



Program : Mechatronics Engineering	
Final Year : Semester - VII	
Course Code: MTC701	
Course Name: Automotive Mechatronics	
MTC701.1	Explain Vehicle architecture and Electronic Control units.
MTC701.2	Explain electronic transmission control and its types.
MTC701.3	Explain working of Driving assistance systems such as Active Steering, Antilock braking, Traction control and electronic stability program.
MTC701.4	Explain working of adjustment systems and fault diagnostics.
MTC701.5	Demonstrate understanding of basic principles of vehicular networking and communication.
MTC701.6	Explain electric vehicles and autonomous vehicles.
Course Code: MTC702	
Course Name: Design of Mechatronic Systems	
MTC702.1	Explain Design Process, structure, elements and application of Mechatronics.
MTC702.2	Modelling and simulation of Mechatronic system including system identification.
MTC702.3	Implement Servo control and controller tuning.
MTC702.4	Actuator selection and drive train design for motion control applications.
MTC702.5	Motion control programming for industrial applications.
MTC702.6	Indigenously design and develop a mechatronic system.
Course Code: MTDLO7032	
Course Name: Neural Network and Fuzzy Logic	
MTDLO7032.1	Analyze and appreciate the applications which can use Neural Network and fuzzy logic.
MTDLO7032.2	Identify and describe NNFL techniques and their roles in building intelligent machines.
MTDLO7032.3	Design inference systems for decision making in manufacturing industries.
MTDLO7032.4	Realize the difference between learning and programming and explore practical applications of Neural networks (NN).
MTDLO7032.5	Demonstrate the use of Neuro-fuzzy network for various industry applications.



Program : Mechatronics Engineering	
Final Year : Semester - VII	
Course Code: MTDLO7043 Course Name: Micro Electro Mechanical Systems	
MTDLO7043.1	Understand the underlying fundamental principles of MEMS devices.
MTDLO7043.2	To understand the construction and working of MEMS sensors and actuators.
MTDLO7043.3	To choose appropriate materials and fabrication processes for MEMS devices.
MTDLO7043.4	Develop a physics-based model of MEMS devices.
MTDLO7043.5	Identify characterization and assembly techniques for fabricated MEMS devices.
Course Code: ILO7016 Course Name: Cyber Security and Laws	
ILO7016.1	Understand the concept of cybercrime and its effect on outside world.
ILO7016.2	Interpret and apply IT law in various legal issues.
ILO7016.3	Distinguish different aspects of cyber law.
ILO7016.4	Apply Information Security Standards compliance during software design and development.
Course Code: ILO7017 Course Name: Disaster Management & Mitigation Measures	
ILO7017.1	Get to know natural as well as manmade disaster and their extent and possible effects on the economy.
ILO7017.2	Plan of national importance structures based upon the previous history.
ILO7017.3	Get acquainted with government policies, acts and various organizational structure associated with an emergency.
ILO7017.4	Get to know the simple do's and don'ts in such extreme events and act accordingly.
Course Code: MTL701 Course Name: Automotive Mechatronics	
MTL701.1	Implement battery charging / management.
MTL701.2	Communicate with sensors and actuators using CAN Bus.
MTL701.3	Implement and characterize automotive sensor and actuator.
MTL701.4	Implement automatic transmission.
MTL701.5	Implement Automotive Mechatronic system.



Program : Mechatronics Engineering	
Final Year : Semester - VII	
Course Code: MTL702	
Course Name: Mechatronics Lab	
MTL702.1	Perform Modelling and simulation of Sensors and Actuators.
MTL702.2	Perform Interfacing of sensors and actuators with control hardware.
MTL702.3	Perform Mechatronic system development.
Course Code: MTL7032	
Course Name: Neural Network and Fuzzy Logic	
MTL7032.1	Implement fuzzy controller for electromechanical systems.
MTL7032.2	Implement Supervised and Unsupervised Learning algorithms.
Course Code: MTP701	
Course Name: Major Project 1	
MTP701.1	To develop the understanding of the problem domain through extensive review of literature.
MTP701.2	To identify and analyze the problem in detail to define its scope with problem specific data.
MTP701.3	To identify various techniques to be implemented for the selected problem and related technical skills through feasibility analysis.
MTP701.4	To design solutions for real-time problems that will positively impact society and environment.
MTP701.5	To develop clarity of presentation based on communication, teamwork and leadership skills.
MTP701.6	To inculcate professional and ethical behavior.



Program : Mechatronics Engineering

Final Year : Semester - VIII

Course Code: MTC801

Course Name: Industrial Automation and Industry 4.0

MTC801.1	Identify opportunities for automation in manufacturing.
MTC801.2	Plan design and implement automation systems.
MTC801.3	Program industrial controller for automation application.
MTC801.4	Explain scope and benefit of industry 4.0 technologies.

Course Code: MTDLO8053

Course Name: AI and Machine Learning

MTDLO8053.1	Choose an appropriate problem-solving method for an agent to find a sequence of actions to reach the goal state.
MTDLO8053.2	Analyze the strength and weakness of AI approaches to knowledge representation, reasoning and planning.
MTDLO8053.3	Solve a planning problem by selecting the appropriate planning type.
MTDLO8053.4	Identify and select Learning type for given problem.
MTDLO8053.5	Apply suitable machine learning techniques for a given problem.
MTDLO8053.6	Solve the problems using various machine learning techniques.

Course Code: MTDLO8061

Course Name: Robotics and Machine Vision

MTDLO8061.1	Select robot for industrial task and identify areas in which robot can be deployed in industry.
MTDLO8061.2	Program wheeled mobile robots for industrial tasks.
MTDLO8061.3	Select, deploy and program industrial robot arms for industrial tasks.
MTDLO8061.4	Develop skills in machine vision.
MTDLO8061.5	Develop skills in applying machine vision for robot control.

Course Code: ILO8021

Course Name: Project Management

ILO8021.1	Apply selection criteria and select an appropriate project from different options.
ILO8021.2	Write work break down structure for a project and develop a schedule based on it.
ILO8021.3	Identify opportunities and threats to the project and decide an approach to deal with them strategically.
ILO8021.4	Use Earned value technique and determine & predict status of the project.
ILO8021.5	Capture lessons learned during project phases and document them for future reference.



Program : Mechatronics Engineering

Final Year : Semester - VIII

Course Code: ILO8029

Course Name: Environmental Management

ILO8029.1	Understand the concept of environmental management.
ILO8029.2	Understand ecosystem and interdependence, food chain etc.
ILO8029.3	Understand and interpret environment related legislations.

Course Code: MTL801

Course Name: Robotics and Machine Vision

MTL801.1	Program and control mobile robots.
MTL801.2	Program and control robotic manipulators.
MTL801.3	Implement basic image processing.
MTL801.4	Design and implement robotic system.

Course Code: MTL802

Course Name: Industrial Automation and Industry 4.0

MTL802.1	Mechanical design and assembly of automation systems.
MTL802.2	Design control panel and perform electrical wiring.
MTL802.3	Interfacing and control of PLC based automation systems.
MTL802.4	Develop automation systems with Industry 4.0 technologies.

Course Code: MTP801

Course Name: Major Project II

MTP801.1	To implement solutions for the selected problem by applying technical and professional skills.
MTP801.2	To analyze impact of solutions in societal and environmental context for sustainable development.
MTP801.3	To collaborate best practices along with effective use of modern tools.
MTP801.4	To develop proficiency in oral and written communication with effective leadership and teamwork.
MTP801.5	To nurture professional and ethical behavior.
MTP801.6	To gain expertise that helps in building lifelong learning experience.