8	Project Laboratory (227)	4	PC, Printer, UPS, switch, speaker	100%	Mr. Prasad Mulay	Laboratory Assistant	Diploma

**6.2 Additional facilities created for improving the quality of learning experience in laboratories (25)**

Total Marks 20.00

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	Lab manual	Provide all practical Lab Manual to student	Practical Guidance	Students	All subjects	PO7,PO9, PO10
2	Videos	Created by faculties	To make students aware of Latest technology	Students	Technical Knowledge	PO7,PO10,PO12
3	Knowledge Wall	Subject Model	Basic idea of subject	Student	Basic Knowledge of subjects	PO7,PO8, PO12
4	Virtual Lab	Keep in touch with latest Technology.	For availing students the environment of Digital Board	Student	Digital Electronics	PO5,PO6
5	Digital Simulator	Digital Simulator	For availing students the environment of Digital Board	Student	Digital Electronics	PO5,PO6
6	Steganography Software	S-Tools	For showing students the process of Steganography	Student	Network Security	PO5,PO6
7	Blender	Open Source Software	To familiarize student with Animation tool	Student	Computer Graphics	PO5
8	On-Line Simulator	Open Source Software	Tinkercad is an easy-to-use 3D design tool for IoT	Student	Internet of Things	PO 5
9.	Turnitin	Plagiarism Checker	Turnitin is an originality checking and plagiarism prevention service	Student and Faculties	Project Work	PO5
10	LCD projector	Epson and Hitachi	Presentation	Student and Faculties	Seminar	PO1,PO2, PO3
11.	Internet Facility	Ethernet/Wi-Fi	Providing high speed connectivity	Student and Faculties	Project, Seminar, Subjects	PO5,PO6, PO7
12	Automation Anywhere	Centre of excellence in the field of robotics and automation is established in college	Basic and advance level Training.	providing Industrial Exposure to the Students and faculties	Hardware Related Project	PO5
13	Department Library	Reference Books, Journals etc.	Resources for teaching and learning	Student and Faculties	Knowledge Improvement	PO7,PO8, PO12

**6.3 Laboratories: Maintenance and overall ambiance (10)****Total Marks 10.00**

- The computer laboratories are allotted to the students as per their curriculum requirement of SPPU. Respective program coordinator prepares the schedules for allocating the computer labs to the students as per the timetables.
- The student-computer ratio is 1:1.
- The maintenance of computer lab is taken care of by laboratory In-charge with Laboratory Assistant and the system administrators take care of the repairs and maintenance of all computers.
- All out dated and under configured computers are disposed by standard procedure.
- Additional requirements, if needed are processed through Governing body as per the proposal raised by the concerned Head of Department during the budget proposal.
- Laboratory facilities are utilized by the students for their project work.
- Stock register is maintained and updated regularly.
- Student entry register is maintained.
- Only safe, secure, authentic & trusted web sites are accessed.
- Stock verification and inspection is carried out by the department at the end of the Academic Year. Also, inter-institute stock audit is carried out regularly.
- Hardware maintenance is done by third party maintenance. The details of the third party are as below.

2019-20 Laser Art's, Pune Maintained by Mr. Vishal Patil

2020-21 Rutika Enterprises pvt Ltd Pune, Maintained by Mr. Sumit Kale

2022-23 Venture Tech, Pune Maintained by Mr. Santosh Dadtale

**Ambience in the Department:**

Each Laboratory is designed to provide the ambience required for implementing the teaching-learning process effectively. The laboratories are spacious, airy and exhibit an ergonomic design, affording an excellent learning experience to students. All the laboratories have a single entry & exit facing on to the central corridor. Boards containing quotes of renowned personalities and technical information are displayed at appropriate locations within the laboratory.

- Necessary working tables, chairs/stools provided for the comfort of students are maintained in good condition.
- Proper ventilation/air circulation is provided in each laboratory. Windows provide excellent air circulation which is supported by several ceiling fans.
- Ambient lighting assisted by fluorescent tubes provides adequate lighting. Curtains are provided in each laboratory for windows to ensure good visibility.
- The labs are always kept clean, neat and tidy. They are cleaned by the housekeeping staff every day. The overall ambience and maintenance of each laboratory is very good. Housekeeping time table is provided to the attendant and is maintained in each laboratory.

**6.4 Project laboratories (5)**

Implementation plays an important role in the educational experience and provides practical skills to students. The objective of this lab is to motivate and encourage students to do their major and mini project. This lab provides a place where the students can make projects while working in groups and as an individual.

Laboratory equipped with all facilities required for the project work like advance softwares and high performance i7 PCs. All PCs having internet connection and Wi-Fi facility is also provided in a Lab. It is maintained by the respective Lab Assistant under the guidance of Lab In charge. Hardware maintenance is done

by third party maintenance.

The project laboratory of the department offers the opportunity to gain valuable hands-on experience where students become proficient in Technical Training, Mathematical Skills, Problem-Solving, Decision-Making skills etc needed in the field of Computer Engineering. The Project Laboratory has a key role in promoting practical learning experience, where students develop creative proposals and execute their final projects. For this reason, the Department of Computer Engineering has a separate Project laboratory within its premises. Professional personnel are always available to give help and support to students in projects and Experiments. Hence a free access policy beyond the regular lab hours in a safe and secure Facilities and Utilizations is available:

S.No.	Name of the Facilities	Utilization
1.	Turbo C 3.0,	6 <sup>th</sup> , 7 <sup>th</sup> , 8 <sup>th</sup> semester students, Research scholars and Faculty.
2.	Java SE Development Kit Microsoft Visual Studio ,	6 <sup>th</sup> , 7 <sup>th</sup> , 8 <sup>th</sup> semester students, Research scholars and Faculty
3.	My Eclipse, Net beans IDE	6 <sup>th</sup> , 7 <sup>th</sup> , 8 <sup>th</sup> semester students, Research scholars and Faculty
4.	My Sql,	6 <sup>th</sup> , 7 <sup>th</sup> , 8 <sup>th</sup> semester students, Research scholars and Faculty
5.	Microsoft Office professional , Adobe Reader	6 <sup>th</sup> , 7 <sup>th</sup> , 8 <sup>th</sup> semester students, Research scholars and Faculty
6.	Fedora , Red Hat Linux	6 <sup>th</sup> , 7 <sup>th</sup> , 8 <sup>th</sup> semester students, Research scholars and Faculty
7.	Apache Tomcat	6 <sup>th</sup> , 7 <sup>th</sup> , 8 <sup>th</sup> semester students, Research scholars and Faculty

Specification: Lenovo Edge 73-Intel core I7,8GB RAM





### 6.5 Safety measures in laboratories (10)

**Total Marks 10.00**

Sr. No.	Name of the Laboratory	Safety measures
1.	Linux Laboratory	Fire Extinguisher , UPS Anti-virus, First Aid Box, Earthing, Firewall, Sanitizer
2.	Computer Network Laboratory	Fire Extinguisher , UPS, Earthing, Firewall, Sanitizer
3.	Computer Design Laboratory	Fire Extinguisher , UPS, Earthing, , Firewall, Sanitizer
4	Computer software Laboratory	Fire Extinguisher , UPS, Firewall, Earthing, Firewall, Sanitizer
5	Microprocessor Laboratory	Fire Extinguisher , UPS, Antivirus, Earthing, Firewall, Sanitizer
6	Digital & Hardware Laboratory	Fire Extinguisher , UPS, Antivirus, Earthing, Firewall, Sanitizer
7	Multimedia Laboratory	Fire Extinguisher , UPS, Antivirus, Earthing, Firewall, Sanitizer
8	Fundamental Laboratory	Fire Extinguisher , UPS, Antivirus, First Aid Box, Earthing, Firewall, Sanitizer
9	Project Lab	Fire Extinguisher , UPS, Antivirus, Earthing, Firewall, Sanitizer

<b>CRITERION 7</b>	<b>CONTINUOUS IMPROVEMENT</b>	<b>(50)</b>
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**Cycle -1****2019-2020**

<b>POs</b>	<b>Target Level</b>	<b>Attainment Level</b>	<b>Observations</b>
<b>PO1: Engineering Knowledge</b> (Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.)			
PO1	1.6	1.46	<p>Attainment is 91.06 % of target value. The courses which need attention are Discrete Mathematics Computer Organization and Architecture, Engineering Mathematics III, Theory of Computation</p> <ol style="list-style-type: none"> <li>1. Students find it difficult to apply theoretical concepts to practical problems.</li> <li>2. Students find it difficult to apply engineering fundamentals to solve complex engineering problems.</li> <li>3. Students find it difficult to apply the basic knowledge of engineering science to practical problems.</li> </ol>
<p>Action 1: Additional practice problems to be solved for numerical subjects</p> <p>Action 2: Illustrations for various practical concepts will be given in classroom.</p> <p>Action 3: Conduction of activities like quiz and use of National Programme on Technology Enhanced Learning video lectures during teaching.</p> <p>Action 4: Tutorials conducted focusing the knowledge of engineering fundamentals.</p> <p>Action 5: Webinars/Expert Lecture on latest technology to enhance engineering knowledge are planned</p>			
<b>PO2: Problem Analysis:</b> Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	1.6	1.38	<p>Attainment is 86.32 % of target value. The courses which need attention are Microprocessor, Information Systems and Engineering Economics</p> <p>have further scope of improvement</p>
<p>Action 1: Target level of the subjects will be improved by giving application-based assignments and by showing National Programme on Technology Enhanced Learning video lectures.</p> <p>Action 2: Expert session related to project guidance is planned to improve the ability to identify, formulate and analyze the engineering problem.</p> <p>Action 3: To inculcate the habit of doing literature survey, students will be advised to refer minimum 10 research papers related to their project and seminar topics.</p> <p>Action 4: Faculty members will take extra efforts to provide assignments to the students and also guide them to use online study material available like MOOCs/ Coursera courses which are self- paced and have no fixed schedule.</p>			



<b>PO3: Design/development of Solutions</b> (Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.)			
PO3	1.4	1.39	Attainment is 99.15 % of target value. The courses which need attention are Mobile Communication and Computer Network, Data structure and algorithm The students are not able to establish the relation with the software artifacts learnt and real-life problems.
Action 1: Students will be encouraged to do industrial training and internships to enhance the ability to identify and formulate complex engineering problems.			
Action 2: Faculty is advised to give application-based assignments to students.			
<b>PO4: Conduct Investigations of Complex Problems</b> (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	1.4	1.28	Attainment is 91.65 % of target value. The courses which need attention are Software Modeling and Design , System programming and operating system, machine learning . Data analytical and interpretation skills of the students needs to be improved. Students face challenges to select the appropriate software tools from a wide Variety of software available for a given problem.
Action1. Students are introduced to different software in project laboratory			
Action 2: In addition to the content of syllabus, teachers will introduce research paper problems from journals in the tutorial and lab classes. Role of mathematical modeling will be explained through National Programme on Technology Enhanced Learning courses and videos.			
Action 3: Students are motivated to explore more on analysis and interpretation of data for selecting research-based project statement.			
Action 4: More exposure to data science tools to be given.			
Action 5: Students are encouraged to do industry sponsored projects to enhance skills to investigate / analyze real life complex problem			
<b>PO5: Modern Tool Usage</b> (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	1.4	1.47	Target Level Attained. The courses which need attention are Design and Analysis of Algorithms Embedded system and internet of things, artificial intelligence and robotics. Required to make students aware of advanced tools used in IT Industry. Students lack in practicing the Modeling Simulation and Analytical tools.
Action 1: Students are motivated to enroll for different courses like National Programme on Technology Enhanced Learning, Spoken tutorial, Coursera etc.			
Action 2: Students will be encouraged to do industrial training / internship.			
Action 3: Extra sessions are arranged to make students aware of latest tools, techniques and trends.			
<b>PO6: The Engineer and Society</b> (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	1.2	1.29	Target Level Attained. Innovation and emerging trends in the field of engineering and science having impact on society and environment
<p>Action 1: Students are motivated to actively participate in different social activities like National Service Scheme camps and techno-social visits.</p> <p>Action 2: To enhance professional engineering practices students are motivated to take part in Professional society's chapters activities.</p>			
<b>PO7: Environment and Sustainability</b> (Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.)			
PO7	1.2	1.49	Target Level Attained. Efforts are put to make students aware About Environment and Sustainability.
<p>Action 1: Students will be encouraged to do their project work which will be beneficial for society and also helpful in environmental context.</p> <p>Action 2: Students are encouraged to develop mini project to address social issues.</p> <p>Action 3: Larger number of expert lectures to be organized to address environmental and sustainability issues in engineering.</p> <p>Action 4: Techno-social visits are planned for students.</p>			
<b>PO8: Ethics</b> (Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.)			
PO8	1.2	1.40	Target Level Attained. To imbibe professional ethics and responsibilities among students, larger number of activities needs to be carried out. Students lacks multidisciplinary approach
<p>Action 1. The ethics are largely taken care at all course delivery particularly in report writings.</p> <p>Action 2. Students are made aware of concepts like Intellectual property rights and plagiarism</p>			
<b>PO9: Individual and Team Work</b> (Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings).			
PO9	1.2	1.26	Target Level Attained. Students lack the communication and interpersonal skills
<p>Action 1: Students are motivated to organize the team activities like Group Quiz, Social/Technical Quiz etc.</p> <p>Action 2: Students will be encouraged to participate in events like seminar, workshop, projects, hands-on training etc. organized by Professional body activities to improve their interpersonal skills.</p>			
<b>PO10: Communication</b> (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	1.2	1.32	Target Level Attained. It is observed that there is scope of improvement in design, documentation and presentation.
<p>Action 1: Power Point Presentation will be given by Second year, Third year, Final year students as a part of Audit course.</p> <p>Action 2: The students are encouraged to participate in competitive events like essay writing, debate events etc.</p> <p>Action 3: Soft skill training is planned in order to improve student's communication capability.</p> <p>Action 4: Mock interviews are planned for Final year students</p>			

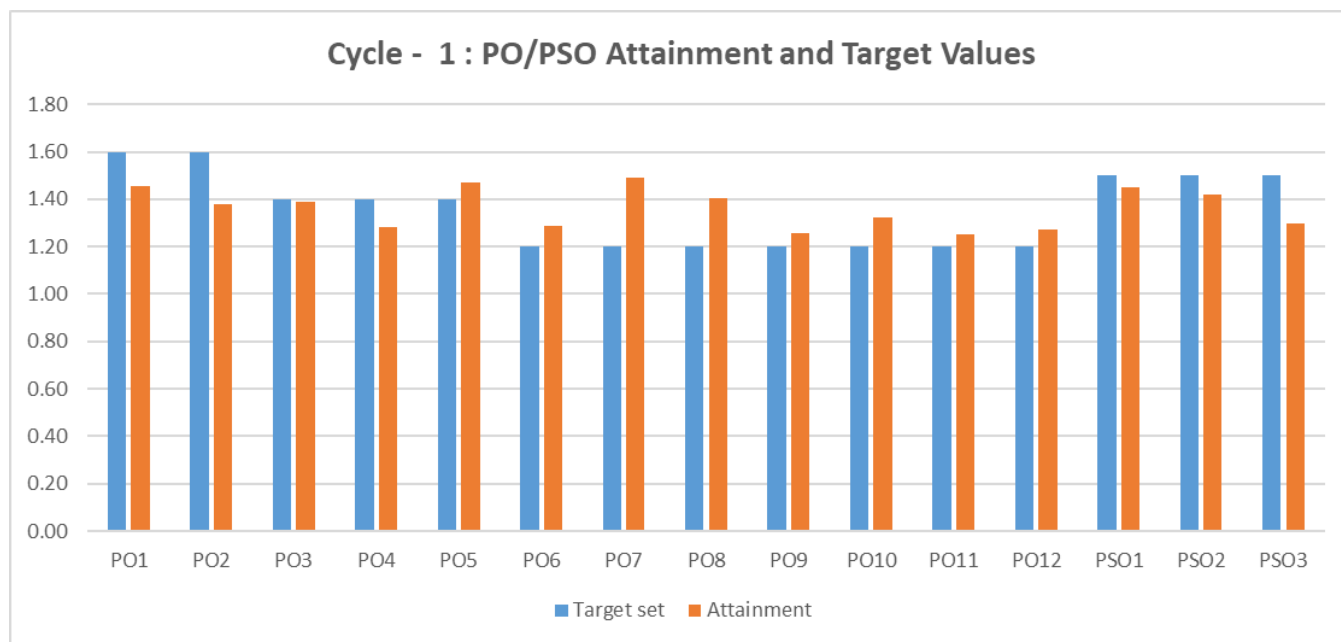
<b>PO11: Project Management and Finance</b> (Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.)			
PO11	1.2	1.25	Target Level Attained. More focus needs to be given on Engineering Economics and financial analysis.
<p>Action 1: Students are motivated to organize and manage the group activities like technical Aptitude quiz, General knowledge quiz etc.</p> <p>Action 2: Students are motivated to participate in various technical events like hackathon, Paper/Poster presentation, project competition etc.</p> <p>Action 3: Students are encouraged to develop project in a team to enhance their project management skills.</p> <p>Action 4: Students are encouraged to participate in technical competitions to improve project management skills.</p>			
<b>PO12: Life-long Learning</b> (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	1.2	1.27	Target Level Attained. More focus needs to be given on importance of independent and life-long learning. Students face challenges in identifying real life problem.
<p>Action 1: Emphasis will be given on exploring various e-learning platforms.</p> <p>Action 2: Awareness on latest technologies and trends will be created through expert lectures, workshops and Industrial visits.</p> <p>Action 3: Students are encouraged to enroll for training / certification courses.</p> <p>Action 4: For conduction of practical use of virtual labs to be increased so that students will be able to explore extra practical related to their course on their own</p>			
PSO1: Students are able to devise, analyze and implement algorithms.			
PSO1	1.5	1.45	Attainment is 96.61 % of target value. Students did not get much opportunity to practically design for actual/industrial project
<p>Action 1: Students are given challenging assignments, assignments with open ended problems, mini projects.</p> <p>Action 2: Students are encouraged to participate in events like project competition, Hackathon, Unnat Bharat Abhiyan.</p>			
PSO2: Students are able to exhibit their IT based knowledge for the development of Society.			
PSO2	1.5	1.42	Attainment is 94.73 % of target value. Students are facing challenges in working with multidisciplinary environment.
<p>Action 1. Professional body activities.</p> <p>Action2: Students are motivated to participate in various online certification courses.</p> <p>Action 3: Planned to have tie-up (Memorandum of understanding) with various Information technology companies so that students will be exposed to modern computer engineering techniques like Artificial Intelligence, Machine Learning, Amazon Web Services Cloud, etc.</p>			
PSO3: Enhance communication and leadership skills to get good position in National and International Organizations.			
PSO3	1.5	1.30	Attainment is 86.60 % of target value More activities need to be planned to motivate and create interest among students about entrepreneurship and higher studies.

Action 1: Session is planned to create awareness about higher education opportunities in Indian and foreign universities.

Action 2: Guidance sessions are planned to make students aware about various competitive examinations like Graduate Aptitude Test in Engineering, Graduate Record Examinations and the Test of English as a Foreign Language etc.

Action 3: To develop entrepreneurship skills, expert lecture is planned.

Action 4: Mock interview sessions are planned for Final year students.



**Table 7.1**  
**Cycle -2**  
**2020-2021**

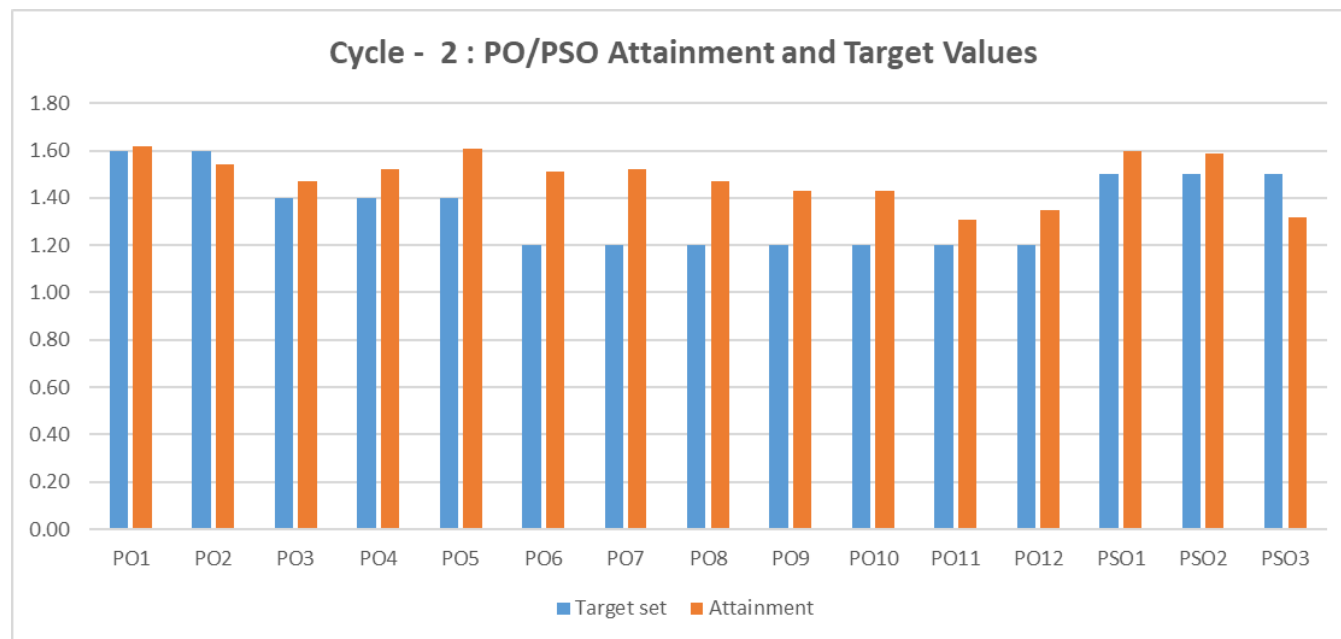
POs	Target Level	Attainment Level	Observations
<b>PO1: Engineering Knowledge</b> (Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.)			
PO1	1.6	1.62	<p>Target Level Attained. The courses which need attention are Discrete Mathematics Computer Organization and Architecture. Engineering Mathematics III, Theory of Computation.</p> <p>1.The students faced difficulty to understand basic concepts of the courses.</p> <p>2. Students find it difficult to apply engineering fundamentals to solve complex engineering problems.</p> <p>3. Students find it difficult to apply the basic knowledge of engineering science to practical problems.</p>
<p>Action 1: Additional practice problems to be solved for numerical subjects</p> <p>Action 2. Illustrations for various practical concepts will be given in classroom.</p> <p>Action 3. Conduction of activities like quiz and use of National Programme on Technology Enhanced Learning video lectures during teaching.</p> <p>Action 4. Tutorials conducted focusing the knowledge of engineering fundamentals.</p> <p>Action 5. Webinars/Expert Lecture on latest technology to enhance engineering knowledge are planned</p>			
<b>PO2: Problem Analysis:</b> Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	1.6	1.54	<p>Attainment is 96.25 % of target value. The courses which need attention are Microprocessor, Information Systems and Engineering Economics</p> <p>have further scope of improvement</p>
<p>Action 1: Additional practice problems to be solved for numerical subjects.</p> <p>Action 2:Target level of the subjects will be improved by giving application-based assignments and by showing National Programme on Technology Enhanced Learning video lectures.</p> <p>Action 3: Expert session related to project guidance is planned to improve the ability to identify, formulate and analyze the engineering problem.</p> <p>Action 4: To inculcate the habit of doing literature survey, students will be advised to refer minimum 10 research papers related to their project and seminar topics.</p> <p>Action 5: Faculty members will take extra efforts to provide assignments to the students and also guide them to use online study material available like MOOCs/ Coursera courses which are self- paced and have no fixed schedule.</p>			
<b>PO3: Design/development of Solutions</b> (Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.)			
NBA SAR Computer Engineering PO3	1.4	1.47	<p>Target Level Attained . The courses which need attention are Mobile Communication and Computer Network, Data structure and algorithm</p>

			The students are not able to establish the relation with the software artifacts learnt and real-life problems.
<p>Action 1: Students will be encouraged to do industrial training and internships to enhance the ability to identify and formulate complex engineering problems.</p> <p>Action 2: Faculty is advised to give application-based assignments to students.</p>			
<p><b>PO4: Conduct Investigations of Complex Problems</b> (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.)</p>			
PO4	1.4	1.52	<p>Target Level Attained . The courses which need attention are Software Modeling and Design , System programming and operating system, machine learning .</p> <p>Data analytical and interpretation skills of the students needs to be improved.</p> <p>Students face challenges to select the appropriate software tools from a wide Variety of software available for a given problem.</p>
<p>Action1. Students are introduced to different software in project laboratory</p> <p>Action 2: In addition to the content of syllabus, teachers will introduce research paper problems from journals in the tutorial and lab classes. Role of mathematical modeling will be explained through National Programme on Technology Enhanced Learning courses and videos.</p> <p>Action 3: Students are motivated to explore more on analysis and interpretation of data for selecting research-based project statement.</p> <p>Action 4: More exposure to data science tools to be given.</p> <p>Action 5: Students are encouraged to do industry sponsored projects to enhance skills to investigate / analyze real life complex problem</p>			
<p><b>PO5: Modern Tool Usage</b> (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.)</p>			
PO5	1.4	1.62	<p>Target Level Attained. The courses which need attention are Design and Analysis of Algorithms</p> <p>Embedded system and internet of things, artificial intelligence and robotics.</p> <p>Required to make students aware of advanced tools used in IT Industry. Students lack in practicing the Modeling Simulation and Analytical tools.</p>
<p>Action 1: Students are motivated to enroll for different courses like National Programme on Technology Enhanced Learning, Spoken tutorial, Coursera etc.</p> <p>Action 2: Students will be encouraged to do industrial training / internship.</p> <p>Action 3: Extra sessions are arranged to make students aware of latest tools, techniques and trends.</p>			
<p><b>PO6: The Engineer and Society</b> (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.)</p>			
PO6	1.2	1.51	<p>Target Level Attained. Innovation and emerging trends in the field of engineering and science having impact on society and environment</p>
<p>Action 1: Students are motivated to actively participate in different social activities like National Service Scheme camps and techno-social visits.</p> <p>Action 2: To enhance professional engineering practices students are motivated to take part in Professional society's chapters activities.</p>			

<b>PO7: Environment and Sustainability</b> (Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.)			
PO7	1.2	1.52	Target Level Attained. Efforts are put to make students aware About Environment and Sustainability.
<p>Action 1: Students will be encouraged to do their project work which will be beneficial for society and also helpful in environmental context.</p> <p>Action 2: Students are encouraged to develop mini project to address social issues.</p> <p>Action 3: Larger number of expert lectures to be organized to address environmental and sustainability issues in engineering.</p> <p>Action 4: Techno-social visits are planned for students.</p>			
<b>PO8: Ethics</b> (Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.)			
PO8	1.2	1.47	Target Level Attained. To imbibe professional ethics and responsibilities among students, larger number of activities needs to be carried out. Students lacks multidisciplinary approach
<p>Action 1. The ethics are largely taken care at all course delivery particularly in report writings.</p> <p>Action 2. Students are made aware of concepts like Intellectual property rights and plagiarism</p>			
<b>PO9: Individual and Team Work</b> (Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings).			
PO9	1.2	1.43	Target Level Attained. Students lack the communication and interpersonal skills
<p>Action 1: Students are motivated to organize the team activities like Group Quiz, Social/Technical Quiz etc.</p> <p>Action 2: Students will be encouraged to participate in events like seminar, workshop, projects, hands-on training etc. organized by Professional body activities to improve their interpersonal skills.</p>			
<b>PO10: Communication</b> (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	1.2	1.43	Target Level Attained. It is observed that there is scope of improvement in design, documentation and presentation.
<p>Action 1: Power Point Presentation will be given by Second year, Third year, Final year students as a part of Audit course.</p> <p>Action 2: The students are encouraged to participate in competitive events like essay writing, debate events etc.</p> <p>Action 3: Soft skill training is planned in order to improve student's communication capability.</p> <p>Action 4: Mock interviews are planned for Final year students</p>			
<b>PO11: Project Management and Finance</b> (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	1.2	1.31	Target Level Attained. More focus needs to be given on Engineering Economics and financial analysis.
<p>Action 1: Students are motivated to organize and manage the group activities like technical Aptitude quiz, General knowledge quiz etc.</p> <p>Action 2: Students are motivated to participate in various technical events like hackathon, Paper/Poster presentation, project competition etc.</p> <p>Action 3: Students are encouraged to develop project in a team to enhance their project management skills.</p> <p>Action 4: Students are encouraged to participate in technical competitions to improve project management skills.</p>			

<b>PO12: Life-long Learning</b> (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	1.2	1.35	Target Level Attained. More focus needs to be given on importance of independent and life-long learning. Students face challenges in identifying real life problem.
<p>Action 1: Emphasis will be given on exploring various e-learning platforms.</p> <p>Action 2: Awareness on latest technologies and trends will be created through expert lectures, workshops and Industrial visits.</p> <p>Action 3: Students are encouraged to enroll for training / certification courses.</p> <p>Action 4: For conduction of practical use of virtual labs to be increased so that students will be able to explore extra practical related to their course on their own</p>			
PSO1: Students are able to devise, analyze and implement algorithms.			
PSO1	1.5	1.60	Target Level Attained. Students did not get much opportunity to practically design for actual/industrial project
<p>Action 1: Students are given challenging assignments, assignments with open ended problems, mini projects.</p> <p>Action 2: Students are encouraged to participate in events like project competition, Hackathon, Unnat Bharat Abhiyan.</p>			
PSO2: Students are able to exhibit their IT based knowledge for the development of Society.			
PSO2	1.5	1.59	Target Level Attained. Students are facing challenges in working with multidisciplinary environment.
<p>Action 1. Professional body activities.</p> <p>Action2: Students are motivated to participate in various online certification courses.</p> <p>Action 3: Planned to have tie-up (Memorandum of understanding) with various Information technology companies so that students will be exposed to modern computer engineering techniques like Artificial Intelligence, Machine Learning, Amazon Web Services Cloud, etc.</p>			
PSO3: Enhance communication and leadership skills to get good position in National and International Organizations.			
PSO3	1.5	1.32	Attainment is 88 % of target value More activities need to be planned to motivate and create interest among students about entrepreneurship and higher studies.
<p>Action 1: Session is planned to create awareness about higher education opportunities in Indian and foreign universities.</p> <p>Action 2: Guidance sessions are planned to make students aware about various competitive examinations like Graduate Aptitude Test in Engineering, Graduate Record Examinations and the Test of English as a Foreign Language etc.</p> <p>Action 3: To develop entrepreneurship skills, expert lecture is planned.</p> <p>Action 4: Mock interview sessions are planned for Final year students.</p>			





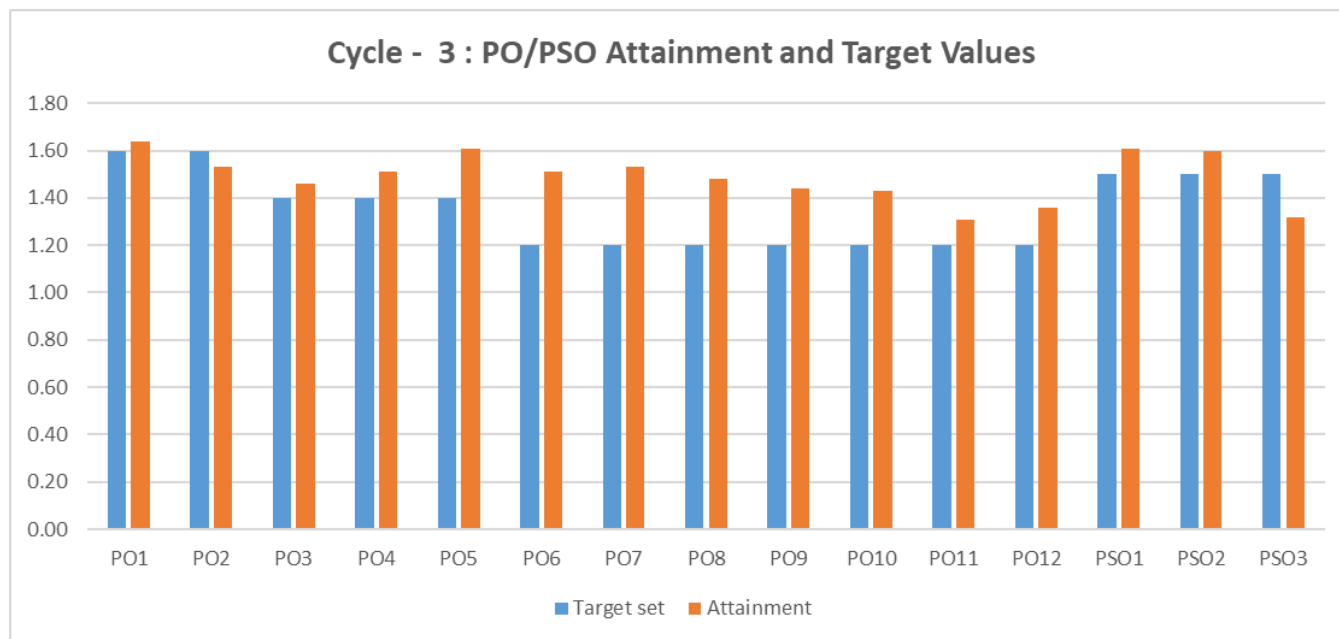
**Table 7.1**  
**Cycle -3**  
**2021-2022**

POs	Target Level	Attainment Level	Observations
<b>PO1: Engineering Knowledge</b> (Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.)			
PO1	1.6	1.64	<p>Target Level Attained. The courses which need attention are Digital Electronics and Logic Design, Engineering Mathematics III, Theory of Computation</p> <ol style="list-style-type: none"> <li>1. Students find it difficult to apply theoretical concepts to practical problems.</li> <li>2. Students find it difficult to apply engineering fundamentals to solve complex engineering problems.</li> <li>3. Students find it difficult to apply the basic knowledge of engineering science to practical problems.</li> </ol>
<p>Action 1: Additional practice problems to be solved for numerical subjects</p> <p>Action 2: Illustrations for various practical concepts will be given in classroom.</p> <p>Action 3: Conduction of activities like quiz and use of National Programme on Technology Enhanced Learning video lectures during teaching.</p> <p>Action 4: Tutorials conducted focusing the knowledge of engineering fundamentals.</p> <p>Action 5: Webinars/Expert Lecture on latest technology to enhance engineering knowledge are planned</p>			
<b>PO2: Problem Analysis:</b> Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	1.6	1.55	<p>Attainment is 95.63% of target value The courses which need attention are Microprocessor, have further scope of improvement</p>
<p>Action 1: Target level of the subject, Microprocessor will be improved by giving application-based assignments and by showing National Program on Technology Enhanced Learning video lectures.</p> <p>Action 2: Expert session related to project guidance is planned to improve the ability to identify, formulate and analyze the engineering problem.</p> <p>Action 3: To inculcate the habit of doing literature survey, students will be advised to refer minimum 10 research papers related to their project and seminar topics.</p> <p>Action 4: Faculty members will take extra efforts to provide assignments to the students and also guide them to use online study material available like MOOCs/ Coursera courses which are self- paced and have no fixed schedule.</p>			
<b>PO3: Design/development of Solutions</b> (Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.)			
PO3	1.4	1.52	<p>Target Level Attained. The courses which need attention is Data structure and algorithm</p> <p>The students are not able to establish the relation with the software artifacts learnt and real-life problems.</p>
NBA SAR Computer Engineering			178

<p>Action 1: Students will be encouraged to do industrial training and internships to enhance the ability to identify and formulate complex engineering problems.</p> <p>Action 2: Faculty is advised to give application-based assignments to students.</p>			
<p><b>PO4: Conduct Investigations of Complex Problems</b> (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.)</p>			
PO4	1.4	1.51	<p>Target Level Attained. The courses which need attention System programming and operating system.</p> <p>Data analytical and interpretation skills of the students' needs to be improved.</p> <p>Students face challenges to select the appropriate software tools from a wide variety of software available for a given problem.</p>
<p>Action1. Students are introduced to different software in project laboratory</p> <p>Action 2: In addition to the content of syllabus, teachers will introduce research paper problems from journals in the tutorial and lab classes. Role of mathematical modeling will be explained through National Programme on Technology Enhanced Learning courses and videos.</p> <p>Action 3: Students are motivated to explore more on analysis and interpretation of data for selecting research-based project statement.</p> <p>Action 4: More exposure to data science tools to be given.</p> <p>Action 5: Students are encouraged to do industry sponsored projects to enhance skills to investigate / analyze real life complex problem</p>			
<p><b>PO5: Modern Tool Usage</b> (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.)</p>			
PO5	1.4	1.64	<p>Target Level Attained. The courses which need attention is Design and Analysis of Algorithms</p> <p>Required to make students aware of advanced tools used in IT Industry. Students lack in practicing the Modeling Simulation and Analytical tools.</p>
<p>Action 1: Students are motivated to enroll for different courses like National Program on Technology Enhanced Learning, Spoken tutorial, Coursera etc.</p> <p>Action 2: Students will be encouraged to do industrial training / internship.</p> <p>Action 3: Extra sessions are arranged to make students aware of latest tools, techniques and trends.</p> <p>Action 4: Students are motivated to write seminar/project reports using LATEX</p>			
<p><b>PO6: The Engineer and Society</b> (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.)</p>			
PO6	1.2	1.48	<p>Target Level Attained. Innovation and emerging trends in the field of engineering and science having impact on society and environment</p>
<p>Action 1: Students are motivated to actively participate in different social activities like National Service Scheme camps and techno-social visits.</p> <p>Action 2: To enhance professional engineering practices students are motivated to take part in Professional society's chapters activities.</p>			
<p><b>PO7: Environment and Sustainability</b> (Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.)</p>			
PO7	1.2	1.49	<p>Target Level Attained. Efforts are put to make students aware About Environment and Sustainability.</p>

