

भारतीय सूचना प्रौद्योगिकी अभिकल्पना एवं विनिर्माण संस्थान कर्नूल
**Indian Institute of Information Technology
Design and Manufacturing Kurnool**



CURRICULA AND SYLLABI

Master of Technology



**DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING**

M. TECH.: ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

FIRST SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	AD501	Mathematical Foundations of Data Science	PEC	3	0	3
2.	AD502	Advanced Data Structures and Algorithms	PEC	3	3	5
3.	AD503	Machine Learning	PEC	3	3	5
4.	AD504	Decision Sciences	PEC	3	3	5
5.	XXxxx	Elective I	PEC	3	0	3
6.	AD594	Seminar	PCD	0	3	2
Total No. of Credits						23

SECOND SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	AD511	Marketing Science and Predictive Analytics	PEC	3	3	5
2.	AD512	Natural Language Processing	PEC	3	3	5
3.	AD513	Big Data Analytics	PEC	3	3	5
4.	XXxxx	Elective II	PEC	3	0	3
5.	XXxxx	Elective III	PEC	3	0	3
6.	AD595	Technical Writing	PCD	0	3	2
Total No. of Credits						23

THIRD SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	AD598	Dissertation Phase I	PCD	-	-	12
Total No. of Credits						12

FOURTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	AD599	Dissertation Phase II	PCD	-	-	12
Total No. of Credits						12

Elective Courses

List of Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1	AD521	Game Theory	PEC	3	0	3
2	AD522	Natural Language Processing	PEC	3	0	3
3	AD523	Information Retrieval	PEC	3	0	3
4	AD524	Recommender Systems	PEC	3	0	3
5	AD525	Systems Engineering	PEC	3	0	3
6	AD526	Health Analytics	PEC	3	0	3
7	AD527	Social Network Analysis	PEC	3	0	3
8	AD528	Scalable Systems for Data Science	PEC	3	0	3
9	AD529	Data Exploration and Visualization	PEC	3	0	3
10	AD530	Time Series Analysis	PEC	3	0	3
11	AD531	Human Computer Interaction	PEC	3	0	3
12	AD532	Modern Computational Algebra	PEC	3	0	3
13	AD533	Affective Computing	PEC	3	0	3
14	AD534	Simulation and Modelling	PEC	3	0	3
15	AD535	Decision Science	PEC	3	0	3
16	AD536	Cloud Computing	PEC	3	0	3
17	AD537	Data Science	PEC	3	0	3
18	AD538	Parallel and Distributed Systems	PEC	3	0	3
19	AD539	Real-time Systems	PEC	3	0	3
20	AD540	HPC and GPU Computing	PEC	3	0	3
21	AD541	Data Privacy	PEC	3	0	3
22	AD542	Advanced Decision Modelling Techniques	PEC	3	0	3
23	AD543	Cyber Forensics	PEC	3	0	3
24	AD544	Intelligent Systems	PEC	3	0	3
25	AD545	Decision Support Systems	PEC	3	0	3
26	AD546	Immersive Technologies	PEC	3	0	3
27	AD547	Bioinformatics	PEC	3	0	3
28	AD548	Data Mining	PEC	3	0	3
29	AD549	Computational Learning Theory	PEC	3	0	3
30	AD550	Wireless Networked Systems	PEC	3	0	3
31	AD551	Deep Learning	PEC	3	0	3
32	AD552	Reinforcement Learning	PEC	3	0	3
33	AD553	Artificial Intelligence in Agile Development	PEC	3	0	3
34	AD554	Artificial Intelligence in Additive Manufacturing	PEC	3	0	3
35	AD555	Artificial Intelligence in Agriculture	PEC	3	0	3
36	AD556	Artificial Intelligence in Health Care	PEC	3	0	3
37	AD557	Artificial Intelligence in Fabrication	PEC	3	0	3
38	AD558	Artificial Intelligence in Manufacturing	PEC	3	0	3

M. TECH.: COMPUTER SCIENCE AND ENGINEERING

FIRST SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	CS501	Mathematical Foundations of Computer Science	PEC	3	0	3
2.	CS502	Advanced Data Structures and Algorithms	PEC	3	3	5
3.	CS503	Artificial Intelligence	PEC	3	3	5
4.	CS504	Computer Systems	PEC	3	3	5
5.	XXxxx	Elective I	PEC	3	0	3
6.	CS594	Seminar	PCD	0	3	2
Total No. of Credits						23

SECOND SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	CS511	Embedded Systems and IoT	PEC	3	3	5
2.	CS512	Distributed Systems	PEC	3	3	5
3.	CS513	HPC and GPU Computing	PEC	3	3	5
4.	XXxxx	Elective II	PEC	3	0	3
5.	XXxxx	Elective III	PEC	3	0	3
6.	CS595	Technical Writing	PCD	0	3	2
Total No. of Credits						23

THIRD SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	CS598	Dissertation Phase I	PCD	-	-	12
Total No. of Credits						12

FOURTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	CS599	Dissertation Phase II	PCD	-	-	12
Total No. of Credits						12

Elective Courses

List of Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1	CS521	Game Theory	PEC	3	0	3
2	CS522	Natural Language Processing	PEC	3	0	3
3	CS523	Information Retrieval	PEC	3	0	3
4	CS524	Recommender Systems	PEC	3	0	3
5	CS525	Systems Engineering	PEC	3	0	3
6	CS526	Health Analytics	PEC	3	0	3
7	CS527	Social Network Analysis	PEC	3	0	3
8	CS528	Unmanned Aerial Vehicle	PEC	3	0	3
9	CS529	Robotics	PEC	3	0	3
10	CS530	Time Series Analysis	PEC	3	0	3
11	CS531	Human Computer Interaction	PEC	3	0	3
12	CS532	Modern Computational Algebra	PEC	3	0	3
13	CS533	Affective Computing	PEC	3	0	3
14	CS534	Simulation and Modelling	PEC	3	0	3
15	CS535	Decision Science	PEC	3	0	3
16	CS536	Quantum Computing	PEC	3	0	3
17	CS537	Data Science	PEC	3	0	3
18	CS538	Parallel and Distributed Systems	PEC	3	0	3
19	CS539	Real-time Systems	PEC	3	0	3
20	CS540	Big Data Analytics	PEC	3	0	3
21	CS541	Data Privacy	PEC	3	0	3
22	CS542	Marketing Science and Predictive Analysis	PEC	3	0	3
23	CS543	Cyber Forensics	PEC	3	0	3
24	CS544	Statistical Learning	PEC	3	0	3
25	CS545	Decision Support Systems	PEC	3	0	3
26	CS546	Immersive Technologies	PEC	3	0	3
27	CS547	Bioinformatics	PEC	3	0	3
28	CS548	Advanced Data Mining	PEC	3	0	3
29	CS549	Computational Learning Theory	PEC	3	0	3
30	CS550	Wireless Networked Systems	PEC	3	0	3
31	CS551	Post Quantum Cryptography	PEC	3	0	3
32	CS552	Research Methodology	PEC	3	0	3
33	CS553	Scalable Data Science	PEC	3	0	3

**DEPARTMENT OF
ELECTRONICS AND COMMUNICATION ENGINEERING**

M. TECH.: VLSI AND EMBEDDED SYSTEMS

FIRST SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	EC501	MOSFET Modelling for VLSI Circuits	PEC	3	2	4
2.	EC502	Digital VLSI System Design	PEC	3	2	4
3.	EC503	Embedded System Design	PEC	3	2	4
4.	EC504	Analog VLSI Design	PEC	3	2	4
5.	EC505	Advanced Computer Architecture	PEC	3	0	3
6.	XXxxx	Elective I	PEC	3	0	3
7.	EC594	Seminar	PCD	-	-	1
Total No. of Credits						23

SECOND SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	EC511	Digital Signal Processing and Architectures	PEC	3	2	4
2.	EC512	Mixed Signal Integrated Circuits	PEC	3	2	4
3.	EC513	VLSI Verification and Testing	PEC	3	2	4
4.	EC514	RFIC Design	PEC	3	0	3
5.	EC515	Electronic Packaging and Manufacturing	PEC	3	2	4
6.	XXxxx	Elective II	PEC	3	0	3
7.	EC595	Technical Writing	PCD	-	-	1
Total No. of Credits						23

THIRD SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	EC598	Dissertation Phase I	PEC	-	-	12
Total No. of Credits						12

FOURTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	EC599	Dissertation Phase II	PEC	-	-	12
Total No. of Credits						12

