M.Tech. in Robotics and AI

FIRST SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	PCC		Introduction to Robots	3	-	-	3	3
2	PCC		Robotic Control System / Mechanism and Robot Kinematics	3	-	-	3	3
3	PCC	18M11GE111	Research Methodology and Intellectual Property Rights	2	-	-	2	2
4	PEC		DE-I	3	-	-	3	3
5	PEC		DE-II	3	-	-	3	3
6	LAB		LAB-I (Based on Core-PCC1)	-	-	2	2	1
7	LAB		LAB-II (Based on Core-PCC2)	-	-	2	2	1
8	LAB		LAB-III (Based on Electives-PEC2)	-	-	2	2	1
			Total	**14**	**-**	**6**	**20**	**17**

SECOND SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	PCC		Sensors and Actuators for Robotics	3	-	-	3	3
2	PCC		Robotic Operating System	3	-	-	3	3
3	PEC		DE-III	3	-	-	3	3
4	PEC		DE-IV	3	-	-	3	3
5	PEC		DE-V	3	-	-	3	3
6	AC		Audit-I (Qualifying)	2	-	-	2	Qualifying
7	LAB		LAB-IV (Based on Core)	-	-	4	4	2
8	LAB		LAB-V (Based on Electives)	-	-	2	2	1
9	PBL		Mini Project with Seminar, PBL-I	-	-	4	4	2
			Total	**17**	**-**	**10**	**27**	**20**

THIRD SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	Seminar		Seminar & Term Paper OR Earn credits by transfer e.g. MOOCs, Course Work at another Institute, Supervised Study	-	-	4	4	4
2	OPE		Open Elective	3	-	-	3	3
3	AC		Audit-II (Qualifying)	2	-	-	2	Qualifying
4	PBL		Mini Project with Seminar, PBL-II	-	-	-	8	4
5	Project		Dissertation-I /Industrial Project	-	-	-	8	4
			Total	**5**	**0**	**4**	**25**	**15**

FOURTH SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	Project		Dissertation-II	-	-	-	32	16
			Total	**0**	**0**	**0**	**32**	**16**

TOTAL CREDITS: 68

Courses for First Semester

DE-I

1. AI and Machine Learning for Robotics
2. Deep Learning
3. Data Analytics for Automation
4. Speech Processing

DE -II

1. Embedded System Design
2. FPGA based System Design
3. PLC based Systems Design

Courses for Second Semester

DE -III

1. Process Control and Instrumentation
2. Sensors and Actuators for Industrial Automation
3. Drives and Control for Industrial Automation
4. Automated Manufacturing Systems

DE -IV

1. Computer vision for Robotics

DE -V

1. Humanoid Robotics
2. Swarm Intelligence
3. Quadruped Robots
4. Drone Technology

Audit-I

1. Ethics and Safety in Robotics
2. Research Paper Writing

Courses for Third Semester

Audit-II

1. Disaster Management
2. Ethical Challenges in AI

Open Elective

1. Advanced Mathematics for Robotics
2. Edge Computing in Automation
3. Introduction to IoT for Automation
4. Automated Manufacturing Systems
5. Augmented Reality and Virtual Reality

PCC: Professional Core Course	**AC:** Auditing Course
PEC: Professional Elective Course	**OPE:** Open Elective