



Department of Robotics and Automation	
Course Outcomes	
SE Robotics and Automation (SEM I)	
Course Code	Name of Subject
207007	Engineering Mathematics-III
CO 1	Solve higher order linear differential equations and its applications to model and analyze
CO 2	Apply Integral transform techniques such as Laplace transform and Fourier transform to
CO 3	Apply Statistical methods like correlation, regression in analyzing and interpreting
CO 4	Perform Vector differentiation and integration, analyze the vector fields and apply to fluid
CO 5	Solve Partial differential equations such as wave equation, one and two dimensional heat
CO 6	
211501	Industrial Electronics and Electrical Technology
CO 1	Analyze Microcontrollers and embedded systems terminologies and sensors
CO 2	Understand Arduino Architecture and Programming Basics
CO 3	Understand Advanced Programming and Sensor Integration with Arduino.
CO 4	Identify and select suitable DC motor.
CO 5	Identify and select suitable induction motor
CO 6	Identify special purpose motor and its speed control method for given industrial application
211082	Strength of Materials
CO 1	Understand the properties of material, their behavior and applications under action of
CO 2	Understand the concept of composite bars, what is effect of temperature on materials and
CO 3	Understand and find the pure bending and shear stress distribution of different section of
CO 4	Understand the concept of, transformation of stresses and strains on oblique plane and
CO 5	Understand the concept of torsion and thin & thick cylinders and implement it to design
CO 6	Understand the concept of slope & deflection of beams and bulking of columns.
211502	Manufacturing Technology
CO 1	1. Describe and classify metal casting processes
CO 2	2. Classify and analyze various forming processes
CO 3	3. Understand special casting and forming processes
CO 4	4. Classify and describe different types of welding and joining processes
CO 5	5. Understand various non conventional machining process.
CO 6	6. Understand various applications of robots in manufacturing
211503	Materials Science and Engineering Metallurgy
CO 1	Define the mechanical properties of materials and conduct destructive and non destructive
CO 2	Draw and explain equilibrium diagrams for various alloy systems.
CO 3	Work with Iron-Iron carbide equilibrium diagram and apply this knowledge for
CO 4	Select proper Heat Treatment, Surface Hardening technique & Isothermal Treatments for
CO 5	Distinguish different Alloy Steels and Cast Irons based on chemical compositions and
CO 6	Familiarize with different types of non-ferrous alloys and Composites with their need scope



Department of Robotics and Automation

Course Outcomes

SE Robotics and Automation (SEM II)

Course Code	Name of Subject
211508	Industrial Engineering and Management
CO 1	Describe Principles and Types of Management
CO 2	Interpret Theories of Motivations and leadership
CO 3	Develop Entrepreneurship skills
CO 4	Apply various Tools and techniques of Industrial Engineering for Productivity improvement
CO 5	Apply Method study and examine the recorded facts and propose new method
CO 6	Apply Work Measurement techniques to determine standard time
211509	Control System Engineering
CO 1	Model a physical system and express its internal dynamics and input-output relationships
CO 2	Understand and explain the relationships between the parameters of a control system and
CO 3	Identify the parameters that the system is sensitive to. Determine the stability of a system
CO 4	Plot the Bode, Nyquist, Root Locus diagrams for a given control system and identify the
CO 5	Determine the frequency response of a control system and use it to evaluate or adjust the
CO 6	Design a P, PD, PI, or PID controller based on the transient and steady state response
211510	Design of Machine Elements
CO 1	Understand the design simple machine parts like, different joints (Cotter Joint and Knuckle
CO 2	Understand design shafts using ASME code, keys and couplings.
CO 3	Calculate the stress on mechanical components and identify failure modes for mechanical
CO 4	Calculate the different stress on spring and identify failure in spring to design helical
CO 5	Understand the selection and design of spur gear
CO 6	Understand the selection of rolling contact bearings from manufacturers catalogue.
211511	Metrology and Quality Assurance
CO 1	1. Describe and work with various linear and angular measuring devices
CO 2	2. Design limit gauges and work with special measuring devices for gear, screw thread and
CO 3	3. Distinguish various comparators and use profile projector
CO 4	4. Use various control charts and various quality assurance tools
CO 5	5. Get knowledge of various quality standards and their implementations in industries.
CO 6	6. Implement TQM and TPM concepts in practice
211512	Computer Graphics for Robotics
CO 1	Understand the basics of computer graphics, different graphics systems and applications of
CO 2	Use of geometric transformations on graphics objects and their application in robot
CO 3	Apply the concepts of various types of 2D and 3D interpolations in Computer Graphics
CO 4	Demonstrate the application of Bezier curves and interpolation in robot path planning
CO 5	Apply concept of analytic geometry for modelling in robotic physics
CO 6	Apply concept of geometric algebra for modelling in robotic physics