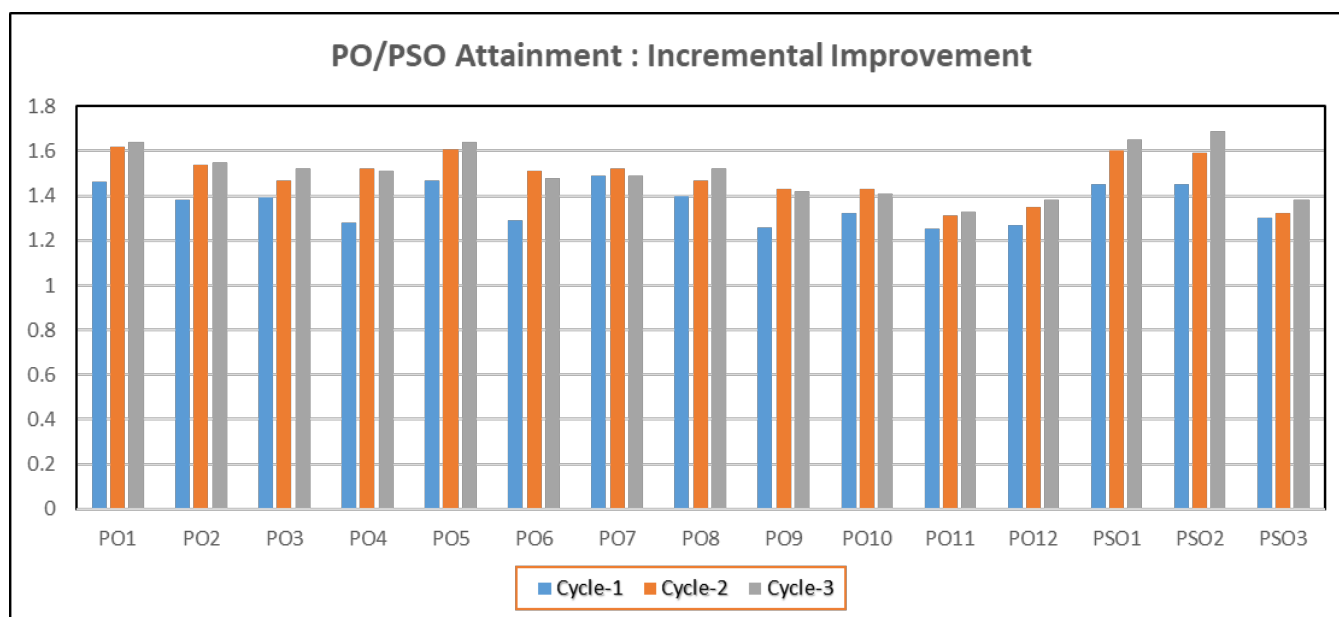
<p>Action 1: Students will be encouraged to do their project work which will be beneficial for society and also helpful in environmental context.</p> <p>Action 2: Students are encouraged to develop mini project to address social issues.</p> <p>Action 3: Larger number of expert lectures to be organized to address environmental and sustainability issues in engineering.</p> <p>Action 4: Techno-social visits are planned for students.</p>			
<b>PO8: Ethics</b> (Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.)			
PO8	1.2	1.52	<p>Target Level Attained. To imbibe professional ethics and responsibilities among students, larger number of activities needs to be carried out.</p> <p>Students lacks multidisciplinary approach</p>
<p>Action 1. The ethics are largely taken care at all course delivery particularly in report writings.</p> <p>Action 2. Students are made aware of concepts like Intellectual property rights and plagiarism</p>			
<b>PO9: Individual and Team Work</b> (Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings).			
PO9	1.2	1.42	<p>Target Level Attained. Students lack the communication and interpersonal skills</p>
<p>Action 1: Students are motivated to organize the team activities like Group Quiz, Social/Technical Quiz etc.</p> <p>Action 2: Students will be encouraged to participate in events like seminar, workshop, projects, hands-on training etc. organized by Professional body activities to improve their interpersonal skills.</p>			
<b>PO10: Communication</b> (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	1.2	1.41	<p>Target Level Attained .It is observed that there is scope of improvement in design, documentation and presentation.</p>
<p>Action 1: Power Point Presentation will be given by Second year, Third year, Final year students as a part of Audit course.</p> <p>Action 2: The students are encouraged to participate in competitive events like essay writing, debate events etc.</p> <p>Action 3: Soft skill training is planned in order to improve student's communication capability.</p> <p>Action 4: Mock interviews are planned for Final year students</p> <p>Action 5: Students are motivated to write seminar/project reports using LATEX</p>			
<b>PO11: Project Management and Finance</b> (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	1.2	1.33	<p>Target Level Attained. More focus needs to be given on Engineering Economics and financial analysis.</p>
<p>Action 1: Students are motivated to organize and manage the group activities like technical Aptitude quiz, General knowledge quiz etc.</p> <p>Action 2: Students are motivated to participate in various technical events like hackathon, Paper/Poster presentation, project competition etc.</p> <p>Action 3: Students are encouraged to develop project in a team to enhance their project management skills.</p> <p>Action 4: Students are encouraged to participate in technical competitions to improve project management skills.</p>			
<b>PO12: Life-long Learning</b> (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	1.2	1.38	Target Level Attained. More focus needs to be given on importance of independent and life-long learning. Students face challenges in identifying real life problem.
<p>Action 1: Emphasis will be given on exploring various e-learning platforms.</p> <p>Action 2: Awareness on latest technologies and trends will be created through expert lectures, workshops and Industrial visits.</p> <p>Action 3: Students are encouraged to enroll for training / certification courses.</p> <p>Action 4: For conduction of practical use of virtual labs to be increased so that students will be able to explore extra practical related to their course on their own</p>			
PSO1: Students are able to devise, analyze and implement algorithms.			
PSO1	1.5	1.65	Target Level Attained. Students did not get much opportunity to practically design for actual/industrial project
<p>Action 1: Students are given challenging assignments, assignments with open ended problems, mini projects.</p> <p>Action 2: Students are encouraged to participate in events like project competition, Hackathon, Unnat Bharat Abhiyan.</p>			
PSO2: Students are able to exhibit their Information technology based knowledge for the development of Society.			
PSO2	1.5	1.69	Target Level Attained. Students are facing challenges in working with multidisciplinary environment.
<p>Action 1. Professional body activities.</p> <p>Action2: Students are motivated to participate in various online certification courses.</p> <p>Action 3: Planned to have tie-up ((Memorandum of understanding) with various Information technology companies so that students will be exposed to modern computer engineering techniques like Artificial Intelligence, Machine Learning, Amazon Web Services Cloud, Procedural language extension to Structured Query Language, etc.</p>			
PSO3: Enhance communication and leadership skills to get good position in National and International Organizations.			
PSO3	1.5	1.38	Attainment is 88 % of target value. More activities need to be planned to motivate and create interest among students about entrepreneurship and higher studies.
<p>Action 1: Session is planned to create awareness about higher education opportunities in Indian and foreign universities.</p> <p>Action 2: Guidance sessions are planned to make students aware about various competitive examinations like Graduate Aptitude Test in Engineering, Graduate Record Examinations and the Test of English as a Foreign Language, etc.</p> <p>Action 3: To develop entrepreneurship skills, expert lecture is planned.</p> <p>Action 4: Mock interview sessions are planned for Final year students.</p>			



### PO/PSO Attainment

PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
<b>Cycle-1</b>	1.46	1.38	1.39	1.28	1.47	1.29	1.49	1.4	1.26	1.32	1.25	1.27	1.45	1.45	1.3
<b>Cycle-2</b>	1.62	1.54	1.47	1.52	1.61	1.51	1.52	1.47	1.43	1.43	1.31	1.35	1.6	1.59	1.32
<b>Cycle-3</b>	1.64	1.55	1.52	1.51	1.64	1.48	1.49	1.52	1.42	1.41	1.33	1.38	1.65	1.69	1.38



POs & PSOs Attainment Levels and Actions for improvement – CAY  
 Similar Tables should be presented for CAY<sub>m1</sub> and CAY<sub>m2</sub>

## **7.2. Academic Audit and actions taken thereof during the period of Assessment (10)**

AISSMS COE has established a 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. Variety 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, the Institute has adopted certain quality management strategies and has developed methodology for auditing different academic and administrative quality aspects.

A committee for program evaluation and quality improvement exists within the Department - Program Assessment and Quality Improvement committee (PAQIC). PAQIC committee consist of Head of Department as Chairman, Module Coordinators, Industry Institute Coordinator and Exam Coordinator.


PAQIC sees academic audits at the department level on syllabus coverage, laboratory work completed, students' performance in internal and external exams, and activity planning based on feedback, such as course end surveys and exit surveys.

PAQIC verifies course coordinators' course files as well as other outcome-oriented documents for each course, such as test papers and assignments to ensure that questions satisfy the desired learning level as per Bloom's taxonomy.

PAQIC committee also monitors conduction of supporting activities like Industrial Visits, Expert Lectures, Workshops, Projects, Internships etc.

PAQIC meeting is conducted twice in semester, one at the beginning and the other in the mid semester, in which the requisite suggestions may be given. The compliance required is brought to the notice of the concerned person or team and corrective action is suggested and monitored again at a predetermined interval.


## PAQIC Members



# AISSMS

## COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi, Recognized by Govt of Maharashtra,  
Affiliated to Savitribai Phule Pune University and recognized under 2(f) and 12 (B) by UGC  
(is No PU/PN/Engg (2f) (1992) AISEE Code No: C-41227  
Accredited by NAAC with A+ Grade



**SIRI MALOHARJE CHITRAPATI**  
Honorary Secretary


**Dr. D. S. BORMANE**  
Principal

Date: 16/05/2022

**Order**  
**PAQIC Co-ordinators**

The following members have appointed as a PAQIC Co-ordinators of Computer Engineering Department for the Year 2021-2022.

- 1.) Dr.D.P.Gaikwad
- 2.) Dr.M.A.Pradhan
- 3.) Ms.S.R.Nalamwar
- 4.) Dr. S.F.Sayyad
- 5.) Mr.N.R.Talhar

  
**H.O.D.**  
 Computer Engineering Department  
**H.O.D.**  
 Computer Engg. Dep.  
 AISSMS COE Pune

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**Figure B7.2a Constitution of PAQIC**



**Table B7.2a: Meeting schedule**

<b>Term</b>	<b>Meeting 1</b>	<b>Meeting 2</b>
<b>Term I</b> (2021- 2022)	<b>At the start of semester</b>  Action taken for Term I (2020-2021) analysis  Decide action plan for the Term I (2021-2022)	<b>In the mid of Term I (Current Year)</b>  Monitoring of action suggested and effective implementation at course level.  Term I (2021-2022)
<b>Term II</b> (2021-2022)	<b>At the start of semester</b>  Action taken for Term II (2020-2021) analysis  Decide action plan for the Term II (2021-2022)	<b>In the mid of Term II (Current Year)</b>  Monitoring of action suggested and effective implementation at course level.  Term II (2021-2022)



## Department of Computer Engineering

### Academic Audit Report

Year : 2019-20

Class : SE (Computer Engineering )

Sem : I

Subject	COs	2018-19			PAQIC MOM (2019-20)		Target Set
		Target Set	Attainment	GAP	Decision for Current A Y (2019-20)	Action Plan (Activity) for 2019-20 Academic Year	2019-20
Discrete Mathematics	CO1	1.44	1.35	0.09	Not attained decide Actions Plan	Other Activity (Important notes, Question bank, etc)	1.44
	CO2	1.44	1.35	0.09	Not attained decide Actions Plan	Other Activity (Important notes, Question bank, etc)	1.44
	CO3	1.44	1.37	0.07	Not attained decide Actions Plan	Other Activity (Important notes, Question bank, etc)	1.44
	CO4	1.44	1.66	-0.22	Fully attained hence Enhance target	Improve Target	1.44
	CO5	1.44	1.64	-0.20	Fully attained hence Enhance target	Improve Target	1.44
	CO6	1.44	1.62	-0.18	Fully attained hence Enhance target	Improve Target	1.44
Digital Electronics and Logic Design	CO1	1.76	1.97	-0.21	Fully attained hence Enhance target	Improve Target	1.76
	CO2	1.76	1.99	-0.23	Fully attained hence Enhance target	Improve Target	1.76
	CO3	1.76	1.84	-0.08	Fully attained	Improve	1.76

					hence Enhance target	Target	
	CO4	1.76	1.96	-0.20	Fully attained hence Enhance target	Improve Target	1.76
	CO5	1.76	1.76	0.00	Fully attained hence Enhance target	Improve Target	1.76
	CO6	1.76	1.76	0.00	Fully attained hence Enhance target	Improve Target	1.76
Data Structures and Algorithms	CO1	1.54	1.28	0.26	Not attained decide Actions Plan	Other Activity (Important notes, Question bank, etc)	1.54
	CO2	1.54	1.24	0.30	Not attained decide Actions Plan	Other Activity (Important notes, Question bank, etc)	1.54
	CO3	1.54	1.28	0.26	Not attained decide Actions Plan	Student Club activity	1.54
	CO4	1.54	0.97	0.57	Not attained decide Actions Plan	Other Activity (Important notes, Question bank, etc)	1.54
	CO5	1.54	0.97	0.57	Not attained decide Actions Plan	Other Activity (Important notes, Question bank, etc)	1.54
	CO6	1.54	0.93	0.61	Not attained decide Actions Plan	Other Activity (Important notes, Question bank, etc)	1.54
Computer Organization and Architecture	CO1	1.20	1.27	-0.07	Fully attained hence Enhance target	Improve Target	1.20
	CO2	1.20	1.28	-0.08	Fully attained hence Enhance target	Improve Target	1.20
	CO3	1.20	1.15	0.05	Not attained decide Actions Plan	U Tube/ Demo Videos	1.20

	CO4	1.20	0.71	0.49	Not attained decide Actions Plan	U Tube/ Demo Videos	1.20
	CO5	1.20	0.53	0.67	Not attained decide Actions Plan	U Tube/ Demo Videos	1.20
	CO6	1.20	0.53	0.67	Not attained decide Actions Plan	U Tube/ Demo Videos	1.20
Object Oriented Programming	CO1	1.69	1.70	-0.01	Fully attained hence Enhance target	Improve Target	1.74
	CO2	1.69	1.80	-0.11	Fully attained hence Enhance target	Improve Target	1.74
	CO3	1.69	1.70	-0.01	Fully attained hence Enhance target	Improve Target	1.74
	CO4	1.69	1.71	-0.02	Fully attained hence Enhance target	Improve Target	1.74
	CO5	1.69	1.70	-0.01	Fully attained hence Enhance target	Improve Target	1.74
	CO6	1.69	1.80	-0.11	Fully attained hence Enhance target	Improve Target	1.74



## Department of Computer Engineering

### AUDIT REPORT (2019-20) TERM - I

#### Summary

#### Second Year (SE)

Following courses met the target and the Target for next year are increased: Object Oriented Programming, Digital Electronics and Logic Design.

- Following activities are suggested for the courses which were partially attained and the targets for next year are kept same:

Sr. No.	Name of the Course	Observations
1.	Discrete Mathematics, Data Structures and Algorithms, Computer Organization and Architecture,	1.The students faced difficulty to understand basic concepts of the courses. 2.Late admission of Direct SE Students.

Actions suggested:

- Conduction of Extra classes for Lateral entry students.
- Additional practice of unsolved problems from book and university question papers of previous exams.
- Providing more practice through assignments.
- Supplementary learning through Quiz and use of video lectures like NPTEL, [www.youtube.com](http://www.youtube.com), coursera etc.

#### Third Year (TE)

- Following courses met the target and the Target for next year are increased: Database Management System, Information Systems and Engineering Economics.
- Following courses were partially attained and the targets for next year are kept same:
- Theory of Computation, Information Systems and Engineering Economics ,Computer Network
- Following activities are suggested for the courses which were not attained and the targets for next year are kept same:

Sr. No.	Name of the Course	Observations
1.	Theory of Computation	These kinds of courses need more practice and students need more practice on calculations and grammar and expression related questions.
2.	Design and Analysis of Algorithms	These kinds of courses need more practice and students need more practice on algorithm and calculations .

Actions suggested:

1. Providing more practice through assignments.
2. Additional practice of unsolved problems from book and university question papers of previous exams.
3. Use of video lectures like NPTEL, [www.youtube.com](http://www.youtube.com), courser for better understanding the concepts taught in class.
4. Conducting extra lectures or doubt solving sessions.

**Final Year (BE)**

1. Following courses met the target and the Target for next year are increased: High Performance Computing , Artificial Intelligence and Robotics , Data Analytics , Data Mining and Warehousing , Distributed System , Mobile Communication
2. Following activities are suggested for the courses which were partially attained and the targets for next year are kept same:

Actions suggested:

1. Providing more practice through assignments.
2. Use of video lectures like NPTEL, [www.youtube.com](http://www.youtube.com), courser for better understanding the concepts.
3. Providing important notes and question banks for practicing and preparation for exams.



**AISSMS**  
**COLLEGE OF ENGINEERING**

ज्ञानम् सकलजनहिताय  
Accredited by NAAC with "A+" Grade



## **Department of Computer Engineering 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 Society.
- Enhancing the quality of life through sustainable development.
- Carrying out high quality intellectual work.
- Achieving distinction of the highest preferred engineering colleges in the eyes of stake holders.

### **Department Vision**

“Contributing to the welfare of society through technical and quality education.”

### **Department Mission**

- To produce Best Quality Computer Science Professionals by imparting quality training, hands on experience and value education.
- To Strengthen links with Industry through partnerships and collaborative developmental works.
- To attain self-sustainability and overall development through Research, Consultancy and Development Activities.
- To extend technical expertise to other technical Institutions of the region and play a lead role in imparting technical education.



## Department of Computer Engineering

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### PAQIC Meeting -1

**Academic Year :**2022-23

**Term :** I

**Date :** 22/7/2022

#### Meeting Agenda

1. Start of Academic semester
2. Load Distribution
3. Issues related teaching learning process
4. Exam Coordination
5. Guardian Faculty Member and Mentor allocation
6. Make up, remedial lecture etc
7. Test paper format
8. Student Feedback policy e.g suggestion Box
9. Newsletter
10. Industry Institute Interaction
11. Academic Calendar
12. Other, If any

#### Following decisions were taken:

1. TE, BE semester started on 18/07/2022. Term duration is 16 weeks as per SPPU academic calendar. Teachings plan to be prepared accordingly and need to be uploaded on enterprise resource planning(ERP). If any short falls in lectures planned, individual can conduct the lectures in afternoon session or on any Saturdays.



2. SE term will start from 17/08/2022 and will end on 10/12/2022.
3. Academic planner to be prepared and circulated which consist of three unit tests, two assignments and one subject related activity as well as other departmental activities.
4. Departmental Advisory Board meeting to be planned in the month of August and parents meet also suggested to conduct by Guardian Faculty Member.
5. Every faculty should plan expert/Guest lecture and industrial visit for their respective subjects.
6. Internship related information for December 2022 session is essential be given to TE students to make them aware about requirement of internship, essential format, duration etc. during induction programme.
7. Induction programmes of SE, TE and BE students to be scheduled in Aug 2022.
8. Faculty advisors of various chapters and teams may be kept in loop in view of improving academic performance of these students. All team members to attend theory and practical regularly. A meeting with Principal is proposed to checkout strategy.
9. Ms. V Waykule will work as SPPU exam coordinator from department.
10. Teaching load distribution of Term I of AY 2022-23 is completed. Three faculties will join shortly, up till that practical batch will be merged with other batches. Guardian Faculty Member will coordinate till faculty will join.
11. Allotment of Guardian Faculty Member for Term I of AY 2022-23 is completed.
12. All teaching activities will be conducted according to the policy instructions from institute academic coordinator time to time.
13. Midterm and end term provisionally detention list to be drawn and action need to be taken accordingly to improve academic performance of students.
14. Suggestion box for students to be used in department.
15. Newsletter of AY 21-22 is prepared by Ms. S S Kolte.
16. Curriculum gaps for AY 2021-22 is to be identified and activities to be planned for attainment of PO during AY 2022-23.
17. CO PO attainment of AY 2021-22 to be prepared after declaration of result.
18. All documentation work to be completed before annual academic audit.  
Annual report of AY 2021-22 to be completed.
19. Departmental social activities are to be planned by faculty.

Following members were present for the meeting

Sr. No.	Name of Member	Designation
1	Dr.S.V.Athawale	Chairman
2	A.S.Deokar	Coordinator
3	Dr.M. A. Pradhan	Member
4	Dr.D.P. Gaikwad	Member
5	Dr.S.F.Sayyad	Member
6	Dr.D.M.Ujalambkar	Member
7	V V Waykule	Exam Coordinator
8	S G Dhengre	Industry Institute Interaction Coordinator

### Meeting Photographs:







## Department of Computer Engineering

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### PAQIC Meeting - 2

**Academic Year :2022-23**

**Term : I**

**Date: 22/9/2022**

#### Meeting Agenda:

1. Review of the last meeting (22/07/2022)
2. Impact analysis
3. Creation and completion of course files and personal files
4. CO PO PSO attainment in a variety of subjects
5. End of term, stakeholder, industry, and alumni input will all be considered
6. Industrial visit, Expert talks review
7. Teaching review (Syllabus Coverage)
8. Unit Test review
9. Test question paper review by the module coordinator
10. Review of the attendance and the defaulter list
11. Adherence to academic calendar
12. Recommendations for achieving PO, PSO of various subjects and measures for the academic year 2021–2022

#### The following decisions were taken:

1. Review of the last minutes of the meeting taken.
2. Planning expert /guest lectures and industrial visits for each subject should be the responsibility of each faculty member.
3. For expert talks, industry visits, etc., impact analyses will be conducted.
4. The relevant module coordinator must review the course file and personal file.

5. CO PO PSO attainment sheet of AY 2021-22 to be prepared.
6. Complete all documentation before the annual academic audit.
7. Annual report of AY 2021-22 to be completed.
8. All feedbacks to be taken.
9. The corresponding Module Coordinator must verify the question paper for the upcoming test as discussed in the meeting in the prescribed manner.
10. To improve the attainment of CO, PO, and PSO for various subjects during the academic year 2021-2022, it is recommended to conduct a thorough analysis of the curriculum and teaching methods. This analysis can include a review of course objectives, learning outcomes, and assessment methods. To identify areas that want development, it may also be useful to get input from both students and teachers.
11. If the targets for achieving Co. PO and PSO for various subjects in AY 21–22 are successfully achieved, it is recommended to increase the target values for the upcoming academic years. To do this, a thorough analysis of the curriculum and teaching methods can be conducted to identify areas for improvement and enhancement.

Following members were present for the meeting

<b>Sr. No.</b>	<b>Name of Member</b>	<b>Designation</b>
1	Dr.S.V.Athawale	Chairman
2	A.S.Deokar	Coordinator
3	Dr.M. A. Pradhan	Member
4	Dr.D.P. Gaikwad	Member
5	Dr.S.F.Sayyad	Member
6	Dr.D.M.Ujalambkar	Member
7	V V Waykule	Exam Coordinator
8	S G Dhengre	Industry Institute Interaction Coordinator

A.S.Deokar  
Dept. Academic Coordinator

Dr.S.V.Athawale  
HOD

### 7.3 Improvement in Placement, Higher Studies and Entrepreneurship (10)

**Placement: number, quality placement, core industry, pay packages etc.**

#### 1.Number

The number of placements is increasing year after year. Because of the pandemic, there was a revolution in digitization, which provided computer engineering students with several opportunities to work in the IT industry for a fair wage. Still, a significant number of students are guided and assisted in achieving their desired career path, which includes placements in government and corporate sectors, higher education, and entrepreneurship.

