

Course Curriculum Framework

Name of Program: B.Tech (Mechatronics)
 OJT Starting from 6th Semester

Type of Course Sem	Major Core					Skill Enhancement 1 & 2	Ability Enhancement 1 & 2	Value Added Courses	Multi - disciplina ry1 & 2	OJT	Audit Course
	Discipline Core 1 & 2	Discipline Core 3 & 4	Discipline Core 5	Discipline Elective 1	Discipli ne Elective 2						
Semester I	1. Engineering Mathematics – I (4) 2. Engineering Graphics and CAD (2)	3. Engg. Materials and Composites (2) 4. Hydraulic and Pneumatic Systems(2)	5. Basics of Electrical and Electronics Engg (2)	--	--	1. Engg Lab II (Module- I Workshop Module- II CAD Lab) (2) 2. Programmi ng Language Lab (2)	1. Programming Language (2) 2. Engg. Lab I (Module- I Electrical Engg. Module-II Electronics) } Module-III Hydraulic and Pneumatic Lab(3)			--	Environmental Science and Engg
SemesterII	1. Engineering Mathematics –II (4) 2. Engineering Mechanics & SOM(3)	3. Manufacturi ng Technology (3) 4. Control and Instrumentation (3)	5. Digital Electronics(2)	--	--	1. Engg ab III Module-1 Engineering Mechanics(2) Module-2 Manufacturing Technology (2) 2. Engg Lab IV Module-1 Control and Instrumentation (2) Module 2 Digital Electronics (2)	Engineering Design & Modelling (2)	Climate changeand Carbon Credits (1)		--	Universal HumanValues
Exit with UG Certifications in Mechatronics											
SemesterIII	1. Engineering Mathematics –III (4) 2. Heat and Mass Transfer (2)	3. kinematics of Machinery (2) 4. Microcontrollers (2)	5. Digital signal processing (2)	1) Electrical Machines & Drive (2) OR 2) Automotive Electronics(2)	1) Industrial Robotics(2) OR 2) Process Automation(2)	1) Engg Lab V: Module-I Heat Transfer (1) Module-II- Kinematics of Machinery (1)	1. Digital signal processing & Microcontroller(1) 2. Process Automation Lab(1)	A. Foreign Language I – French / German/ Japanese (1)	1. Organization Behaviour (2) 2. Financial Literacy (2)	--	Communication and Personality Development - I (0)

SemesterIV	1.Fluid Mechanics and Machinery (3) 2. Machine Design (3)	3. Micro Electromechanical systems (3) 4. Artificial system and Machine learning (3)	Design of Mechatronics System(2)	A) Product Design & Devp(2) B) Medical Mechatronics (2)	A).Finite Element Method (2) B) Rapid Prototyping (2)	1)Engg Lab VI: Module-I :Fluid Mechanics and Machinery (1) Module-II MachineDesign - (1)		A. Foreign Language II – French / German/ Japanese (1)	1. MIS – (case study based) (2) 2. Intellectual property Rights IPR (2)	--	Communication and Personality Development – II (0)
Diploma in Mechatronics											
SemesterV	1. Embedded system design (2) 2. Robotics and Machine Vision system (2)	3. Vibration analysis and control (3) 4.Data communication (2)	5.Internet of things (3)	A) Operation Research(2) B) Industry 4.0 (2)	A) Ind.Engg. B)Human M/c Interface	Engg Lab VII: Module- I : Embedded system design (1) Module-II - Robot operating system Lab(1)	1) Engg. Lab-VIII Module- I Vibration analysis and control (1) Module- II Metrology Lab-(1)	A. Foreign Language III – French / German/ Japanese (1)	Design Thinking and Innovation (2) Electric Vehicle		Communication and Personality Development - III (0)
SemesterVI	--	--	--		--	--	Robotics and Automation (4)	(1)	--	OJT	Constitution of India
Advanced Diploma in Mechatronics											
SemesterVII	--	--	--		--	--	Engg. Economics/ Research Methodology (4)	--	Industrial Psychology(2)	OJT (16)	A. Disaster Management (0) B. Entrepreneurship (0)
SemesterVIII	--	--	--		--	--	Software Project Management (4)	(1)	--	OJT (16)	English for research paper writing(0)
BTech in Mechatronics											

Global Certification Courses: 1) AUTODESK 2) TeachMe3D 3) Python-JAVA 4) Design of Mechatronics System 5) MATLAB Programming for Numerical Computation 6) Automated CNC Programming 7) **Automation in Mechatronics** 8) Azure AI 900 9) Computer Vision for the control of Mechanical Systems. (Module-1) 10) Modelling, Control and Simulation of Electro-Hydraulic shake tables. (Module-2) 11) i) Sensor & Transducers in Machine Tools & Robots. (Module-1) 12) Servo Systems in Machine Tools & Robots. (Module-2) 13) Interfacing and Simulation (Module-3) 14) Design Thinking Delight 15) English for Specific Business (ESB) 16) **PMMI Mechatronics: PLC-1,2** 17) Robotic Process Automation (RPA).

Table 6: Course Grid MSSU