

## Department of Mechanical Engineering

### Course Outcomes of all courses of B Tech 8<sup>th</sup> semester MECH

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
C411 Robotics D037811(037)	C 411.1	<b>Demonstrate</b> the basic knowledge of terminologies, characteristics, components and applications of robotics systems. <b>(Level 3)</b>
	C 411.2	<b>Apply</b> spatial transformation to obtain forward kinematics equation of robot manipulators. <b>(Level 3)</b>
	C 411.3	<b>Perform</b> position analysis and velocity analysis of direct and inverse kinematic models of robots. <b>(Level 3)</b>
	C 411.4	<b>Describe</b> sensing technologies and robotics vision system and choose the appropriate for a given application. <b>(Level 2)</b>
	C 411.5	<b>Develop</b> and <b>analyze</b> the mathematical model for motion planning and control of robot manipulators and describe robotics applications. <b>(Level 6)</b>



Estd. 1999

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Course	COURSE OUTCOMES	
C412- Automobile Engineering D037831(037)	C412.1	<b>Describe</b> the basic structure of an automobile with applied engineering principle in its design. <b>(Level 2)</b>
	C412.2	<b>Describe</b> clutches and fluid flywheel and solve related problems. <b>(Level 2)</b>
	C412.3	<b>Describe</b> construction and working principle of gear box and torque converter and analyze problem related automobile performance. <b>(Level 2)</b>
	C412.4	<b>Describe</b> construction and working of propeller shaft, differential, axle assembly, tyres and braking system of an automobile <b>(Level 2)</b>
	C412.5	<b>Describe</b> construction and working of steering and electrical systems with applied engineering principle in its design. <b>(Level 2)</b>

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Course	COURSE OUTCOMES	
C413- Production & Product Management D000806(037)	C413.1	<b>Explain</b> the product development process of a new product. <b>(Level 2)</b>
	C413.2	<b>Explain</b> product design methods. <b>(Level 2)</b>
	C413.3	<b>Explain</b> the concepts of design for manufacture. <b>(Level 2)</b>
	C413.4	<b>Explain</b> the concepts of Industrial design. <b>(Level 2)</b>
	C413.5	<b>Discuss</b> legal issue pertaining to product design and management of product development projects. <b>(Level 5)</b>



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Course	COURSE OUTCOMES	
C414-Robotics (Lab) D037821(037)	C414.1	<b>Demonstrate</b> the working of different types of robot( <b>Level 3</b> )
	C414.2	<b>Demonstrate</b> the knowledge of the robotic system design, sensors, actuators, vision systems and robotic application. ( <b>Level 3</b> )
	C414.3	<b>Design</b> , model and analyze gripper( <b>Level 6</b> )
	C414.4	<b>Write</b> the program for linear and nonlinear trajectories and forward kinematic problems by using software. ( <b>Level 5,6</b> )
	C 414.5	<b>Develop</b> virtual model for kinematic and dynamic verification of robotics structure using software( <b>Level 6</b> )

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
C415- Computer Aided Simulation & Analysis (Lab) D037822(037)	C415.1	Model and <b>analyze</b> structural problem using commercial simulation and analysis software. ( <b>Level 4</b> )
	C415.2	Model and <b>analyze</b> Thermal problem using commercial simulation and analysis software. ( <b>Level 4</b> )
	C415.3	Model and <b>analyze</b> Fluid Flow problem using commercial simulation and analysis software. ( <b>Level 4</b> )
	C415.4	<b>Analyze</b> Coupled field problems using commercial simulation and analysis software. ( <b>Level 4</b> )
	C415.5	<b>Determine</b> the natural frequency of an object using commercial simulation and analysis software. ( <b>Level 5</b> )



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Course	COURSE OUTCOMES	
C416- Project (Phase-II) D037823(037)	C416.1	Demonstrate proficiency in using relevant software tools for data analysis. <b>Level: 3</b>
	C416.2	Analyze and interpret experimental results to draw meaningful conclusions. <b>Level: 4</b>
	C416.3	Critically evaluate existing research literature related to the project topic. <b>Level: 5</b>
	C416.4	Design and implement a solution to address a specific problem identified in the project. <b>Level: 6</b>
	C416.5	Communicate project findings effectively through written reports and oral presentations. <b>Level: 5</b>