#### 2.Quality placement

Placements are improving year after year as the maximum income offered in the software industry rises. Industries of all levels are recruiting students, and students have a variety of options. Many students are getting opportunities to join startups in order to get a feel and experience before starting their own startups.

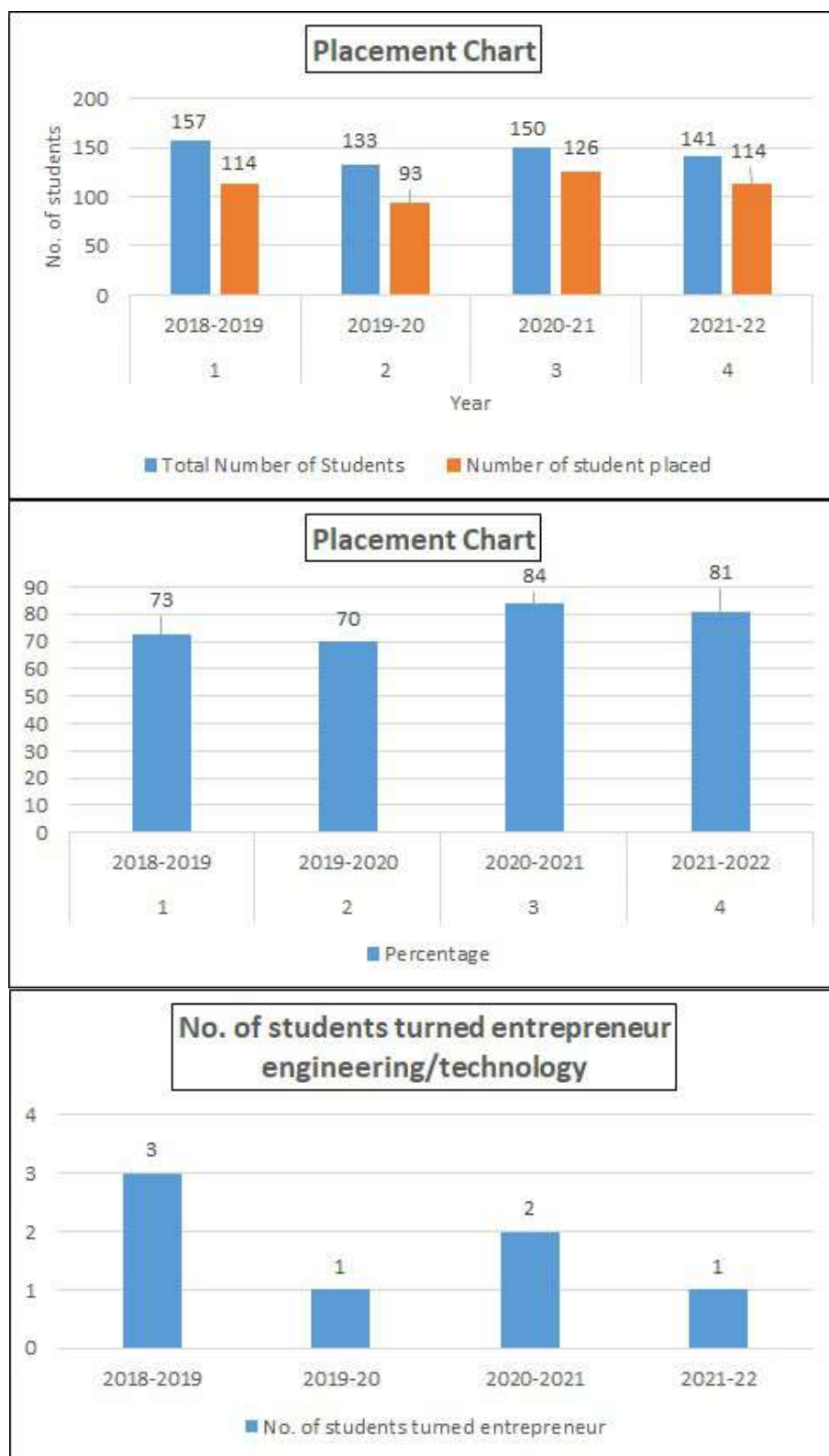
#### 3.Core industry

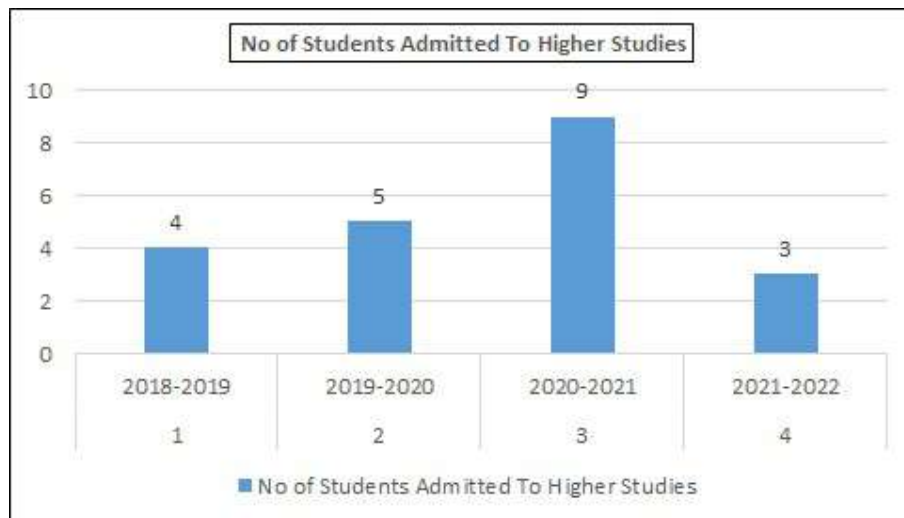
Placements at core companies are improving, and students are being recruited by core industries with a good reputation in the community. This gives students experience working with known multinational corporation while also allowing good Small and medium-sized enterprises to recruit students on a regular basis. This fosters trust between the industry and students. Internships are available in several industries for students. This is forming a solid link, and mutual benefits are being reaped. Students can design their career path in an organized manner and select relevant electives offered by the University. Their choices are now more informed, guided, and experienced.

#### 4.Pay packages

Pay packages are an essential factor in company selection, but students are also searching for interesting employment and a good reputation in the community. As a result, many talented students pursue advanced degrees or start their own businesses. Packages and incentives are increasing day by day, and as the pandemic situation improves, recruiters with big wage packages are showing increased interest.

Item	CAY (2019-20)	CAY (2020-2021)	CAY (2021-2022)
<b>Total No. of Final Year Students</b>	133	150	141
<b>No. of students placed in companies or Government Sector</b>	93	126	114
<b>No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State)</b>	05	09	03
<b>No. of students turned entrepreneur engineering/technology</b>	01	02	01

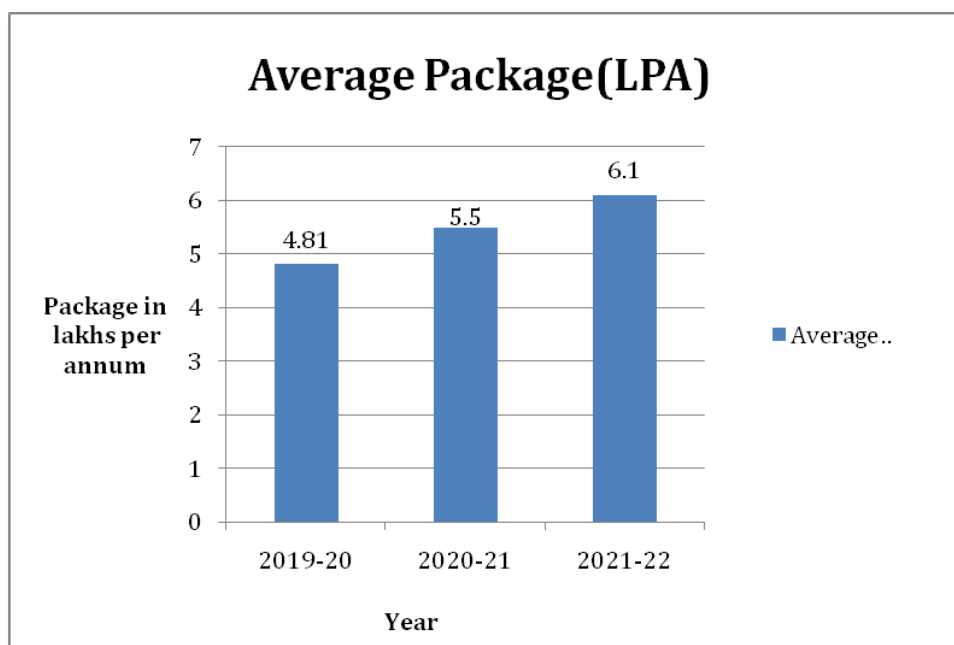




*Assessment is based on improvement in:*

- *Placement: number, quality placement, core industry, pay packages etc.*

Year	Average Package (LPA)
2019-20	4.81
2020-21	5.5
2021-22	6.1





	<b>Academic Year 2019-20</b>	
<b>Sr no</b>	<b>Name Of Company</b>	<b>Packages (LPA)</b>
1	Winjit Technologies	6.62
2	Hitachi Consulting	6.5
3	FIS Global	5
4	Arxxus	4.25
5	Hitachi Solutions	4
6	Teradata	3.9
7	Bitwise	3.8
8	Infosys	3.6
9	Coditas Technologies	3.6
10	Tata Consultancy Services	3.5
11	Bristlecon	3.5
12	Tupid Technologies	3.5
13	BirlaSoft(KPIT) Ltd.	3.25
14	Harbinger	3
15	I Research Services	3

	<b>Academic Year 2020-21</b>	
<b>Sr no</b>	<b>Name Of Company</b>	<b>Packages (LPA)</b>
1	L&T Infotech	8
2	SAS Research & Development India Pvt. Ltd.	7.83
3	Hitachi Consulting	6.5
4	L&T Infotech	6.5
5	Accenture	6.5
6	Alphasense	6
7	T Systems	6
8	Genpact	6
9	FIS Global	5.22
10	Winjit Technologies Pvt. Ltd.	4.5
11	Amazon	4.5
12	Xoriant	4.5
13	Allscripts	4.5
14	Accenture	4.5
15	Extentia Information	4.5
16	Cognizant	4.5
17	Agiliad Technologies Pvt. Ltd.	4.25
18	Capgemini	3.8
19	Datamatica Solutions	3.8
20	Tech Mahindra	3.8
21	Infosys	3.6
22	Hexaware Technologies Limited	3.5
23	Mphasis	3.5
24	Tata Consultancy Services	3.36

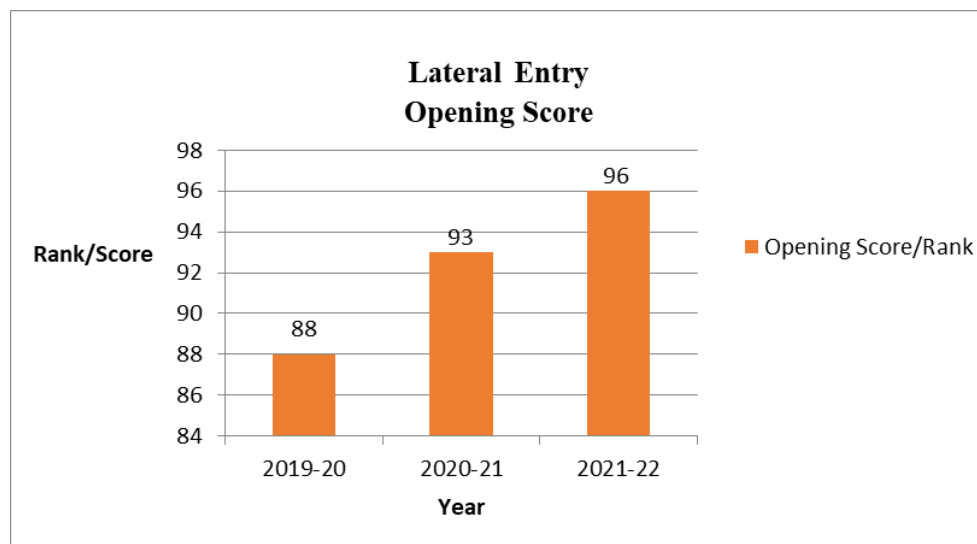
<b>Academic Year 2021-2022</b>		
<b>Sr no</b>	<b>Name Of Company</b>	<b>Annual Package (LPA)</b>
1	FIS Global	8.7
2	FIS Solutions (India) Private Limited	8.7
3	FISGLOBAL	8.7
4	FIS	8.2
5	Hashedin by Delloite	8.1
6	Hashedin by Delloite	8.1
7	Capgemini	7.5
8	Emerson	7.2
9	Cognizant	6.75
10	Datametica Solutions Pvt Ltd	6.5
11	FIS Global	5.7
12	JIO	5.7
13	FIS Global	5
14	MTI	5
15	Reval Analytics Solutions	5
16	Cybage Software	4.5
17	Datametica Solutions Pvt Ltd	4.5
18	Rudder Analytics	4.2
19	Cybage	4.1
20	Capgemini	4
21	Cognizant	4
22	Hexaware Technologies	4
23	Hexaware Technologies	4
24	Zensar	4
25	Zensar Technologies	4
26	Zensar Technology	4
27	Tata Consultancy Services	3.5
28	TCS	3.5
29	Wipro	3.5

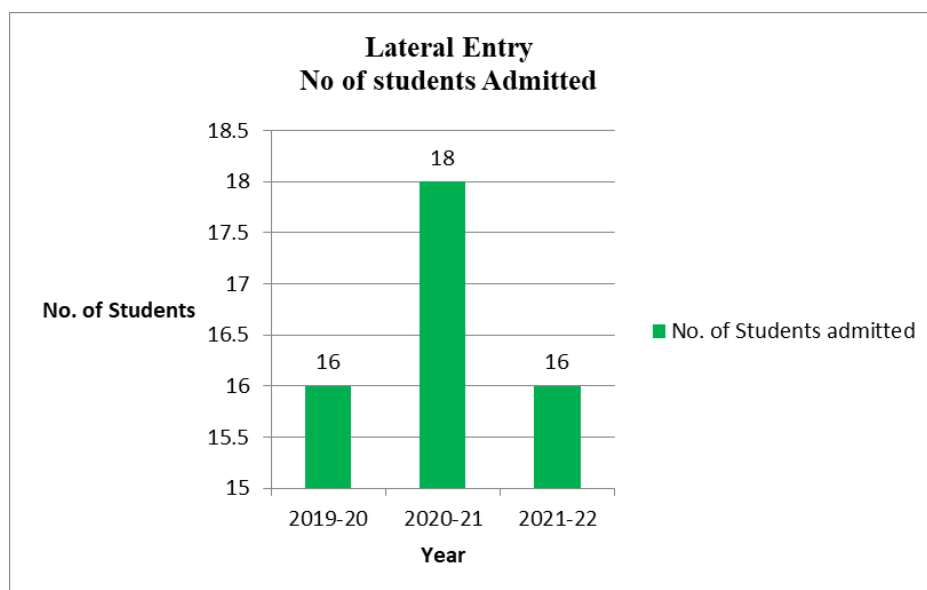
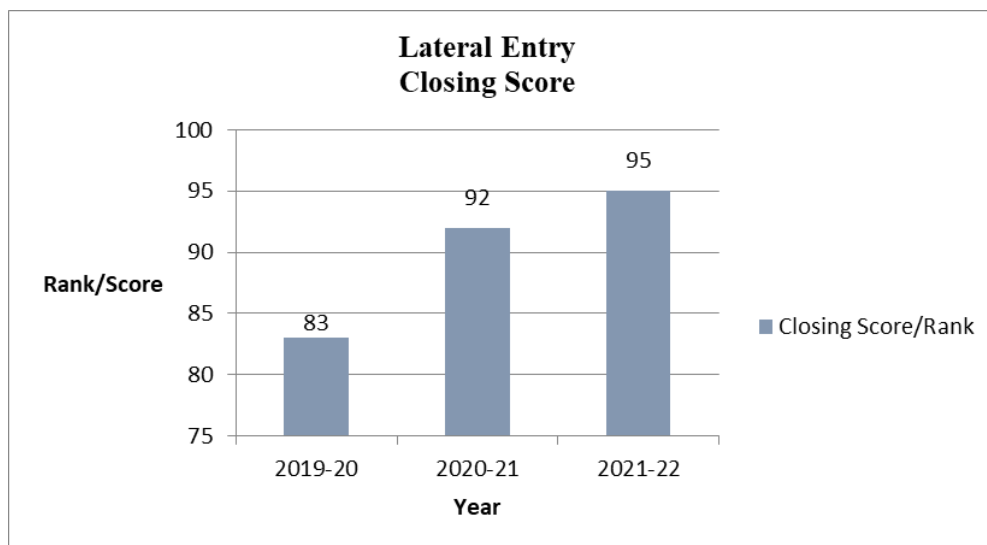
- Higher studies: performance in GATE, GRE, GMAT, CAT etc., and admissions in premier Institutions

**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.*

Item		CAY 2019-20	CAYm1 2020-21	CAYm2 2021-22
<b>National Level Entrance Examination (JEE-Main Entrance Examination)</b>	No. of Students admitted	16	21	15
	Opening Score/Rank	96	94	90
	Closing Score/Rank	93	92	89
<b>State/University/Level Entrance Examination/Others (MHT-CET Entrance Examination)</b>	No. of Students admitted	121	118	121
	Opening Score/Rank	98	98	97
	Closing Score/Rank	70	93	94
<b>Name of the Entrance Examination for Lateral Entry or lateral entry details</b>	No. of Students admitted	16	18	16
	Opening Score/Rank	88	93	96
	Closing Score/Rank	83	92	95
Average CBSE/Any other Board Result of admitted students (Physics, Chemistry Engineering Mathematics)		69	78	78

**Table B.7.4**



<b>CRITERION 8</b>	<b>FIRST YEAR ACADEMICS</b>	<b>50</b>
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### 8.1 First Year Student-Faculty Ratio (FYSFR) (5)

Data for first year courses to calculate the FYSFR:

<b>Year</b>	<b>Number of Students (Approved Intake Strength)</b>	<b>Number of Faculty Members (Considering Fractional Load)</b>	<b>FYSFR</b>	<b>*Assessment = <math>(5 \times 20) / \text{FYSFR}</math> (Limited to Max. 5)</b>
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
			<b>Average Assessment</b>	<b>2.81</b>

Table 8.2

### 8.3 First Year Academic Performance (10)

Academic Performance = ((Mean of 1<sup>st</sup> 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	142	138	4	0	142	9.33	9.33
2	2019-20	138	126	12	0	138	7.61	7.61
3	2018-19	119	73	35	11	108	7.46	6.77
Average API:								7.9

*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.

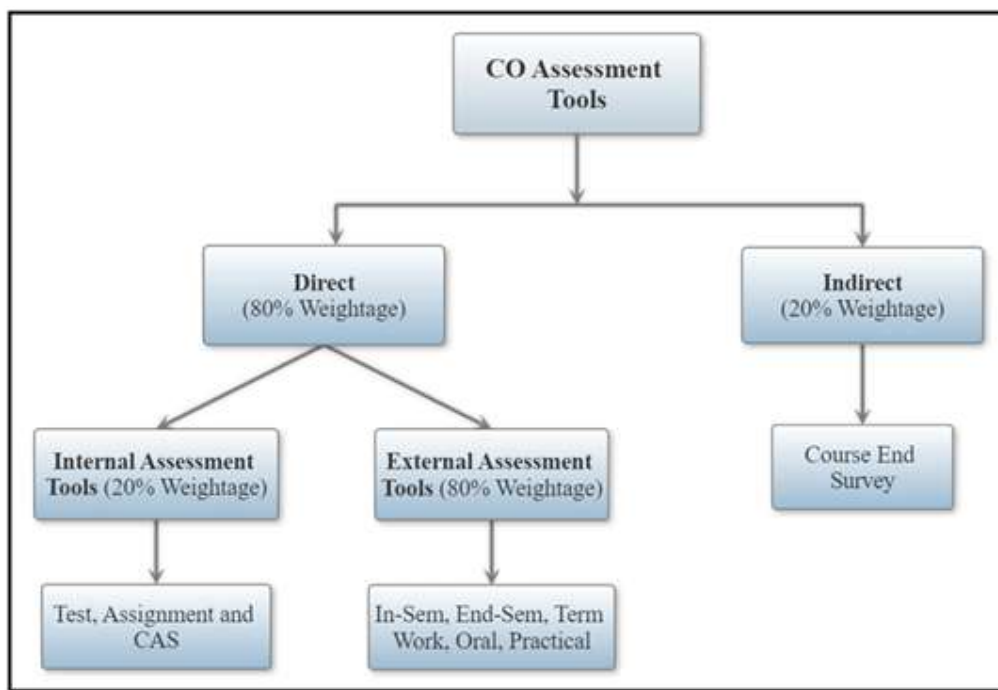
#### Assessment Tools

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
<b>Internal Assessment Tools</b>					
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.
<b>External Assessment Tools</b>					
4	In-Sem Exam	Written examination	Questions in the exam are mapped against COs corresponds to first two units of respective course.	Corresponding mapped POs/PSOs with the COs	One (Mid of the Term)

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.

