

## 5 Year Dual Degree Programme (Mechanical Engineering)

SEMESTER-I				
Sr. No.	Subject Code	Courses	L-T-P	Credits
		<u>THEORY</u>		
1	CY101/PH102	Engineering Chemistry/Engineering Physics	3-1-0	4
2	MA101	Mathematics - I	3-1-0	4
3	CE101	Engineering Mechanics	2-1-0	3
4	CS101	Computer Programming - I	2-0-0	2
5	EC101/EE102	Basic Electronics/Electrical Technology	2-0-0	2
6	HU101	English Proficiency	2-0-0	2
7	SS101	Human Values & