Department of Mechanical Engineering

Course Outcomes of all courses of B Tech 7th semester MECHATRONICS

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

Course	COURSE OUTCOMES	
C401- Autotronics	**C 401.1**	The students will get the knowledge of different parts of the automobile **Level**: Remember (1)
	C 401.2	The students will know about chassis & frame, clutches, gear box, tyres, brakes, and the steering system **Level**: Understand (2)
	C 401.3	Identify & differentiate components of SI & CI engines **Level**: Analyze (4)
	C 401.4	The students will be able to understand the functioning together of mechanical and electronic systems **Level**: Understand (2)
	C 401.5	Differentiate various subsystems of two, three & four wheeler vehicles **Level**: Analyze (4)

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

Course	COURSE OUTCOMES	
C402- Automated Manufacturing I	**C402.1**	Student will understand working of NC and CNC machines, DNC system. **Level**: Understand (2)
	C402.2	Able to identify various parts of CNC machine: Ball Screws, Servo Motors, Bearings, Encoders. **Level**: Understand (2)
	C402.3	Understand construction & working of Automatic Tool changer & Pallet changer in CNC systems. **Level**: Understand (2)
	C402.4	Ability to identify the type of CNC machine for the part given (cylindrical or prismatic), Write the part program using G-codes. **Level**: Understand (2)
	C402.5	Students will be conversant with the Rapid Prototype techniques. **Level**: Understand (2)

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

Course	COURSE OUTCOMES	
403- Robotics and Machine Vision	**C403.1**	***discuss*** about evolution and configuration of robot and concept of robotics.(**Level**-5)
	C403.2	***discuss*** and hands-on competence in applying the concepts in the ***design*** and development of robots. .(**Level**-1,5)
	C403.3	***demonstrate*** creativeness in designing and development of robotics technology. (**Level**-4)
	C403.4	***discuss*** about common sensor, their use, and vision system used in robotics.(**Level**-5)
	C403.5	***describe*** the use of Robot in various Applications .(**Level**-5)

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

Course	COURSE OUTCOMES	
C404- Product Design and Development	**C404.1**	Understand the Product Development Process **Level**: Understand (2)
	C404.2	Apply Product Design Methods **Level**: Apply (3)
	C404.3	Implement Design for Manufacture Principles **Level**: Apply (3)
	C404.4	Analyze Industrial Design Principles and Processes **Level**: Analyze (4)
	C404.5	Evaluate Patents, Product Development, and Project Management **Level**: Evaluate (5)

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

Course	COURSE OUTCOMES	
C405 Non Conventional Energy Sources	**C405.1**	***create*** awareness about deplicting conventional energy sources and need for non-Conventional sources of energy technologies**.(Level 5)**
	C405.2	***understand*** the working criteria of various direct energy conversion systems and study its applications**.(Level 1)**
	C405.3	***evaluate*** methods for generation of hydrogen power and production of hydrogen **.(Level 6)**
	C405.4	***understand*** the basis of energy from biomass**.(Level 1)**
	C405.5	***describe*** basic principles of wind energy conversion, tidal energy, and wave energy. **(Level 1)**

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

Course	COURSE OUTCOMES	
C406- Autotronics Lab	**C406.1**	Identify the different parts of the automobile **Level**: Remember (1)
	C406.2	Explain the working of various parts like engine, transmission, clutch, brakes **Level**: Understand (2)
	C406.3	Describe how the steering and the suspension systems operate **Level**: Understand (2)
	C406.4	Understand the environmental implications of automobile emissions **Level**: Understand (2)
	C406.5	Develop a strong base for understanding future developments in the automobile industry **Level**: Evaluate (5)

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

Course	COURSE OUTCOMES	
C407- Robotics and Machine Vision Lab	**C407.1**	*discuss* about evolution and configuration of robot and concept of robotics.(**Level**-5)
	C407.2	*discuss* and hands-on competence in applying the concepts in the *design* and development of robots. .(**Level**-1,5)
	C407.3	*demonstrate* creativeness in designing and development of robotics technology. (**Level**-4)
	C407.4	*discuss* about common sensor, their use, and vision system used in robotics.(**Level**-5)
	C407.5	*describe* the use of Robot in various Applications .(**Level**-5)

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

Course	COURSE OUTCOMES	
C408- Project (Phase I)	**C408.1**	**Technical Skills Development** Students will apply programming languages (e.g., Java, Kotlin) and development frameworks (e.g., Android Studio) to build a functional mobile application. **Level: 2**
	C408.2	**Problem-Solving Abilities** Students will analyze user requirements and identify challenges in task management. They will devise solutions to address usability issues and enhance user experience through features such as task categorization and prioritization. **Level: 3**
	C408.3	**Communication Skills Enhancement** Students will evaluate user feedback obtained through surveys and usability testing. They will communicate their findings effectively through project reports and presentations, articulating improvements made based on user input. **Level: 4**
	C408.4	**Professional Development** Students will create a professional portfolio showcasing their mobile application development skills. They will document the project's design process, coding practices, and testing methodologies to demonstrate their proficiency to potential employers. **Level: 5**
	C408.5	**Collaboration and Teamwork** Students will apply effective collaboration and teamwork skills throughout the project lifecycle. They will assign roles and responsibilities, communicate project milestones, and resolve conflicts to ensure the timely delivery of the mobile application. **Level: 2**

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

Course	COURSE OUTCOMES	
C409- Industrial Training	**C409.1**	**Technical Skill Development** Participants will apply programming languages (e.g., Java, Python) and development frameworks (e.g., Spring Boot, Django) to create functional software applications. **Level: 3**
	C409.2	**Problem-Solving Abilities** Participants will analyze complex software problems and debug code effectively using problem-solving techniques such as root cause analysis and systematic debugging strategies. **Level: 4**
	C409.3	**Communication and Documentation** Participants will evaluate their ability to communicate technical concepts clearly through written documentation, such as technical specifications, user manuals, and project reports, ensuring effective knowledge transfer and collaboration. **Level: 5**
	C409.4	**Project Management Skills** Participants will create project plans, including task scheduling, resource allocation, and risk management strategies, demonstrating their ability to manage software development projects effectively. **Level: 6**
	C409.5	**Collaboration and Teamwork** Participants will apply effective teamwork and collaboration skills while working on group projects or collaborating with colleagues, fostering a positive team environment and achieving project goals collectively. **Level: 2**