## 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.*

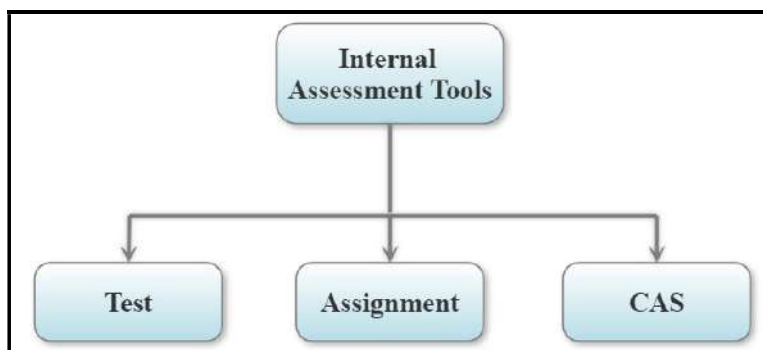
*(The attainment levels shall be set considering average performance levels in the university examination or any higher value set as target for the assessment years. Attainment level is to be measured in terms of student performance in internal assessments with respect the COs of a subject plus the performance 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:

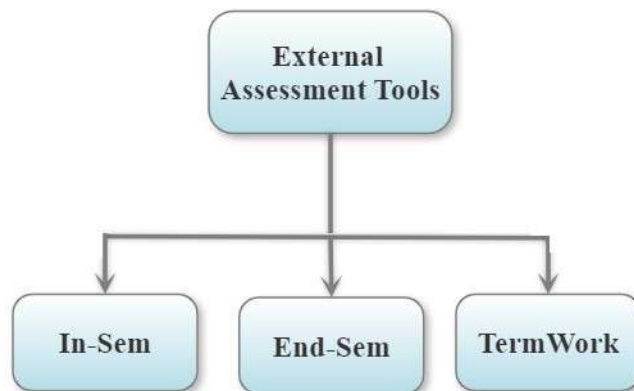
- a) Choose an appropriate assessment tool: There are various internal and external assessment tools that are used. The choice of tool is aligning with the objectives and course outcomes of the course.
- b) Determine assessment criteria: The assessment criteria are clearly defined and communicated to 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	<i>CO.1</i>	<i>CO.2</i>	<i>CO.1 &amp; 2</i>	<i>All COs</i>	<i>CO.1 &amp; 2</i>	<i>All COs</i>	<i>All COs</i>
Maximum Marks	<i>M1</i>	<i>M2</i>	<i>M3</i>	<i>M4</i>	<i>M5</i>	<i>M6</i>	<i>M7</i>
CO Attainment Level	<i>A1</i>	<i>A2</i>	<i>A3</i>	<i>A4</i>	<i>A5</i>	<i>A6</i>	<i>A7</i>

**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 =  $0.2 \times A_{int} + 0.8 \times A_{ext}$

### 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 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	2.97	2.97	2.97	2.97	2.97	2.97
107002	Engineering Physics	2.94	2.94	2.94	2.94	2.94	2.94
102003	SME	2.9	2.9	2.9	2.9	2.78	2.9
103004	Basic Electrical Engineering	2.96	2.96	2.96	2.96	2.96	2.96
110005	PPS	2.965	2.965	2.965	2.965	2.965	2.965
111006	Workshop Practices	2.96	2.96	2.96	2.96		
107008	Engineering Mathematics II	2.96	2.96	2.96	2.96	2.96	2.96
107009	Engineering Chemistry	2.845	2.845	2.845	2.845	2.94	2.94
104010	Basic Electronics Engineering	2.93	2.93	2.93	2.93	2.93	2.93
101011	Engineering Mechanics	2.94	2.94	2.82	2.94	2.94	2.94
102012	Engineering Graphics	2.015	1.9	1.875	1.875	1.995	1.995
110013	PBL	2.96	2.96	2.96	2.96	2.96	2.96

## 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.

**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.

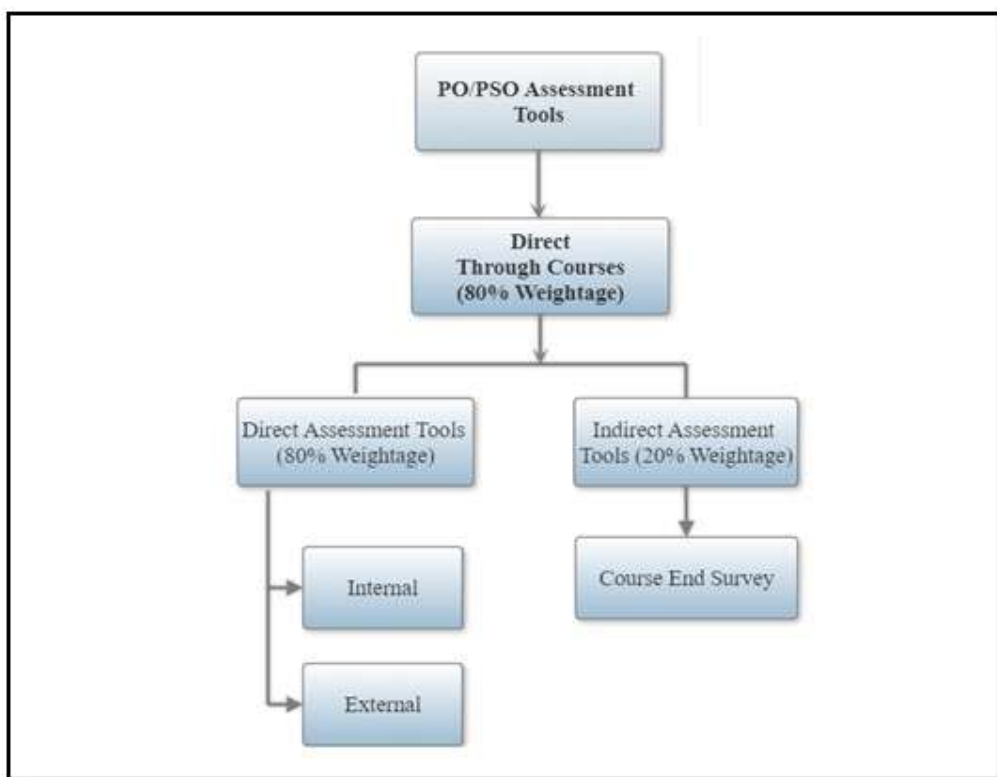
### PO and PSO Assessment tools

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

1. **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.
2. **Direct Assessment:** Direct assessment of POs and PSOs is based on the attainment of COs, where COs are mapped to POs and PSOs.
3. **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:

$$\text{PO/PSO attainment} = (\text{Level of Mapping of PO with CO} \times \text{CO attainment Level}) / 3$$

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																	
S r. N o .	Cour se	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	1070 01	EM-I	3	2	1		1								1		1
2	1070 02	Engineer ing. Physics	2	1			1		1			1					
3	1020 03	Systems in Mechani cal Engineer ing	2	1					1			1					
4	1030 04	Basic Electrica l Engineer ing	2	1	1		1										
5	1100 05	Program ming and Problem Solving	1.25	2	1.6		1			1	1	1		1	1.16	1	
6	1110 06	Worksho p	1	1	1	1		1									



7	107008	EM-II	3	2	1		1								1		1
8	107009	Engineering Chemistry	2.33	2	1				1		1	1					
9	104010	Basic Electronics Engineering	2	1	1		1					1		1		1	
10	101011	Engineering Mechanics	2	2			1					1		1			
11	102012	Engineering Graphics	1.5	1.5	1		1										
12	110013	Project Based Learning	2.33	1.33	1		2.5	1	1		2	1	1	1	1.16	1	1.16
Direct Target* Attainment			2.03	1.49	1.07	1.00	1.17	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.05	0.98	1.04
Contributing Subjects			12	12	9	1	9	2	4	1	3	7	1	4	5	2	3

### Attainment Matrix

A.Y- 2020--21 CO-PO Attainment Matrix																	
Sr. No.	Course	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	107001	EM-I	2.97	1.98	0.99		0.99								0.99		0.99
2	107002	Engineering Physics	1.96	0.98			0.98		0.98			0.98					
3	102003	Systems in Mechanical Engineering	1.92	0.97					0.97			0.96					
4	1030	Basic	1.48	1.48	0.98		0.98										

	04	Electrical Engineering			5		5									
5	110005	Programming and Problem Solving	1.23	1.975	1.58		0.99			0.99	0.99	0.99		0.99	1.15	0.99
6	111006	Workshop	0.99	0.99	0.99	0.99		0.99								
7	107008	EM-II	2.96	1.97	0.99		0.99								0.99	0.99
8	107009	Engineering Chemistry	2.24	1.94	0.965				0.96		0.96	0.96			0.95	0.965
9	104010	Basic Electronics Engineering	1.96	0.98	0.98		0.98									
10	101011	Engineering Mechanics	1.945	1.945			0.98				0.98					
11	102012	Engineering Graphics	1.299	0.66367					0.49367			0.652				
12	110013	Project Based Learning	2.35	1.32	0.99		2.47	0.99	0.99		1.975	0.99	0.99		1.15	0.99
Direct Attainment *			1.94	1.43	1.06	0.99	1.17	0.99	0.88	0.99	1.31	0.93	0.99	0.99	1.05	0.98
Contributing Subjects			12	12	11	11	11	11	12	11	11	12	11	11	11	12

Table 8.5.1

\* Direct attainment level of a PO is determined by taking average across all courses addressing that PO. Fractional numbers may be used for example 1.55.

**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)

**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	1.94	Attainment is 95.57% of target Value
Action 1	Conduct Expert Lecture & Extra Test/Quiz to enhance basic engineering knowledge.		
Action 2	Provide a question bank to improve engineering knowledge.		
Action 3	Encourage 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	1.43	Attainment is 95.97% of target Value
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	1.06	Attainment is 99.07% of target Value
Action 1	Organize an industrial visit to get familiar with engineering problems		
Action 2	Students are encouraged 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	0.99	Attainment is 99% of target Value
Action1	To Set Higher Target Value		
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	1.17	Target Achieved.

Action1	Effective utilization of modern tools like VLab, Agile basics, Google Quiz, Ppt YouTube videos, Google Websites, Nptel Video Lectures, M.S Teams.		
Action2	To facilitate students for using modern online simulation software		
<b>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.</b>			
PO6	1	0.99	Attainment is 99% of target Value
Action 1	Activities related to techno-social and project based learning to be organized through NSS and student chapters.		
<b>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.</b>			
PO7	1	0.88	Attainment is 88% of target Value
Action 1	Awareness through Lab Activity and Field Visit to explore the knowledge of Environment & Sustainability		
<b>PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</b>			
PO8	1	0.99	Attainment is 99% of target Value
Action 1	Organize expert lectures/ motivational talk to overcome above observation		
<b>PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</b>			
PO9	1.33	1.31	Attainment is 98.5% of target Value
Action 1	Evaluation of student performance through Group activities/presentations.		
<b>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.</b>			
PO10	1	0.93	Attainment is 93% of target Value
Action 1	Encouraging students through mentoring to improve verbal & written communication through practical activities/Group Discussion/Presentations/Reports.		
<b>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.</b>			
PO11	1	0.99	Attainment is 99% of target Value
Action 1	To create awareness among the students about project management principles while writing project reports.		
<b>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.</b>			
PO12	1	0.99	Attainment is 99% of target Value

Action 1	More number of self learning assignments to be given.
Action 2	Students are to be encourage to join and participate student professional chapter activities.

Table B.8.5.2

ACADEMIC YEAR 2020-21			
PSO's	Target Level	Attainment Level	Observations
PSO1: Students are able to devise, analyze and implement algorithms			
PSO 1	1.06	1.05	Attainment is 99.06% of target Value
Action 1	Students are given more assignments on implementation of algorithms.		
PSO2: Students are able to exhibit their IT based knowledge for the development of society			
PSO 2	1	0.98	Attainment is 98% of target Value
Action 1	Students are guided to participate in various online certification courses.		
PSO3: Enhance communication and leadership skills to get good position in National and International Organizations			
PSO 3	1.06	1.04	Attainment is 98.11% of target Value
Action	Guidance sessions are planned to make students mentored for various state and national level compactions.		

## ANNEXURE I:

**PROGRAM OUTCOMES (POs) Engineering Graduates will be able to:**

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

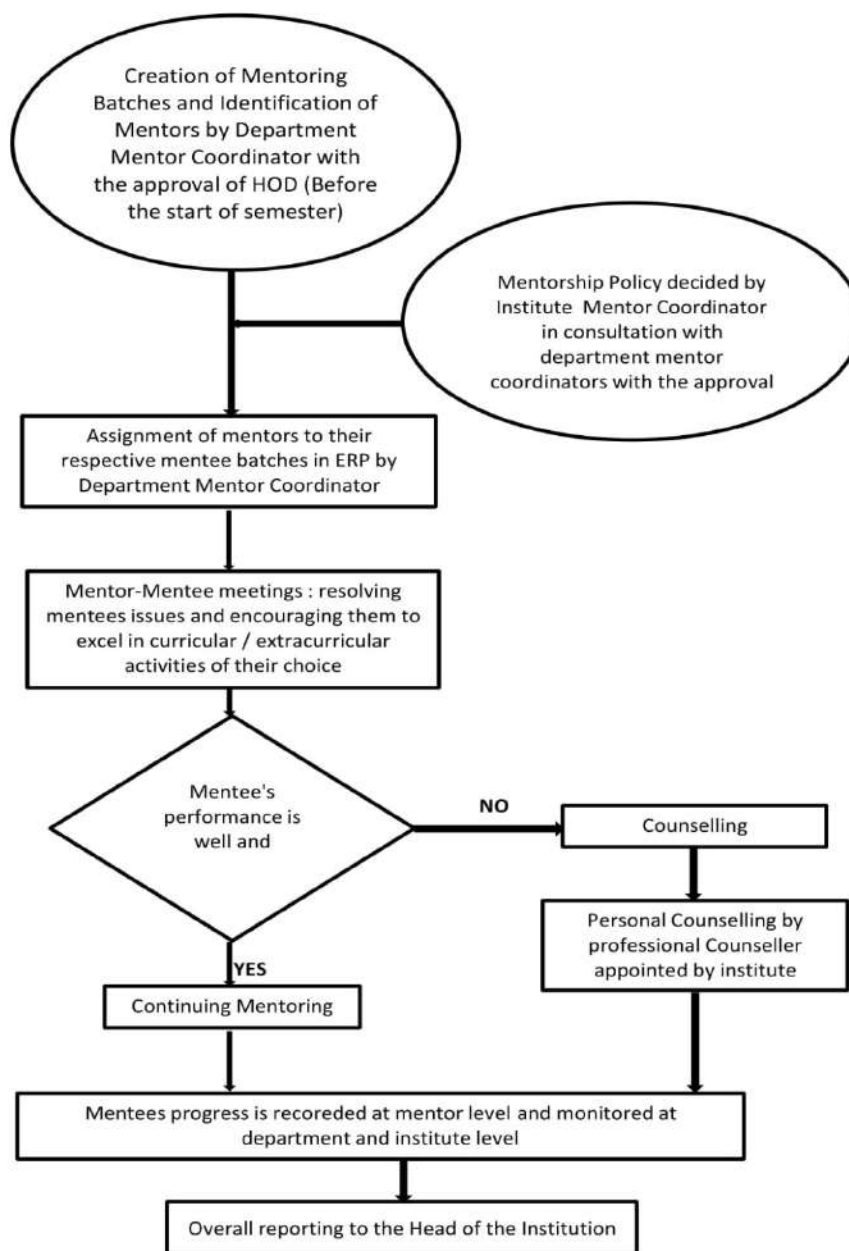
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual 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.

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<b>CRITERION 9</b>	<b>STUDENT SUPPORT SYSTEMS</b>	<b>50</b>
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### 9.1 Mentoring system to help at individual level (5)

Counselling and Mentoring encompasses a 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.



#### Mentoring Process

The counselling and mentoring process is developed 1. To help students to overcome emotional challenges, 2. To assist a student to know him/herself better his/her interest, abilities, attitudes and opportunities, 3. To work out a plan (behavioural therapy) for solving his difficulties. 4. To assist students in planning for career choices.

#### Functioning:

- Each faculty 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 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' record.
- To collect the "Student Information" from the respective GFM.
- To establish the contact with the parents through telephonic discussion, appraise them about the development of their ward.
- Conduct meeting 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 student to overcome their weaknesses and strengthen the abilities to excel in his/her defined objectives.
- To submit the files complete on all respect to HOD at the end of term.
- To update student's 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.



**Mentor-Mentee Allotment (A Sample copy)**  
**DEPARTMENT OF COMPUTER ENGINEERING**  
**Academic Year 2021-2022, TERM-I**

Frequency of Meeting: 15 days

Sr. No	Class	Batch	Name of Faculty	Number of Students
1	SE	SE/I/A	M M Swami	27
2		SE/I/B	S F Sayyad	27
3		SE/I/C	S G Dhengare	26
4		SE/II/A	S SJadhav	25
5		SE/II/B	R S Dudhmal	25
6		SE/II/C	A M Jagtap	27
7	TE	TE/I/A	V V Waykule	28
8		TE/I/B	S R Nalamwar	28
9		TE/I/C	A J Kadam	28
10		TE/II/A	S J Pachouly	26
11		TE/II/B	A S Deokar	26
12		TE/II/C	M M Phadatare	26
13	BE	BE/I/A	N A Rai	25
14		BE/I/B	D M Ujlambkar	24
15		BE/I/C	A M Jagtap	24
16		BE/II/A	S SKolte	23
17		BE/II/B	M P Deshmukh	23
18		BE/II/C	N R Talhar	22

**Academic Year 2021-2022, TERM-II**

Frequency of Meeting: 15 days

Sr. No	Class	Batch	Name of Faculty	Number of Students
1	SE	SE/I/A	M M Swami	27
2		SE/I/B	S F Sayyad	27
3		SE/I/C	S G Dhengare	26
4		SE/II/A	S SJadhav	25
5		SE/II/B	R S Dudhmal	25
6		SE/II/C	A M Jagtap	27
7	TE	TE/I/A	V V Waykule	28
8		TE/I/B	S R Nalamwar	28
9		TE/I/C	A J Kadam	28
10		TE/II/A	S J Pachouly	26
11		TE/II/B	A S Deokar	26
12		TE/II/C	M M Phadatare	26
13	BE	BE/I/A	N A Rai	25
14		BE/I/B	D M Ujlambkar	24
15		BE/I/C	A M Jagtap	24
16		BE/II/A	S SKolte	23
17		BE/II/B	M P Deshmukh	23
18		BE/II/C	N R Talhar	22

**Successful Mentoring:** One of the student Meherzad , who was a defaulter, was lagging in academics as well as he had poor attendance. faculty gave special attention to that student which helped him improve his attendance along with the academics. He passed out with good Grades.

Sample of mentor attendance record


AISSMS College of Engineering, Page 1  
STUDENT'S CONSULTING CELL  
**ATTENDANCE REPORT**  
Department of Computer Engineering

Name of Mentor: Mrs. S. Parvathy      Date: TE II 2020-21  
Academic Year: 2021-22      Term: II

S.N	Name of student	Signature of student									
		1	2	3	4	5	6	7	8	9	10
1		28/01	11/2	18/2	4/3	11/3	23/3	13/4	29/4	5/5	16/5
2	Sonal Bhire	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
3	Priyanka Chaudhary	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
4	Arushi Kulkarni	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
5	Neha Bhandari	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
6	Swati Nair	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
7	Sagarika Bhandari	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
8											
9	Vaishnavi Bhandari	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
10	Aditya Bhandari	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
11	Adarsh Bhandari	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
12	Pranav Bhandari	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
13	Anshu Bhandari	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
14											
15	Drishya Shinde	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
16	Tanya Chaudhary	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
17	Sagarika Chaudhary	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
18	Ravi Teja	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
19	Deepa Bhandari	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
20	Shruti A. Bhandari	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign	Sign
Mentor's signature											

21. Dr. S. Parvathy      Date: TE II 2020-21      Term: II

## Sample of minutes of meeting


**All India Shri Shivaji Memorial Society's**  
**College of Engineering, Pune-411001**  
 Approved by AICTE, New Delhi  
 Affiliated to Savitribai Phule Pune University, Pune

**Mentoring Record**

Name of Department: Computer

Name of Student	<u>Amishka Joshi</u>
Year/Class	<u>TE Comp - 2</u>
Division	<u>B</u>
Name of Mentor	<u>Dr. S.T. Pachouly</u>

**Academic Mentoring (Maintain record for every fortnight)**

Academic Issue/Class Attendance	Action Taken	Remark	Sign student
No faculty for web technology	New teacher allotted, put it as top priority	—	<u>[Signature]</u>
No fixed classroom allotted	Talked to HOD & raised concern	—	<u>[Signature]</u>
DCBDA faculty :- unstructured lectures	—	Informed faculty & HOD as well	<u>[Signature]</u>
No data science lectures	Informed HOD	—	<u>[Signature]</u>

**9.2. Feedback analysis and reward /corrective measures taken, if any (10)**

Students feedback about teaching a course is taken twice a semester through the ERP system.

