भारतीय सूचना प्रौद्योगिकी अभिकल्पना एवं विनिर्माण संस्थान कर्नूल

Indian Institute of Information Technology Design and Manufacturing Kurnool

CURRICULA AND SYLLABI

Bachelor of Technology

DEPARTMENT OF
MECHANICAL ENGINEERING

B. TECH.: MECHANICAL ENGINEERING WITH SPECIALIZATION IN DESIGN AND MANUFACTURING

S. No.	Course Code	Course Name	Category Code	I	P	C
FIRST SEMESTER						
1.	DS101	Differential and Integral Calculus	BSC	3	0	3
2.	DS102	Engineering Physics	BSC	3	0	3
3.	ME101	Engineering Mechanics	BEC	3	0	3
4.	EC101	Basic Electrical and Electronics Engineering	BEC	3	0	3
5.	CS101	Problem Solving and Computer Programming	BEC	3	0	3
6.	DS103	Technical and Professional Communication	HMC	2	2	3
7.	DS104	Engineering Physics Practice	BSC	0	3	2
8.	CS102	Problem Solving and Computer Programming Practice	BEC	0	3	2
9.	ME102	Engineering Skills Practice	BEC	0	3	2
10.	ID101	NSS/NSO/NCC	HMC	0	0	0
Total No. of Credits						**24**

S. No.	Course Code	Course Name	Category Code	I	P	C
SECOND SEMESTER						
1.	DS155	Differential Equations	BSC	3	0	3
2.	DS153	Modern Physics	BSC	3	0	3
3.	DSxxx	Design Elective	DES	2	0	2
4.	DSxxx	Humanities Elective	HMC	2	0	0
5.	ME151	Concepts in Engineering Design	DES	3	0	3
6.	ME152	Design Realization Practice	DES	0	3	2
7.	ME153	Engineering Graphics	DES	1	3	3
8.	DS154	Modern Physics Practice	BSC	0	3	2
9.	ME154	Material Science and Metallurgy	BEC	3	0	3
10.	ME155	Thermodynamics	BEC	3	0	3
11.	ID101	NSS/NCC/NSO	HMC	0	0	0
Total No. of Credits						**24**

THIRD SEMESTER

S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS152	Linear Algebra	BSC	3	0	3
2.	ME201	Mechanics of Materials	PEC	3	0	3
3.	ME202	Kinematics of Machines	PEC	3	0	3
4.	ME203	Fluid Mechanics and Hydraulic Machinery	PEC	3	0	3
5.	ME204	Electrical Drives, Sensors, and Microprocessor	PEC	3	0	3
6.	ME205	Materials and Mechanics Practice	PEC	0	3	2
7.	ME206	Electrical Drives, Sensors, and Microprocessor Practice	PEC	0	3	2
8.	ME207	Machine Drawing & Manufacturability Analysis Practice	PEC	0	3	2
9.	IDxxx	Self-Improvement Course I	HMC	0	0	0
Total No. of Credits						**21**

FOURTH SEMESTER

S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS151	Probability and Statistics	BSC	3	0	3
2.	ME251	Basic Concepts in Manufacturing Processes	PEC	3	0	3
3.	ME252	Dynamics of Machines	PEC	3	0	3
4.	ME253	Design of Machine Elements	PEC	3	0	3
5.	ME254	Heat Transfer	PEC	3	0	3
6.	ME255	Basic Concepts in Manufacturing Processes Practice	PEC	0	3	2
7.	ME256	Dynamics of Machines Practice	PEC	0	3	2
8.	ME257	Fluid Mechanics and Heat Transfer Practice	PEC	0	3	2
9.	XXxxx	Skill Development Course I	PCD	2	0	2
10.	IDxxx	Self-Improvement Course II	HMC	0	0	0
Total No. of Credits						**23**

FIFTH SEMESTER

S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS301	Managerial Economics and Financial Accountancy	HMC	3	0	3
2.	ME301	Quality Inspection and Product Validation	PEC	3	0	3
3.	ME302	Automation in Manufacturing	PEC	3	0	3
4.	ME303	Thermal Engineering	PEC	3	0	3
5.	ME304	Operation Research	PEC	3	0	3
6.	ME305	Quality Inspection and Product Validation Practice	PEC	0	3	2
7.	ME306	Automation in Manufacturing Practice	PEC	0	3	2
8.	ME307	Thermal Engineering Practice	PEC	0	3	2
9.	IDxxx	Self-Improvement Course III	HMC	0	0	0
Total No. of Credits						**21**

		SIXTH SEMESTER				
S. No.	**Course Code**	**Course Name**	**Category Code**	**I**	**P**	**C**
1.	DS351	Entrepreneurship and Management Functions	PEC	3	0	3
2.	ME351	Computational Methods in Engineering	PEC	3	0	3
3.	ME352	Machine Tool Technology	PES	3	0	3
4.	MExxx	Department Elective I	PEC	3	0	3
5.	XXxxx	Free Elective I	PEC	3	0	3
6.	ME353	Computational Methods in Engineering Practice	PEC	0	3	2
7.	ME354	Machine Tool Technology Practice	PEC	0	3	2
8.	ID351	Product Design Practice	DES	0	3	2
9.	XXxxx	Skill Development Course II	PCD	2	0	2
10.	IDxxx	Self-Improvement Course IV	HMC	0	0	0
Total No. of Credits						**23**

		SEVENTH SEMESTER				
S. No.	**Course Code**	**Course Name**	**Category Code**	**I**	**P**	**C**
1.	ME498	Project Phase I	PCD	-	-	3
2.	MExxx	Department Elective II	PEC	3	0	3
3.	MExxx	Department Elective III	PEC	3	0	3
4.	MExxx	Department Elective IV	PEC	3	0	3
5.	XXxxx	Free Elective II	PEC	3	0	3
6.	ME496	Seminar	PCD	0	2	1
Total No. of Credits						**16**

		EIGHTH SEMESTER				
S. No.	**Course Code**	**Course Name**	**Category Code**	**I**	**P**	**C**
1.	ME499	Project Phase II	PCD	-	-	8
2.	ME497	Internship	PCD	-	-	3
Total No. of Credits						**11**

Elective Courses

List of Design Electives

S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS131	Design History	DES	2	0	2
2.	DS132	Sociology of Design	DES	2	0	2
3.	DS133	Earth, Environment and Design	DES	2	0	2

List of Humanities Electives

S. No.	Course Code	Course Name	Category Code	I	P	C
1.	DS136	Professional Ethics for Engineers	HMC	2	0	0
2.	DS137	Universal Human Values	HMC	2	0	0
3.	DS138	Constitution of India	HMC	2	0	0
4.	DS139	History of Science and Technology in India	HMC	2	0	0

List of Department 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	ME401	Computer-Aided Design and Manufacturing	PEC	3	0	3
35	ME402	Refrigeration and Air conditioning	PEC	3	0	3
36	ME403	Automobile Engineering Systems	PEC	3	0	3

List of Free Electives						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ME554	Non-linear Dynamics	PEC	3	0	3
2.	ME555	Operations and Supply Chain Management	PEC	3	0	3
3.	ME556	Industry 4.0	PEC	3	0	3
4.	ME557	Design and Analysis of Experiments	PEC	3	0	3
5.	ME404	Designing Intelligent Systems	PEC	3	0	3
6.	ME405	Design for Quality and Reliability	PEC	3	0	3
7.	ME406	System Thinking for Design	PEC	3	0	3
8.	DS471	Materials and Devices for Quantum Technologies	PEC	3	0	3
9.	DS472	Numerical Methods	PEC	3	0	3
10.	DS473	Quantum Computing	PEC	3	0	3
11.	DS474	Sustainable Design	PEC	3	0	3

Self-Improvement Courses

List of Self Improvement Courses						
S. No.	Course Code	Course Name	Category Code	I	P	C
1.	ID401	Physical (Sports, Dance, Body Building, etc.)	HMC	0	0	0
2.	ID402	Health and Nutrition (Medical) Awareness (Basics awareness on Medicine, Diseases, Remedies, Nutrition, etc.)	HMC	0	0	0
3.	ID403	Personality Enhancement/Character Building (emotional development, Reading biography of great personalities, Responsibility and ownership towards nation)	HMC	0	0	0
4.	ID404	Language and music (Learning new languages, poetry, public speaking, vocabulary enhancement, singing, Musical instrument, etc.)	HMC	0	0	0

S. No.	Course Code	Course Name	Category Code	I	P	C
5.	ID405	Passion (Any passion of the student not registered earlier)	HMC	0	0	0
6.	ID406	Financial Awareness (Awareness on Insurances, Investments, financial planning, Money Management, etc.)	HMC	0	0	0

Skill Development Courses

S. No.	Course Code	Course Name	Category Code	I	P	C
		List of Skill Development Courses				
1.	CS381	Linux Administration	PCD	2	0	2
2.	CS382	Full Stack Development	PCD	2	0	2
3.	CS383	DevOps Toolchain	PCD	2	0	2
4.	CS384	Digital Marketing	PCD	2	0	2
5.	CS385	Graphic Design and Editing	PCD	2	0	2
6.	CS386	Product Automation	PCD	2	0	2
7.	CS387	Systems Programming	PCD	2	0	2
8.	CS388	Software Toolbox	PCD	2	0	2
9.	CS389	Mobile app Development	PCD	2	0	2
10.	CS390	Ethical Hacking	PCD	2	0	2
11.	CS391	Low Code Development	PCD	2	0	2
12.	ME381	Data Science for Engineers	PCD	2	0	2
13.	ME382	Basics of Finite Element Analysis	PCD	2	0	2
14.	ME383	Fuzzy Logic and Neural Network	PCD	2	0	2
15.	ME384	Design, Technology and Innovation	PCD	2	0	2
16.	ME385	Manufacturing Guidelines for Product Design	PCD	2	0	2
17.	ME386	Artificial Intelligence for Mechanical Engineers	PCD	2	0	2
18.	ME387	Database Management System	PCD	2	0	2
19.	ME388	Failure Analysis and prevention	PCD	2	0	2
20.	EC381	Industry 4.0	PCD	2	0	2