Elective Courses

List of Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1	EC521	Analog and Mixed Signal Circuit Design	PEC	3	0	3
2	EC522	Artificial intelligence and Machine Learning	PEC	3	0	3
3	EC523	Circuits for Electronics System Design	PEC	3	0	3
4	EC524	Cognitive Communication Networks	PEC	3	0	3
5	EC525	Communication Protocols for Electronic System Design	PEC	3	0	3
6	EC526	Design of Switched Mode Power Supply	PEC	3	0	3
7	EC527	Detection and Estimation Theory	PEC	3	0	3
8	EC528	Digital Image Processing	PEC	3	0	3
9	EC529	Electrical Drives	PEC	3	0	3
10	EC530	Electromagnetic Interference and Compatibility	PEC	3	0	3
11	EC531	MIMO Communication Systems	PEC	3	0	3
12	EC532	Numerical Techniques in Electromagnetics	PEC	3	0	3
13	EC533	Power Electronics	PEC	3	0	3
14	EC534	Reliable Digital Communication System Design	PEC	3	0	3
15	EC535	RF and Microwave Integrated Circuits	PEC	3	0	3
16	EC536	Satellite Communication	PEC	3	0	3
17	EC537	Sensing and Instrumentation	PEC	3	0	3
18	EC538	Signal and Power Integrity	PEC	3	0	3
19	EC539	Software Defined Radio	PEC	3	0	3
20	EC540	Testing and Testability	PEC	3	0	3
21	EC541	VLSI Technology	PEC	3	0	3
22	EC542	Design of IoT System	PEC	3	0	3
23	EC543	Electric Vehicle Technology	PEC	3	0	3
24	EC544	Navigation System	PEC	3	0	3

M. TECH.: DRONE AND IoT

FIRST SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	EC571	Drone Technology	PEC	3	2	4
2.	EC572	Autonomous systems	PEC	3	2	4
3.	EC573	Artificial Intelligence	PEC	3	0	3
4.	EC574	Embedded System Design	PEC	3	2	4
5.	EC575	Guidance, Navigation, and Control	PEC	3	2	4
6.	XXxxx	Elective I	PEC	3	0	3
7.	EC594	Seminar	PCD	-	-	1
Total No. of Credits						23

SECOND SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	EC581	Design of IoT system	PEC	3	2	4
2.	EC582	Mobile Communication and Networking	PEC	3	2	4
3.	EC583	Smart Sensors & Actuators	PEC	3	2	4
4.	EC584	Internet and Wireless Networks Security	PEC	3	0	3
5.	EC585	Edge, Cloud, and Distributed Computing	PEC	3	2	4
6.	XXxxx	Elective II	PEC	3	0	3
7.	EC595	Technical Writing	PCD	-	-	1
Total No. of Credits						23

THIRD SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	EC598	Dissertation Phase I	PEC	-	-	12
Total No. of Credits						12

FOURTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	EC599	Dissertation Phase II	PEC	-	-	12
Total No. of Credits						12

Elective Courses

List of Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1	EC521	Analog and Mixed Signal Circuit Design	PEC	3	0	3
2	EC522	Artificial intelligence and Machine Learning	PEC	3	0	3
3	EC523	Circuits for Electronics System Design	PEC	3	0	3
4	EC524	Cognitive Communication Networks	PEC	3	0	3
5	EC525	Communication Protocols for Electronic System Design	PEC	3	0	3
6	EC526	Design of Switched Mode Power Supply	PEC	3	0	3
7	EC527	Detection and Estimation Theory	PEC	3	0	3
8	EC528	Digital Image Processing	PEC	3	0	3
9	EC529	Electrical Drives	PEC	3	0	3
10	EC530	Electromagnetic Interference and Compatibility	PEC	3	0	3
11	EC531	MIMO Communication Systems	PEC	3	0	3
12	EC532	Numerical Techniques in Electromagnetics	PEC	3	0	3
13	EC533	Power Electronics	PEC	3	0	3
14	EC534	Reliable Digital Communication System Design	PEC	3	0	3
15	EC535	RF and Microwave Integrated Circuits	PEC	3	0	3
16	EC536	Satellite Communication	PEC	3	0	3
17	EC537	Sensing and Instrumentation	PEC	3	0	3
18	EC538	Signal and Power Integrity	PEC	3	0	3
19	EC539	Software Defined Radio	PEC	3	0	3
20	EC540	Testing and Testability	PEC	3	0	3
21	EC541	VLSI Technology	PEC	3	0	3
22	EC542	Design of IoT System	PEC	3	0	3
23	EC543	Electric Vehicle Technology	PEC	3	0	3
24	EC544	Navigation System	PEC	3	0	3

**DEPARTMENT OF
MECHANICAL ENGINEERING**

M. TECH.: SMART MANUFACTURING

FIRST SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ME501	Mathematics for Simulation and Modelling	PEC	2	2	3
2.	ME502	Applied AI for Manufacturing	PEC	3	0	3
3.	ME503	Mechatronic Product Design	PEC	3	0	3
4.	ME504	Advanced Manufacturing Processes	PEC	3	0	3
5.	ME505	Applied AI for Manufacturing Practice	PEC	0	3	2
6.	ME506	Mechatronic Product Design Practice	PEC	0	3	2
7.	ME507	Advanced Manufacturing Practice	PEC	0	3	2
8.	XXxxx	Elective I	PEC	3	0	3
9.	ME594	Seminar	PCD	-	-	2
Total No. of Credits						23

SECOND SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ME511	Industrial IoT and Cloud Computing	PEC	3	0	3
2.	ME512	Modelling and Simulation of Manufacturing Systems	PEC	3	0	3
3.	ME513	Micro and Nano Manufacturing Technology	PEC	3	0	3
4.	ME514	Industrial IoT and Cloud Computing Practice	PEC	0	3	2
5.	ME515	Manufacturing Simulation Practice	PEC	0	3	2
6.	ME516	Micro and Nano Manufacturing Technology Practice	PEC	0	3	2
7.	XXxxx	Elective II	PEC	3	0	3
8.	XXxxx	Elective III	PEC	3	0	3
9.	ME595	Technical Writing	PCD	-	-	2
Total No. of Credits						23

THIRD SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ME598	Dissertation Phase I	PEC	-	-	12
Total No. of Credits						12

FOURTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ME599	Dissertation Phase II	PEC	-	-	12
Total No. of Credits						12

Elective Courses

List of Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1	ME521	Information Systems in Manufacturing	PEC	3	0	3
2	ME522	Inspection and Testing in Manufacturing	PEC	3	0	3
3	ME523	Lasers in Manufacturing	PEC	3	0	3
4	ME524	Digital Manufacturing	PEC	3	0	3
5	ME525	Smart Materials and Structures	PEC	3	0	3
6	ME526	Design for Manufacturing and Assembly	PEC	3	0	3
7	ME527	Additive Manufacturing	PEC	3	0	3
8	ME528	Materials Fabrication and Characterization	PEC	3	0	3
9	ME529	Introduction to Smart Manufacturing	PEC	3	0	3
10	ME530	Processing of Alloys and Composites	PEC	3	0	3
11	ME531	Computer Integrated Manufacturing Systems	PEC	3	0	3
12	ME532	Industrial Instrumentation and Metrology	PEC	3	0	3
13	ME533	MEMS / NEMS and Sensors	PEC	3	0	3
14	ME534	Metal Forming	PEC	3	0	3
15	ME535	Total Quality Management	PEC	3	0	3
16	ME536	Nano Finishing Science and Technology	PEC	3	0	3
17	ME537	Processing of Composites	PEC	3	0	3
18	ME538	Surface Engineering	PEC	3	0	3
19	ME539	Modern Manufacturing Technologies	PEC	3	0	3
20	ME540	Robotics and Intelligent Systems	PEC	3	0	3
21	ME541	Mechanical Vibration and Condition Monitoring	PEC	3	0	3
22	ME542	Mechanical Vibrations	PEC	3	0	3
23	ME543	Advanced Solid Mechanics	PEC	3	0	3
24	ME544	Finite Element Methods	PEC	3	0	3
25	ME545	IC Engines and Gas Turbines	PEC	3	0	3
26	ME546	Computational Fluid Dynamics	PEC	3	0	3
27	ME547	Optimization Techniques for Mechanical Engineers	PEC	3	0	3
28	ME548	Product Design and Development	PEC	3	0	3
29	ME549	Computational Tools for Engineers	PEC	3	0	3
30	ME550	Soft Computing Techniques	PEC	3	0	3
31	ME551	Big Data Analytics	PEC	3	0	3
32	ME552	Applied Operations Research	PEC	3	0	3

33	ME553	Digital Control for Automation	PEC	3	0	3
34	ME554	Non-linear Dynamics	PEC	3	0	3
35	ME555	Operations and Supply Chain Management	PEC	3	0	3
36	ME556	Industry 4.0	PEC	3	0	3
37	ME557	Design and Analysis of Experiments	PEC	3	0	3

M. TECH.: ROBOTICS AND AUTOMATION

FIRST SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ME501	Mathematics for Simulation and Modelling	PEC	2	2	3
2.	ME571	Robot Kinematics and Dynamics	PEC	3	0	3
3.	ME572	Embedded Systems for Automation	PEC	3	0	3
4.	ME573	Fluid Power System for Automation	PEC	3	0	3
5.	ME574	Robot Kinematics and Dynamics Practice	PEC	0	3	2
6.	ME575	Embedded Systems for Automation Practice	PEC	0	3	2
7.	ME576	Fluid Power System for Automation Practice	PEC	0	3	2
8.	XXxxx	Elective I	PEC	3	0	3
9.	ME594	Seminar	PCD	-	-	2
Total No. of Credits						23

SECOND SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ME511	Industrial IoT and Cloud Computing	PEC	3	0	3
2.	ME581	Autonomous Navigation and Path Planning	PEC	3	0	3
3.	ME582	Experimental Techniques for Robotics and Automation	PEC	3	0	3
4.	ME514	Industrial IoT and Cloud Computing Practice	PEC	0	3	2
5.	ME583	Autonomous Navigation and Path Planning Practice	PEC	0	3	2
6.	ME584	Experimental Techniques for Robotics and Automation Practice	PEC	0	3	2
7.	XXxxx	Elective II	PEC	3	0	3
8.	XXxxx	Elective III	PEC	3	0	3
9.	ME595	Technical Writing	PCD	-	-	2
Total No. of Credits						23

THIRD SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ME598	Dissertation Phase I	PEC	-	-	12
Total No. of Credits						12

FOURTH SEMESTER						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ME599	Dissertation Phase II	PEC	-	-	12
Total No. of Credits						12

Elective Courses

List of Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1	ME521	Information Systems in Manufacturing	PEC	3	0	3
2	ME522	Inspection and Testing in Manufacturing	PEC	3	0	3
3	ME523	Lasers in Manufacturing	PEC	3	0	3
4	ME524	Digital Manufacturing	PEC	3	0	3
5	ME525	Smart Materials and Structures	PEC	3	0	3
6	ME526	Design for Manufacturing and Assembly	PEC	3	0	3
7	ME527	Additive Manufacturing	PEC	3	0	3
8	ME528	Materials Fabrication and Characterization	PEC	3	0	3
9	ME529	Introduction to Smart Manufacturing	PEC	3	0	3
10	ME530	Processing of Alloys and Composites	PEC	3	0	3
11	ME531	Computer Integrated Manufacturing Systems	PEC	3	0	3
12	ME532	Industrial Instrumentation and Metrology	PEC	3	0	3
13	ME533	MEMS / NEMS and Sensors	PEC	3	0	3
14	ME534	Metal Forming	PEC	3	0	3
15	ME535	Total Quality Management	PEC	3	0	3
16	ME536	Nano Finishing Science and Technology	PEC	3	0	3
17	ME537	Processing of Composites	PEC	3	0	3
18	ME538	Surface Engineering	PEC	3	0	3
19	ME539	Modern Manufacturing Technologies	PEC	3	0	3
20	ME540	Robotics and Intelligent Systems	PEC	3	0	3
21	ME541	Mechanical Vibration and Condition Monitoring	PEC	3	0	3
22	ME542	Mechanical Vibrations	PEC	3	0	3
23	ME543	Advanced Solid Mechanics	PEC	3	0	3
24	ME544	Finite Element Methods	PEC	3	0	3
25	ME545	IC Engines and Gas Turbines	PEC	3	0	3
26	ME546	Computational Fluid Dynamics	PEC	3	0	3
27	ME547	Optimization Techniques for Mechanical Engineers	PEC	3	0	3
28	ME548	Product Design and Development	PEC	3	0	3
29	ME549	Computational Tools for Engineers	PEC	3	0	3
30	ME550	Soft Computing Techniques	PEC	3	0	3
31	ME551	Big Data Analytics	PEC	3	0	3
32	ME552	Applied Operations Research	PEC	3	0	3

33	ME553	Digital Control for Automation	PEC	3	0	3
34	ME554	Non-linear Dynamics	PEC	3	0	3
35	ME555	Operations and Supply Chain Management	PEC	3	0	3
36	ME556	Industry 4.0	PEC	3	0	3
37	ME557	Design and Analysis of Experiments	PEC	3	0	3