Turn-1 feedback is taken after the first 30 to 40 days of teaching. Corrective actions are taken after this feedback. Turn-2 feedback is taken at the end of the semester. Following questionnaire is set for feedback.

Sr.No.	Performance Parameter
1	<b>Planning &amp; Organization</b>  Subject Organization in Logical Sequence; Syllabus Coverage; Subject is Clearly Prepared
2	<b>Presentation/Communication</b>  Use of Simple Language Interest generated Solved conceptual problems to illustrate theory Questions to test knowledge, Clarity of Speech
3	<b>Students Involvement</b>  Questions to promote interaction Encouragement to ask questions Discuss practical applications

4	<b>Use of Media/Methods</b> Use of a variety of teaching techniques (e.g., ICT, quiz, MCQ, etc.) Use of Textbooks/ reference books Clarity of writing on Black Board
5	<b>Class Management</b> Punctuality , Class Control
6	<b>Assignment</b> Provide assignments Timely return of assignment Availability to resolve problems of students after class
7	<b>Learning Resources</b> NPTEL, MOOC, Models, Videos

**Department of Computer Engineering**  
**AY 2021-22 TERM- I**

Sr.No	Faculty	Subject	Feedback
1	S V Athawale	BE/I/HPC	84
2	Dr. M.A.Pradhan	TE/I/ISEE	88
3	Dr. D.P.Gaikwad	SE/I/OOP	79
4	Dr. S.F.Sayyad	SE/I/CG	88
		SE/II/DM	86
5	N.R.Talhar	BE/I/DS	86
6	A.J.Kadam	TE/I/CN	79
7	S.R.Nalamwar	TE/II/DBMS	84
8	A.S.Deokar	TE/I/SEPM	81
9	V.V.Waykule	TE/I/TOC	91
		TE/II/TOC	83
10	A.M.Jagtap	BE/I/DA	90

11	D.M.Ujalambkar	BE/I/DMW	90
12	S.J.Pachoully	TE/II/CN	86
13	S.G.Dhengre	SE/I/FDS	82
14	A.A.Gupta	SE/I/DM	95
		BE/II/AIR	92
15	S.S.Kolte	TE/II/SEPM	87
		BE/II/HPC	93
16	N.S.Devekar	SE/II/CG	59
		BE/II/MC	89
17	M.M.Swami	SE/II/DELD	81
18	S.S.Jadhav	SE/II/OOP	85
		BE/II/DMW	89
19	B.R.Quazi	SE/I/DELD	89
20	MMPhadtare	TE/II/ISEE	75
		BE/II/DA	86
21	N.A.Rai	SE/II/FDS	77
22	B A Patil	TE/I/DBMS	97
		BE/I/AIR	94


**AY 2021-22 TERM- II**

Sr.No	Faculty	Subject	Feedback
1	S. V. Athawale	TE/I/DAA	72
		TE/II/ DAA	83
2	Dr. M.A.Pradhan	BE/I/ML	93
3	Dr. D.P.Gaikwad	BE/I/SCOA	92

4	Dr. S.F.Sayyad	TE/I/WT	86
5	N.R.Talhar	BE/I/CC	91
6	A.J.Kadam	TE/I/SMD	70
7	S.R.Nalamwar	BE/II/ ML	87
8	A.S.Deokar	SE/II/ PPL	65
9	V.V.Waykule	SE/I/DSA	89
10	A.M.Jagtap	TE/II/ WT	84
11	D.M.Ujalambkar	BE/II/ SCOA	86
12	S.J.Pachouly	BE/II/ ICS	88
13	S.G.Dhengre	SE/II/ DSA	71
14	A.A.Gupta	TE/I/SPOS	90
		TE/II/ SPOS	88
15	S.S.Kolte	BE/II/ CC	94
16	N.S.Devekar	TE/II/ SMD	81
17	M.M.Swami	SE/I/MP	86
		TE/II/ ESIOT	78
18	S.S.Jadhav	TE/I/ESIOT	84
19	M M Phadtare	SE/II/ MP	78
20	B.R.Quazi	SE/I/SE	84
		BE/I/ICS	89
21	N.A.Rai	SE/I/PPL	90
		SE/II/ SE	74
22	N Jadhav	SE/I/M3	82
		SE/II/ M3	78

**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.
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 on platforms like NPTEL.



## AISSMS

### COLLEGE OF ENGINEERING

Affiliated to Swami Vivekananda University and recognized by UGC (No. P/3990/P09/09/09/09)  
 Accredited by NAAC with 'A+' Grade  
 Address: Road No. 41/01, Mahabubnagar, India. Tel: +91-20-2604471, 2604472 Email: oia@aiissms.edu.in, principal@aiissms.edu.in  
[www.aiissms.edu.in](http://www.aiissms.edu.in)



### Department of Computer Engineering I Shift

**To,**


**DR. SHABNAM FAROOK SAYYAD**

**ASSOCIATE PROFESSOR**


**Subject - Letter of Appreciation**

**Dear Madam,**


It gives me immense pleasure to congratulate you on the behalf of **Computer Engineering I Shift** department based upon the analysis of feedback forms submitted by the students of **SE** for the subject **Computer Graphics**. 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**

MID TERM FEEDBACK TERM I & II AY 2021-22

TEACHER - DR. SHABNAM FAROOK SAYYAD		DEPARTMENT - COMPUTER ENGINEERING I SHIFT				TOTAL STUDENTS - 11	
ACADEMIC YEAR - 2021-2022		SUBJECT - COMPUTER GRAPHICS (THEORETICAL)				SEMESTER 3 (A)	
DATE - 06/03/21		TERM - MID 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	10	3	2	1	8	100 100 80%
2	HAS THE TEACHER COVERED RELEVANT TOPICS BEYOND SYLLABUS	11	7	8	1	8	88 100 88%
3	PACE ON WHICH TOPICS WERE COVERED	12	2	2	1	8	80 100 80%
4	MOTIVATION AND INSPIRATION FOR STUDENTS TO LEARN	10	6	6	2	8	80 100 80%
5	CLARITY OF EXPLANATIONS OF STUDENTS	10	5	2	1	8	80 100 80%
6	FEEDBACK PROVIDED ON STUDENT'S PROGRESS	9	8	1	1	8	80 100 80%
7	EFFECTIVENESS OF TEACHER IN TERMS OF TEACHING L.A.S. COORDINATION WITH THE TEACHING AIDS	10	6	2	1	8	80 100 80%
8	SUPPORT FOR THE DEVELOPMENT OF STUDENT'S SKILL THROUGH P.A.S. VIDEO DEMONSTRATION, FOR THE VIDEO	11	6	8	2	8	80 100 80%
9	SUPPORT FOR TEACHER DURING PRACTICE FOR ADDRESSING STUDENT'S ISSUE	11	4	2	1	1	80 100 80%
<b>TOTAL</b>		100	48	11	11	2	748 800 87%
<b>TOTAL (%)</b>		50%	24%	6%	4%	1%	

### 9.3. Feedback on facilities (5)



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, one feedback form is delivered to the students by 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.

Questions are as follows:

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



## A Sample Infrastructure and Facility feedback on ERP

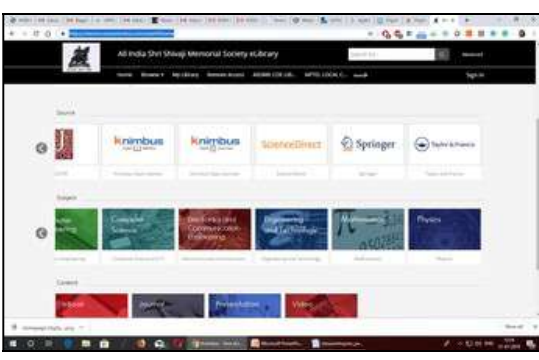


<div style="display: flex; justify-content: space-between; align-items: center;">  <div style="text-align: center;"> <b>AISSMS</b>  <b>COLLEGE OF ENGINEERING</b>  <small>असतो मा सद्गमय</small>  <small>Approved by AICTE New Delhi, Recognized by Govt. of Maharashtra,  Affiliated to Savitribai Phule Pune University and recognized 2(f) and 12(B) by UGC (Id. No. PU/PN/Engg/093(1992)  Accredited by NAAC with 'A+' Grade</small>  <small>Kennedy Road, Pune 411001, Maharashtra, India. Tel: +91 - 20 - 26058587, 26057660, 26058342 Email: contact@aiissmscoe.com, principal@aiissmscoe.com  www.aiissmscoe.com</small> </div>  </div>							
<b>COURSE : CIVIL ENGINEERING    YEAR : TE</b>							
<b>ONLINE STUDENTS FEEDBACK ON INFRASTRUCTURE AND FACILITIES FOR A.Y. 2021-2022</b>							
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	53	39	21	7	4	124
2	LABORATORY FACILITIES (BOARDS, INTERNET, COMPUTER, EQUIPMENT, ETC.)	47	46	26	2	3	124
3	CLEANLINESS AND AMBIENCE OF CAMPUS	54	49	15	3	3	124
4	LIBRARY, READING ROOM AND OTHER LIBRARY FACILITIES	57	46	19	0	2	124
5	SPORTS, CULTURAL AND EXTRA-CURRICULAR ACTIVITIES FACILITIES (NSS, ANNUAL FUNCTIONS, ETC.)	61	36	17	4	6	124
6	PARKING, SECURITY AND PROCTORIAL SERVICES IN THE CAMPUS	68	36	14	2	4	124
7	MENTORING, COUNSELING, REDRESSAL OF GRIEVANCES AND SUPPORT TO STUDENTS FOR ADMISSIONS, EXAMINATIONS, ETC.)	54	44	19	4	3	124
8	SUPPORT TO TRAINING, PLACEMENTS AND INTERNSHIPS	51	46	18	6	3	124
9	OVERALL IMPRESSION ABOUT INFRASTRUCTURE AND FACILITIES PROVIDED IN THE INSTITUTE	55	41	24	2	2	124
10	CANTEEN FACILITY AND AVAILABILITY OF DRINKING WATER	49	33	20	11	11	124
<b>TOTAL</b>		<b>549</b>	<b>416</b>	<b>193</b>	<b>41</b>	<b>41</b>	<b>1240</b>

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 (5)

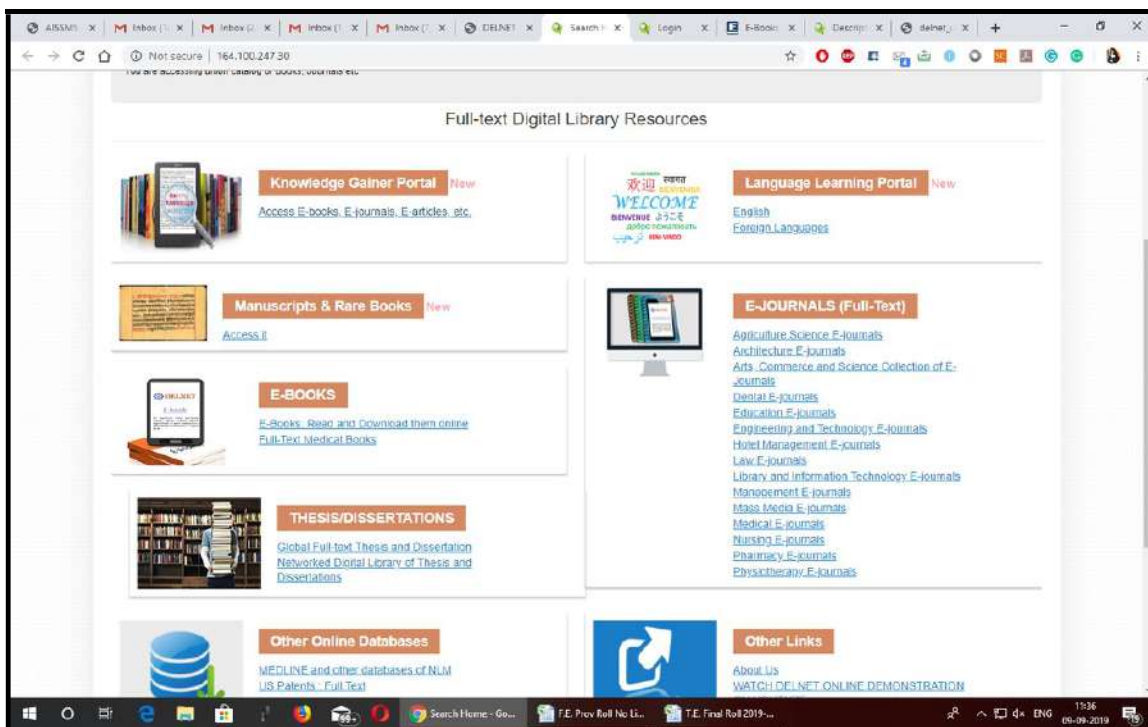
Institute has provided a large scope to students to learn on their own as per their interest. This is in the form of online and offline, on campus and off campus. AICTE's NPTEL platform has attracted students a lot at par with regular courses. Students can register online and learn at their pace. Online 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.

### Self-Learning facilities: Details of Digital Library/Remote Access

	<p><b>Knimbus Digital Library and Remote Access -</b>  <a href="https://aissms.new.knimbus.com/user#/home">https://aissms.new.knimbus.com/user#/home</a></p> <p>The AISSMS COE Library has subscribed to Digital Library. Remote Access to E resources facility is available under the platform.</p>
<p><b>Faculty Publications Repository --</b>  <a href="http://172.16.0.71:8080/jspui/">http://172.16.0.71:8080/jspui/</a></p> <p>Faculty Publications are archived under Dspace Repository. Department wise faculty publications can accessed through this link in College LAN</p> <p>Ki</p>	<p>K</p> 
	<p><b>Calibre Digital Library -</b>  <a href="http://172.16.2.101:8080/">http://172.16.2.101:8080/</a></p> <p>The Calibre Digital Library has been set up for E books and previous year question papers students.</p>

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



**Department of Mechanical Engineering  
Seminar/Webinar and invites lectures  
2020-21**

Sr. No	Topic	Resource person	Date
1	Fundamentals of Automotive NVH	Mr. Nitin Badhe Sr. Technical Specialist Altair India Pvt Ltd Pune	06/11/2020
2	Experience the design the way it should be using CREO	Mr. S. D. Patil Application Engineer Modelcam Engineering Pvt Ltd. Pune	04/12/2020

**2019-20**

Sr. No	Topic	Resource person	Date
1	Supply Chain Management	Mr. Vinayak Kasabekar, Dy Manager, Shafeller India	10/04/2020
2	Production Planning And Control	Mr. Rohit Kshirsagar, Assistant Manager, Kirlosker Pumps	01/05/2020

3	Additive Manufacturing	Mr. Avinash Khare, IMTMA, Chinchwad	08/08/2019
4	Role and Effect on Industries of Robotics and Automation in coming years	Gautam Doshi, Advisor, Indian Machine Tool Manufacturers' Association (IMTMA)	3/10/2019
5	Welding Technology	Mr. Sagar Naikade, Valmont India, Quality Engineer,	08/07/2019
6	MSA system	Mr S A Mandhare	26/07/2019
7	ARAI Pune	Mr S S Tikar	05/10/2019
8	Fundamentals of Dynamic Analysis	Mr. Nitin Badhe, Sr. Technical Specialist- Global NVH, ALTAIR INDIA Pvt Ltd, Pune	15/10/2019
9	How to Enter in Artificial Intelligence	Mr. Ajit Deshpande (Advanced Analytics, FinTech)	01/10/2019
10	Applications of CFD in Heat transfer Analysis	Dr Vivek Vitankar	24/09/2019
11	Robotics Process Automation	Mr Quayam Akhatar	25/09/2019
12	Energy and Environment	Dr Prasad Khandagale, R & D Head, Henkel, Pune 9822683341	04/10/2019

## NPTEL RESULTS

<b>Jan-Dec 2021</b> CONGRATS! Your college is hereby recognized as an ACTIVE Local Chapter.								
Course Ran	Present	Gold	Elite	Silver	Successful	Participation	Topper	NPTEL Stars
Jul-Dec 2021	47	3	9	21	8	6	6	<a href="#">Details</a>
Jan-Apr 2021	28	1	13	8	4	2	3	<a href="#">Details</a>
Jan-Dec 2020	102	5	31	24	20	22	7	<a href="#">Details</a>
Jul-Dec 2019	139	8	42	37	29	43	9	<a href="#">Details</a>
Jan-Apr 2019	149	6	11	33	79	20	7	-
Jul-Oct 2018	279	4	82	0	165	28	9	-
Jan-Apr 2018	240	2	50	0	125	63	10	-
Jul-Dec 2017	126	4	42	0	66	14	3	-



NPTEL Certificate: Sample

### edX Courses, Jan 2021

Invitation Send	Learners Joined	Enrolled Learners At least one course	Active learners	Course completion
930	535	210	80	22

### Coursera E learning Platform- Usage and enrollment record

Invitation Send	Learners Joined	Enrolled Learners	Total learning Hours	Lesson Taken	Course Rating
2924	2019	1870	40126	71410	4.7

### IIRS Training Program

Number of Courses	Total Students Enrolments
15 (Courses in Space application, Geo Informatics, Ecology Studies, Geo processing Remote sensing )	101

## 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 training are done 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".

**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 necessitates 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.

**A. ELIGIBILITY & REGISTRATION**

1. UG, PG & PhD scholars' placement will happen round the year.
2. All students who expect to graduate from the Institute by the end of the academic year and are seeking employment may register for campus placements.
3. Registration for all programmes will be done before the start of academic year.
4. Campus placement is a facility provided for the students. Registration is not compulsory. Students not interested in placement are advised not to register for placement.
5. Each registered student will be given access for the placement notices, company announcements and to upload resumes.

## **B. RESUME**

1. Students are advised to read the announcements made, go through the company website and apply only if interested.
2. Students are expected to follow the institute resume template available in the placement website for preparing the resumes.
3. The details given in the resume have to be genuine and any student found violating this rule will be disallowed from the placement for the rest of the academic year.
4. Students have to upload and submit their resumes on the website to individual companies well before the deadline. Resume once submitted cannot be modified.
5. Students are advised to avoid last minute uploading, as it may lead to delays and some may even be left out.

## **C. 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.

## **D. PLACEMENT PROCESS**

1. It is the responsibility of the student to check announcements / notices / updated information / shortlisted names etc. in the Placement Website. Students are expected to be punctual.
2. **ATTENDANCE & PUNCTUALITY:**
  - a. A student who applies and gets shortlisted is bound to go through the entire selection process unless rejected midway by the company. Any student who withdraws deliberately in the middle of a selection process will be disallowed from placement for the rest of the academic year.
  - b. LATECOMERS FOR APTITUDE TEST / GD / INTERVIEW will not be allowed to appear for the selection process.
3. **DISCIPLINE:**
  - a. Students should maintain discipline and show ethical behaviour in every action they take during the placement process. Any student found violating the discipline rules set by the company or defaming the Institute's name will be disallowed from the placements.
  - b. Students found cheating or misbehaving in the selection process (Test / GD / Interview) will be disallowed from the placements for the rest of the academic year.

- c. Dress code should be maintained.

### **E. 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. **RELEASE OF OFFER:** 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). The company shall be intimated of the offer acceptance/rejection within three days of release of offer.
6. **WAITLIST:** 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. **OFFER OF JOB:** 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.

### **F. MISCELLANEOUS**

1. **MEDICAL TEST:** The CITP office assumes that every selected student will pass the medical test. If there is a rejection at this stage, the student registration will be renewed and the student becomes eligible again



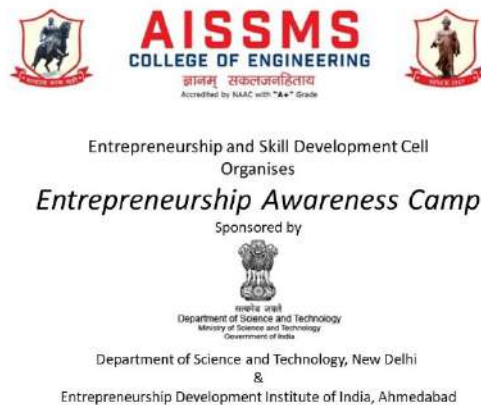
to seek placement through this office. Students should go through and understand instructions related to medical test carefully. The same should also be adequately clarified during PPT/interview.

2. IDENTITY CARDS: Students must bring their identity cards with them whenever they go through a placement process.
3. For all matters not covered by the above regulations, the CIP Office will use its discretion to take appropriate decisions. The decision taken by this office shall be binding on all students/scholars.

### 9.6. Entrepreneurship Cell (5)

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

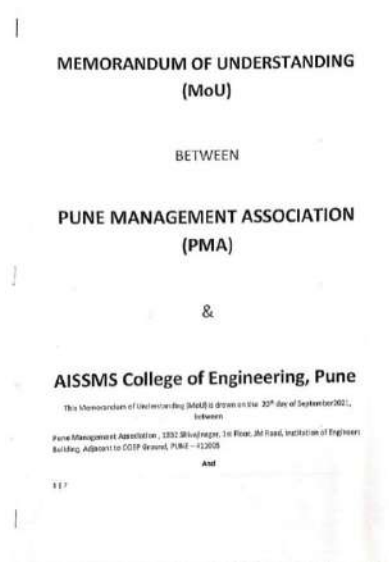
- An Entrepreneurship Awareness Camp sponsored by DST.



## 251



## NBA SAR Computer Engineering



### Activities organized by 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 and faculty involved
1	Entrepreneur Online Learning (EOL) Program - BYST	BYST Mentors	27/01/2021 to 28/01/2021 Two Days	Students involved 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	Students involved 556
3	Awareness Generation Program BYST	Mrs Ujwala Gosavi	24/2/2021 2 Hour	Students involved 50
4	Interaction with our own young startup Entrepreneurs	Mr. O Dahiwal Mr S Mangrulkar , Mr. Sumit Ghodke	25/02/2021 Half Day	Students involved 83 Faculties involved 07
5	Expert Talk	Mrs. Sujata Chandra	04/03/2021 Half Day	Students involved 70 Faculties involved 10
6	Webinar on "Preparation for being industry ready"	Mr G Zadge & Mr C Bhutada	20/03/2021	Students involved 80
7	Webinar on "Soft Skill: A must have asset for Engineers"	Dr. Utpal Ganatra	20/03/2021	Students involved 120
8	Awareness Generation Programmes (AGP) and Counselling Session	BYST, Pune Mentors	26/03/2021& 27/03/2021 Two days	Students involved 05
9	Webinar on Career Success Mantra	Mr Rajesh D Kamath	01/05/2021	Students involved 100
10	One week STTP on "2D & 3D Modelling in STAAD Pro"	Mr R. Udhyasankar	10/05/2021 to 14/05/2021 05 days	Students involved 300



Entrepreneurship and Skill Development Cell

Activities Carried Out With The Cell				
First Half (01 July 2020 to 31 December 2020)				
S N	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

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

Department of Production Engineering  
&  
Entrepreneurship and Skill Development  
Invites You For an Expert Lecture On  
**"ENTREPRENEURIAL THINKING SKILLS FOR STARTUP AND INNOVATION"**

**SPEAKER**  
**DR. MADHULIKA SONAWANE**  
School of Management Studies  
Kavayitri Bahinabai Chaudhari North  
Maharashtra University, Jalgaon

**STUDENT COORDINATORS**  
Janhavi Thakare  
Kartiki Chaware

**DATE:** 24/03/2022  
**TIME:** 9:00 AM TO 10:30 AM  
**Venue:** Room No: 240

**FACULTY COORDINATOR** **HEAD OF DEPARTMENT** **PRINCIPAL**  
PROF. S.N.CHIVANDE PROF. V.D. DHOLLE DR. D.S. BORMANE

**AISSMS**  
COLLEGE OF ENGINEERING  
ज्ञानम् सकलजगद्भिताय  
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### 9.7. Co-curricular and Extra-Curricular Activities (10)

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.

AISSMS COE students actively participate at various levels and win prizes continuously in cultural and literary events organized by other organisations. Events are Firodiya Karandak, Purushottam Karandak, Dnyanottam Karandak, Kaware Trophy etc.

A strong unit of **NSS (National Service Scheme)** organises various activities leading toward energy saving, environmental protection, rural development, sanitation, flood relief, conservation of natural resources, womens’ 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.

<b>CRITERION 10</b>	<b>ORGANIZATION, GOVERNANCE AND TRANSPARENCY</b>	<b>120</b>
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## **10. GOVERNANCE, INSTITUTIONAL SUPPORT & FINANCIAL RESOURCES**

### **10.1 Organization, Governance and transparency (40)**

#### **10.1.1 State the Vision and Mission of the Institute (5)**

##### **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 stake holders

#### **10.1.2 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:

## Governing Body

Table No. 10.1.1 Constitution of Governing Body

<b>Governing Body of Institute</b>	
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 No. 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 AmitDutta	Member (AICTE, Regional Officer) Ex-Officio
7	Dr (Smt) Sharmila Chaudhari	Member (Savitribai Phule 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 No. 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

## COLLEGE DEVELOPMENT COMMITTEE

Table No. 10.1.4 Constitution of College Development Committee

<b>College Development Committee of Institute</b>	
Chairmen	Chairperson of the management or his nominee ex-
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 No. 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 Vismata 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 No. 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 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

**Service rules, Policies and procedures****Extent of awareness among faculty**

The rules and policies regarding recruitment and promotion are as per AICTE, DTE, and Savitribai Phule Pune University Pune. The AICTE pay scales are implemented periodically.

**10.1.3 Decentralisation 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 No. 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 M Y Naniwadekar	H.O.D. (Chemical Engineering)
04	Dr P B Nangare	H.O.D. (Civil Engineering)

05	Dr S V Athawale	H.O.D. (Computer Engineering)
06	Dr (Mrs) 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 N G Shekhapure	H.O.D. (Production Engineering)
11	Mr A B Bhonsale	Administrative officer

In addition to this, various Institute Level administrative committees have been formed for effective administration.

Details of coordinator and committee members are published on institute website. (<https://aisssmscoe.com/wp-content/uploads/2021/01/ILC-for-website-update.pdf>). Also, functions and responsibilities of the committees are also available on the institute website.

Coordinators of all the institute level committees are delegated with administrative powers for effective functioning of respective committee.

Table No. 10.1.8 Various Institute level administrative committees and coordinators

<b>Academic Development Cell</b>			
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
<b>Centre for Information, Training and Placements Head: Dr A V Waghmare</b>			
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
<b>Infrastructure and Facility</b>			

15	Infrastructure and Facility	Coordinator	Dr. S. R. Patil
<b>Gymkhana</b>			
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
<b>Administration Cell</b>			
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
<b>Media Interface and Outreach Cell</b>			
24	Website	Coordinator	Mr. N. R. Talhar
<b>Research, Innovation and Development Cell</b>			
25	Research, Innovation and Development Cell	Coordinator	Dr D G Bhalke
<b>Grievance and Redressal Cell</b>			
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 constituted by the HOD in consultation with faculty.

For effective implementation of various initiatives and for effective decentralisation, committees such as department advisory board and program assessment and quality improvement committees are formed at department level.

Table No. 10.1.9 Department advisory board members

S.N.	Name of member	Representation	Designation and organisation
1	Dr S V Athawale	chairman Academics	Head, Computer Engineering, AISSM College of Engineering
2.	Dr Sunil Bhirud	Member Academics	Director & Professor at Veermata Jijabai Technological Institute (VJTI)
3.	Dr M B Kokare	Chairman Academics	Professor, SGGS IOET, Nanded
4.	Mr. Saurabh Navande	Industrial person	Business Development Manager   Planet Education Networks (PEN)   Elizabeth School of London (ESL)   London, England, United Kingdom
5	Dr D P Gaikwad	HOD, Computer Department	Associate Professor
6	Dr M A Pradhan	Member	Associate Professor
7	Dr S F Sayyed	Member	Associate Professor
8	Mr. Shantanu Chintawar	Member	Student, AISSMS COE
9	Ms. A S Deokar	Member	Departmental academic Coordinator, AISSM

Table No. 10.1.10 PAQIC members

S.N.	Name of Member	Representation	Designation
1.	Dr S V Athawale	Head, Computer Engineering, AISSM College of Engineering	Chairman
2.	Dr D P Gaikwad	Module Co-ordinator I	Member
3.	Dr M A Pradhan	Coordinator Industry Institute Co-ordinator	Member
4	Dr S F Sayyed	Departmental NAAC Co-ordinator	Member
5	Dr D M Ujlambhkar	Module Co-ordinator II	Member
6	Mr.S G Dhengre	Departmental Industry Institute Coordinator	Member
7	Ms.V V Waykule	Departmental exam Co-ordinator	Member
8	Ms. A S Deokar	Departmental academic Co-ordinator	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 No. 10.1.11 Members 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 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.

#### **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's website too (<http://aissmscoe.com/academics/online-grievance-redressal/>)

#### **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.

**Anti-Ragging Committee for The academic year 2019-20**

Table No. 10.1.12 Members of anti-ragging committee

<b>Sr No</b>	<b>Name</b>	<b>Designation</b>	<b>Post</b>
1	Dr D S Bormane	Principal	Chairman
2	Shri Suresh P Shinde	Businessman	Civil administration
3	Shri 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

**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 No. 10.1.13 Members of anti-ragging squad

<b>Sr. No.</b>	<b>Faculty Name and Designation</b>	<b>Post</b>
<b>01</b>	<b>Mr V R Patil, Assistant Professor &amp; Head, First Year Engineering</b>	<b>Coordinator</b>
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 Kondhare, Physical Director	Member

**Vishakha (Sexual Harassment Committee)**

Table No. 10.1.14 Members of Vishakha

<b>Sr. No.</b>	<b>Faculty Name and Designation</b>	<b>Post</b>
<b>01</b>	<b>Dr (Mrs) P S Gajjal</b> , Associate Professor in Mechanical Engineering	<b>Coordinator</b>
02	Ms S J Pachouly, Assistant Professor in Computer Engineering	Member
03	Ms V S Dandawate, Librarian	Member
04	Mr 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.

**10.1.4 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 No. 10.1.14 Utilisation of petty cash in Rs.

Petty cash utilisation					
2019-2020		2020-2021		2021-2022	
Sanctioned amount	Utilised amount	Sanctioned amount	Utilised amount	Sanctioned amount	Utilised amount
148757.00	148695.00	150543.00	146403.00	127503.00	127441.00



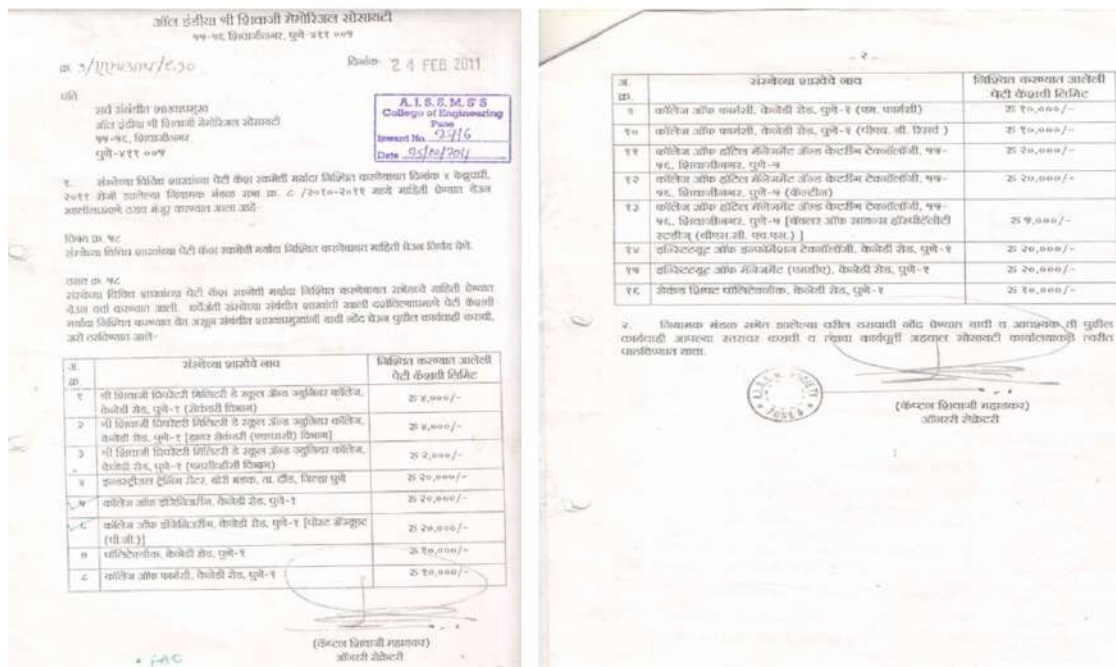


Fig. 10.1.1 Petty cash facility allotted to institutes

### 10.1.5 Transparency and availability of correct /unambiguous information in public domain (5)

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.aiissmscoe.com](http://www.aiissmscoe.com).

S.N.	Name of document	URL of document on website
1	Vision, mission, goals and core values of the institute	<a href="https://aiissmscoe.com/about-us/college-profile/">https://aiissmscoe.com/about-us/college-profile/</a>
2	Admissions	<a href="https://aiissmscoe.com/admission/admission-enquiry/">https://aiissmscoe.com/admission/admission-enquiry/</a>
3	AICTE Approval Letters	<a href="https://aiissmscoe.com/aicte-approvals/">https://aiissmscoe.com/aicte-approvals/</a>
4	Mandatory disclosure	<a href="https://aiissmscoe.com/mandatory-disclosure/">https://aiissmscoe.com/mandatory-disclosure/</a>
5	Stakeholders feedback	<a href="https://aiissmscoe.com/stakeholders/">https://aiissmscoe.com/stakeholders/</a>
6	AICTE essentials	<a href="https://aiissmscoe.com/aicte-essentials/">https://aiissmscoe.com/aicte-essentials/</a>
<b>Faculty Profile</b>		
7	Department of Chemical Engineering	<a href="https://aiissmscoe.com/chemical-engineering/faculty/">https://aiissmscoe.com/chemical-engineering/faculty/</a>
8	Department of Civil Engineering	<a href="https://aiissmscoe.com/civil-engineering/faculty/">https://aiissmscoe.com/civil-engineering/faculty/</a>
9	Department of Electrical Engineering	<a href="https://aiissmscoe.com/electrical-engineering/faculty/">https://aiissmscoe.com/electrical-engineering/faculty/</a>
10	Department of Electronics and Telecommunication	<a href="https://aiissmscoe.com/electronics-engineering/faculty/">https://aiissmscoe.com/electronics-engineering/faculty/</a>
11	Department of First Year Engineering	<a href="https://aiissmscoe.com/first-year-engineering/faculty/">https://aiissmscoe.com/first-year-engineering/faculty/</a>
12	Department of Mechanical Engineering	<a href="https://aiissmscoe.com/mechanical-engineering/faculty/">https://aiissmscoe.com/mechanical-engineering/faculty/</a>
13	Department of Production Engineering	<a href="https://aiissmscoe.com/production-engineering/faculty/">https://aiissmscoe.com/production-engineering/faculty/</a>
<b>Annual Reports</b>		
14	Department of Chemical Engineering	<a href="https://aiissmscoe.com/chemical-engineering/annual-reports/">https://aiissmscoe.com/chemical-engineering/annual-reports/</a>

15	Department of Civil Engineering	<a href="https://aissmscoe.com/civil-engineering/annual-reports/">https://aissmscoe.com/civil-engineering/annual-reports/</a>
16	Department of Electrical Engineering	<a href="https://aissmscoe.com/electrical-engineering/annual-reports/">https://aissmscoe.com/electrical-engineering/annual-reports/</a>
17	Department of Electronics and Telecommunication	<a href="https://aissmscoe.com/electronics-engineering/annual-reports/">https://aissmscoe.com/electronics-engineering/annual-reports/</a>
18	Department of First Year Engineering	<a href="https://aissmscoe.com/first-year-engineering/annual-reports/">https://aissmscoe.com/first-year-engineering/annual-reports/</a>
19	Department of Mechanical Engineering	<a href="https://aissmscoe.com/mechanical-engineering/annual-reports/">https://aissmscoe.com/mechanical-engineering/annual-reports/</a>
20	Department of Production Engineering	<a href="https://aissmscoe.com/production-engineering/annual-reports/">https://aissmscoe.com/production-engineering/annual-reports/</a>



Fig. 10.1.2 Best Professional College of SPPU



Fig. 10.1.3 Best Principal Award by ISTE

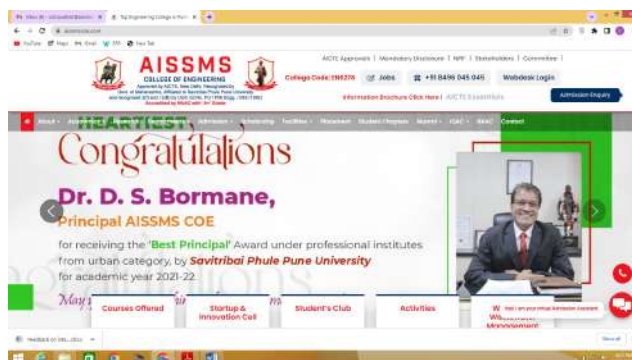


Fig. 10.1.4 Best Principal Award by SPPU



Fig. 10.1.5 Winner of prestigious “Firodiya Trophy 2022”

## 10.2 Budget Allocation, Utilization, and Public Accounting at Institute level(30)

### 10.2.1 Adequacy of budget allocation(15)

In the beginning of every academic year, HoDs meeting is convened to discuss in detail about the budget requirement for various departments for the academic year concerned. Based on the discussions, HoDs are directed to submit a detailed proposal taking into account the increase in intake, revised curriculum and syllabus and the various events planned. The proposals received from all the departments are consolidated and submitted to the management for the sanction of the budget. The management usually allocates the budget considering the urgency of proposals. Always, sufficient budget has been allocated by the management to fulfil the requirements of various sections and departments of the institute.

### 10.2.2 Utilization of allocated funds

*Summary of current financial year's budget and actual expenditure incurred (for the institution exclusively) in the three previous financial years.*

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 the faculty members involved in the purchase and take necessary efforts to see that the purchase of items is complete in all respects and the allocated funds are fully.

### 10.2.3 Availability of the audited statements on the institute website (5)

**Total Income at Institute level: For CFY, CFYm1, CFYm2 & CFYm3**

**CFY: Current Financial Year, CFYm1 (Current Financial Year minus 1), CFYm2 (Current Financial Year minus 2) and CFYm3 (Current Financial Year minus 3)**

**For CFY 2021-22**

<b>Total Income:</b> 384514955.00				<b>Actual expenditure (till ...):</b> 337150209.65			<b>Total No. of students:</b> 3030
<b>Fee</b>	<b>Govt.</b>	<b>Grant(s)</b>	<b>Other Sources (specify)</b>	<b>Recurring including Salaries</b>	<b>Non-recurring</b>	<b>Special Projects/Any other, specify</b>	<b>Expenditure per student</b>
383581137	00	00	933818.00	329543094.65	7607115	0	111270.70

*Table B.10.2a*

**For CFY 2020-21**

<b>Total Income:</b> 374544068				<b>Actual expenditure (till ...):</b> 300948858.43			<b>Total No. of students:</b> 3112
<b>Fee</b>	<b>Govt.</b>	<b>Grant(s)</b>	<b>Other Sources (specify)</b>	<b>Recurring including Salaries</b>	<b>Non-recurring</b>	<b>Special Projects/Any other, specify</b>	<b>Expenditure per student</b>
373411482	0	0	1132586	291096339.43	9852519	0	96705.93

**For CFY 2019-20**

<b>Total Income:</b> 319073736.52				<b>Actual expenditure (till ...):</b> 356936441.63			<b>Total No. of students:</b> 2815
<b>Fee</b>	<b>Govt.</b>	<b>Grant(s)</b>	<b>Other Sources (specify)</b>	<b>Recurring including Salaries</b>	<b>Non-recurring</b>	<b>Special Projects/Any other, specify</b>	<b>Expenditure per student</b>
317338255	0	0	1735481.52	330815515.52	26120926.11	0	126798.03

**For CFY 2018-19**

<b>Total Income:</b> 311756516				<b>Actual expenditure (till ...):</b> 359356147.59			<b>Total No. of students:</b> 2916
<b>Fee</b>	<b>Govt.</b>	<b>Grant(s)</b>	<b>Other Sources (specify)</b>	<b>Recurring including Salaries</b>	<b>Non- recurring</b>	<b>Special Projects/Any other, specify</b>	<b>Expenditure per student</b>
310308435	0	0	1448081	317150317.48	42205830.11	0	123235.99

<b>Items</b>	Budgeted in CFY 2020-21	Actual expenses in CFY 2021-22 till (till ...)	Budgeted in CFYm1 2020-21	Actual Expenses in CFYm1 2020-21 till	Budgeted in CFYm2 2019-20	Actual Expenses in CFYm2 2019-20 till	Budgeted in CFYm3 2018-19	Actual Expenses in CFYm3 2018-19 till
Infrastructure Built-Up	33535208.00	32066113.00	32312734.00	29716580.00	51005208.00	49970510.11	69365208.00	69395393.11
Library	4325000	4325000	5510000	5500268	3925000	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 staff salary	227150000	226611240	208550000	207828775	205000000	204913144	203488000.00	203408950
Maintenance and spares	4200000	3419956.6	2750000	2591638	5450000	5312396	4900000	4878388
R&D	4200000	1723831	1400000	392884	3700000	1136690	4600000	1496623.42
Training and Travel	2850000	2750408.62	6020000	5330814	8300000	8328591	8065202	7763844
Miscellaneous expenses *	580000	184210	280000	58504	5430000	5331466	3580000	3792752.00

Others								
Specific	46577240.88	46296208.49	33143792	25400338.23	51789792	51947991.84	44676590.00	40778027.36
Total	330067448.88	322188011.71	298666526.00	285226438.23	341700000.00	336374924.95	352500000.00	343762101.89

**Table B.10.2b**

### 10.3 Program Specific Budget Allocation, Utilization (30)

**Total Budget at program level: For CFY, CFYm1, CFYm2 & CFYm3**

**CFY: Current Financial Year, CFYm1 (Current Financial Year minus 1), CFYm2 (Current Financial Year minus 2) and CFYm3 (Current Financial Year minus 3).**

**For CFY 2021-22**

Total Budget: 3796000.00		Actual expenditure (till ...): 2693765		Total No. of students:595
Non recurring	Recurring	Non Recurring	Recurring	Expenditure per student
300,000.00	3496000	0	2693765	4527.34

**Table B.10.3a**

**Note: Similar tables are to be prepared for CFYm1, CFYm2 & CFYm3.**

**For CFY 2020-21**

Total Budget: 3771000.00		Actual expenditure (till ...): 1914854		Total No. of students: 593
Non recurring	Recurring	Non Recurring	Recurring	Expenditure per student
1,200,000.00	2,571,000.00	1200425	714429	3229.10

**For CFY 2019-20**

<b>Total Budget:</b> 4582000.00		<b>Actual expenditure (till ...):</b> 3436915		<b>Total No. of students:</b> 549
<b>Non recurring</b>	<b>Recurring</b>	<b>Non Recurring</b>	<b>Recurring</b>	<b>Expenditure per student</b>
300,000.00	4,282,000.00	42303	3394612	6260.32

**For CFY 2018-19**

<b>Total Budget:</b> 5274000.00		<b>Actual expenditure (till ...):</b> 3748503		<b>Total No. of students:</b> 561
<b>Non recurring</b>	<b>Recurring</b>	<b>Non Recurring</b>	<b>Recurring</b>	<b>Expenditure per student</b>
1,000,000.00	4,274,000.00	315770	3432733	6681.82

***Table B.10.3b***

<b>Items</b>	Budgeted in CFY 2020-21	Actual expenses in CFY 2021-22 till (till ...)	Budgeted in CFYm1 2020-21	Actual Expenses in CFYm1 2020-21 till	Budgeted in CFYm2 2019-20	Actual Expenses in CFYm2 2019-20 till	Budgeted in CFYm3 2018-19	Actual Expenses in CFYm3 2018-19 till
Laboratory equipment	3,00,000.00	--	12,00,000.00	12,00,425.00	3,00,000.00	42,303.00		
Software	20,00,000.00	20,31,998.00	10,00,000.00	85,818.00	11,00,000.00	10,89,116.00		
Laboratory consumables	1,00,000.00	36,001.00	25,000.00	995.00	1,00,000.00	3,752.00		
Maintenance and spares	2,00,000.00	1,72,626.00	2,00,000.00	1,34,016.00	2,00,000.00	1,19,744.00		
R&D	6,00,000.00	--	3,00,000.00	--	6,00,000.00	--		

Training and Travel	5,00,000.00	4,23,140.00	10,00,000.00	4,84,600.00	13,82,000.00	13,82,000.00		
Miscellaneous expenses *	96,000.00	30,000.00	46,000.00	9,000.00	9,00,000.00	8,00,000.00		
<b>Total</b>	<b>37,96,000.00</b>	<b>26,93,765.00</b>	<b>37,71,000.00</b>	<b>19,14,854.00</b>	<b>45,82,000.00</b>	<b>34,36,915.00</b>		

\* Items to be mentioned.

### 10.3.1 Adequacy of budget allocation (10)

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, consumables, software, computers, maintenance-spare and furniture etc. and for conducting curricular and extra-curricular activities.

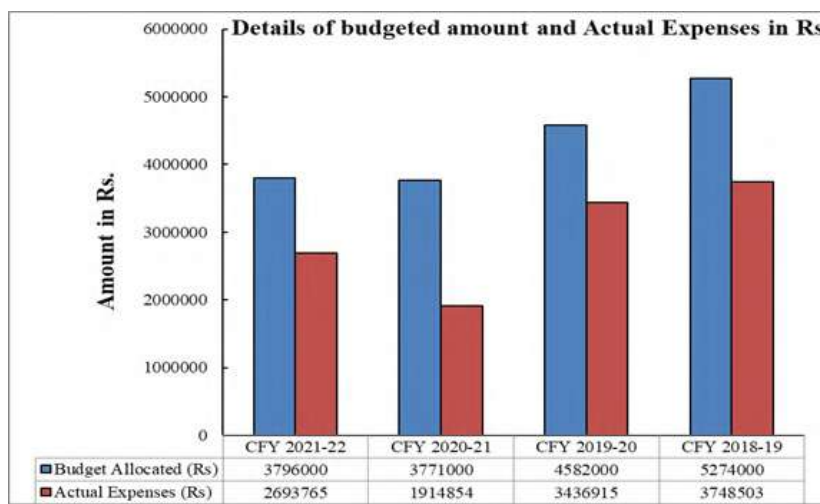


Fig.10.3.1 Budgeted amount and actual expenses



## 10.4 Library and Internet (20)

### 10.4.1 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 a digitized 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 can be used for searching. SLIM21 supports flexible workflow to cover activities related to acquisition of books, serials control, and funds monitoring.

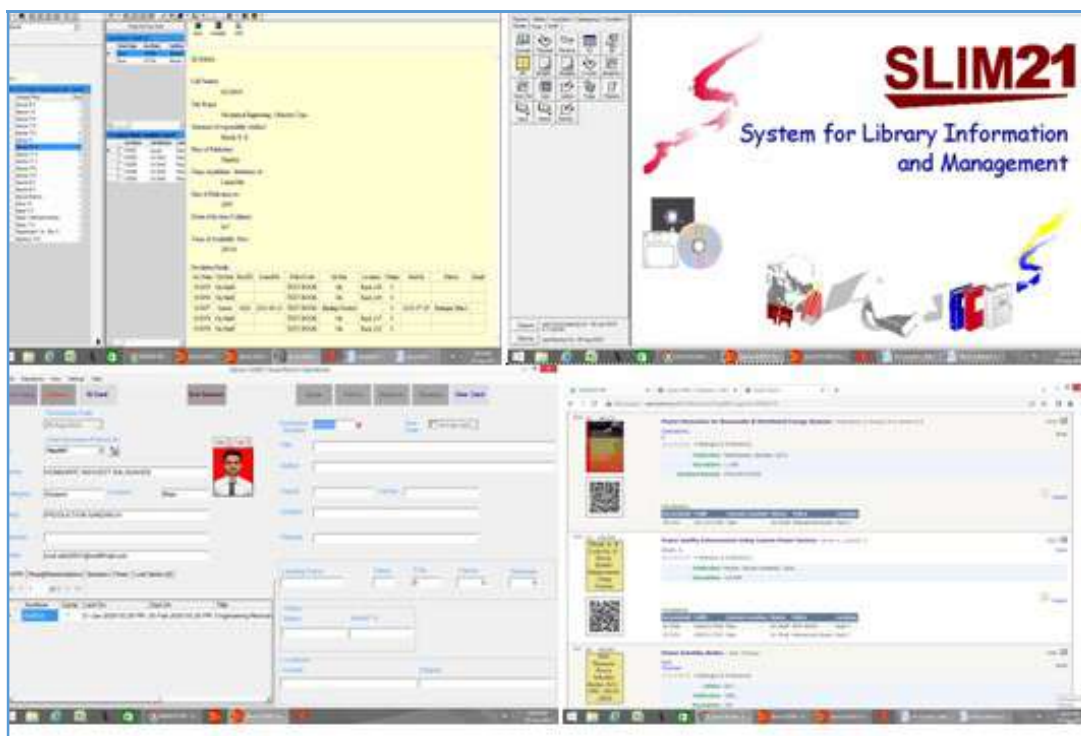


Figure 10.4.1: SLIM Software Screenshots

With the growing popularity of e-resources, library is 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

<b>Learning Resources</b>	<b>Number of resources</b>
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

<b>Year</b>	<b>No of New Titles added</b>	<b>No of new Editions added</b>	<b>No of new volumes added</b>	<b>Expenditure</b>
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

<b>Year</b>	<b>Number of E Journals</b>	<b>Expenditure</b>
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 Library

<b>AISSMS E Resource</b>	<b>Contents</b>	<b>Link</b>
Science Direct	275 E Journals Access	<a href="https://www.sciencedirect.com/">https://www.sciencedirect.com/</a>
IEEE	169 eJournal Backfile Access- Since 2000)	<a href="https://ieeexplore.ieee.org/Xplore/home.jsp">https://ieeexplore.ieee.org/Xplore/home.jsp</a>
ASME Digital Library	27 E Journals	<a href="https://www.asme.org/">https://www.asme.org/</a>
ASCE Digital Library	35 E journals	<a href="https://www.asce.org/">https://www.asce.org/</a>
Access Engineering	365 E journals/ E Books Access	<a href="https://www.accessengineeringlibrary.com/user/login">https://www.accessengineeringlibrary.com/user/login</a>
SPRINGER	149 E Journals	<a href="https://link.springer.com/">https://link.springer.com/</a>
DELNET	Access Millions of Networked Library	<a href="http://164.100.247.26/">http://164.100.247.26/</a>

	Resources through DELNET, 2,20,00,000+ Books available for loan, 5,000+ Full-text E-journals, 1,00,000+ Thesis/Dissertations	
Knimbus	25000+ ebooks	<a href="https://aissms.knimbus.com/user#/home">https://aissms.knimbus.com/user#/home</a>
NDL	Includes all disciplines	<a href="https://ndl.iitkgp.ac.in/">https://ndl.iitkgp.ac.in/</a>
List of Open Access Resources	Access to all open access resources	<a href="https://aissmscoelibrary.weebly.com/open-access-resources.html">https://aissmscoelibrary.weebly.com/open-access-resources.html</a>
S Chand Ebooks	Access to 112 E-Text Books	<a href="https://ebooks.schandgroup.com">https://ebooks.schandgroup.com</a>
New Age Ebooks	Access to 50 E Books	<a href="https://digital.elib4u.com/">https://digital.elib4u.com/</a>
Person E books	Access to 104 E -Text Books	<a href="https://elibrary.in.pearson.com/">https://elibrary.in.pearson.com/</a>
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.

### 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

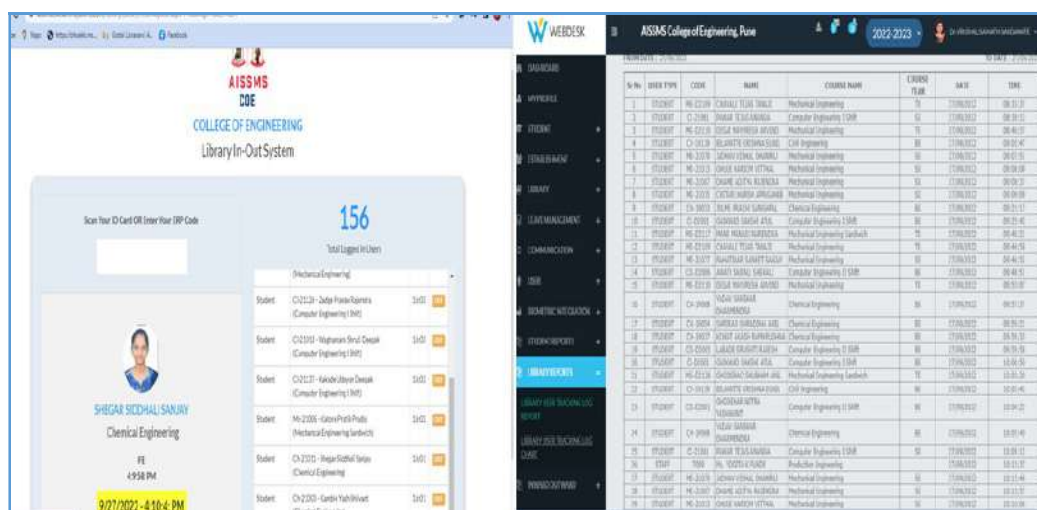


Figure 10.4.2: Screenshot of Library user tracking system

### 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.

Sr No	Name of Teacher	Title of Book	Author	Publisher	Cost	Required
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	H. Nagarath and D.P. Kothari	Tata McGraw-Hill Publication 4th Edition	500/-	
4	V.S. Navale	Electrical Circuit Analysis	William H. Hyat, Jack E. Kimmerly and S.	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 Vehicle	A.R. Bala	Khanna Publishing	500/-	
7	Mr. N.P. Mavale	"Digital systems design using VHDL"	Charles H. Roth	PWS		5
8	Mr. N.P. Mavale	"Modern VLSI Design (IP-Based Design)"	Wyann Wolf	JE Prentice Hall		5
9	Mr. N.P. Mavale	"Advanced FPGA Design Architecture, Implementation and Optimization"	Steve Kilts	Wiley		5
10	Mr. N.P. Mavale	"CMOS VLSI Design: A Circuit & System Perspective"	E. Weste, David Money Harris	Pearson Publication		3
11	Mr. N.P. Mavale	"CMOS Circuit Design, Layout, and Simulation"	R. Jacob Baker,	3E Wiley-IEEE Press		2
12	Mr. N.P. Mavale	"Digital System Design with FPGA: Implementation Using Verilog"	Cem Unsalan, Bora Tar	McGraw-Hill		2
13	Mr. N.P. Mavale	"Fundamentals and Applications of Lithium-Ion Batteries in Electric Drive Vehicle"	Rochun Jiang, Caiping Zhang	Wiley, 1st Edition		2
14	Mr. N.P. Mavale	"Printed Circuit Board Design & Technology"	W. Bosshart	TMH, 1st Edition		1
15	Mr. N.P. Mavale	"Printed Circuit Board Design & Technology"	W. Bosshart	TMH, 1st Edition		1

Figure 10.4.3: Screenshot of Library book requisition form

### 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

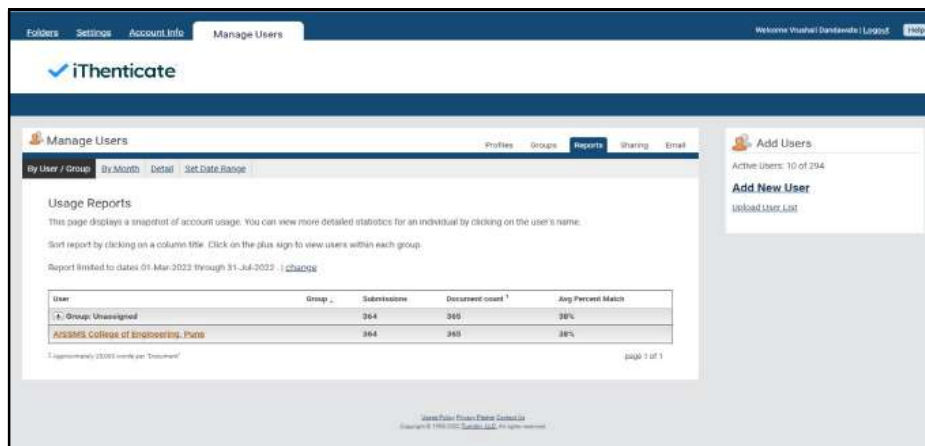


Figure 10.4.4: Plagiarism Software Screenshots



Figure 10.4.5: Library WebOPAC Screenshots



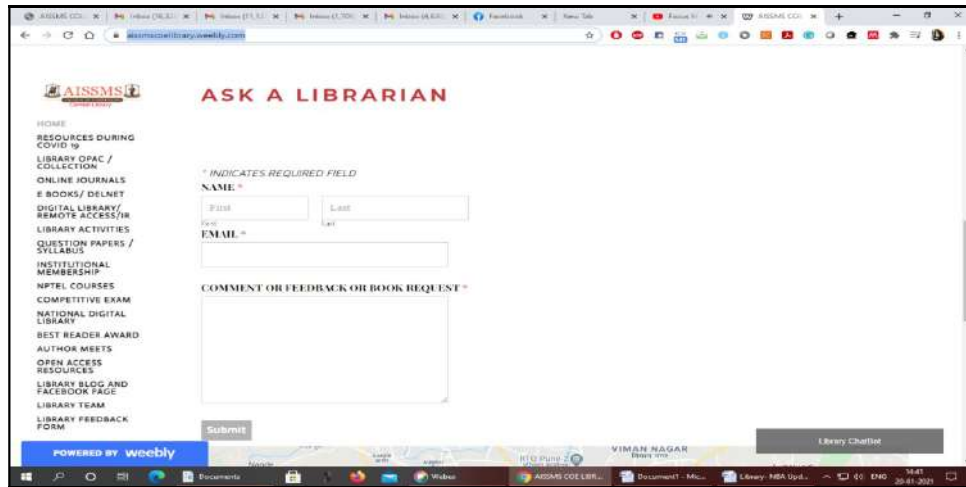


Figure 10.4.6: Ask A Librarian service

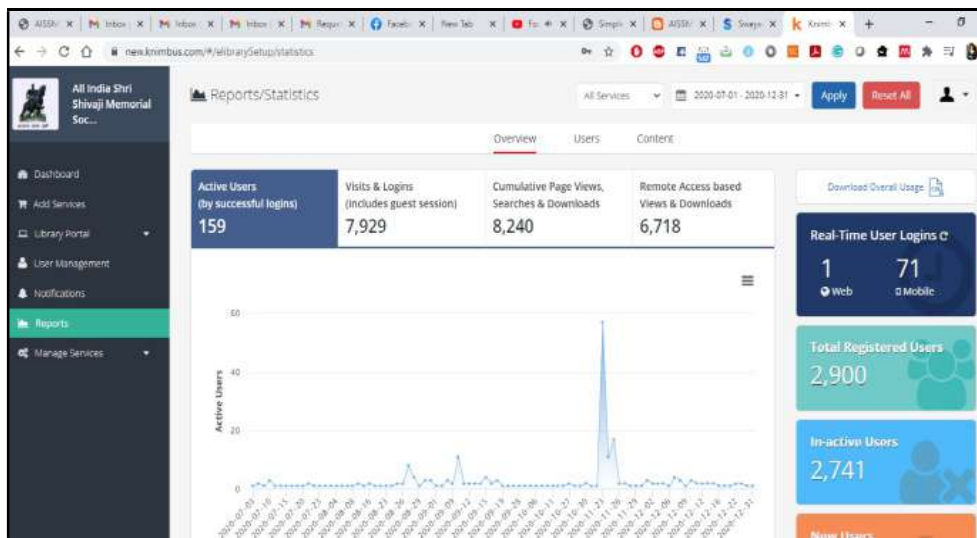


Figure 10.4.7 : Use of remote access facility



Figure 10.4.8: Reprography Machine and I card printing facility Information Kiosk

**10.4.2 Internet**

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 is 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.



## Annexure-I

### Program Outcomes(POs) & Program Specific Outcomes(PSOs)

**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, 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 Teamwork** 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.

### **Program Specific Outcomes (PSO)**

**PSO1.** Students are able to devise, analyze and implement algorithms.

**PSO2.** Students are able to exhibit their IT based knowledge for the development of Society.

**PSO3.** Enhance communication and leadership skills to get good position in National and International Organizations.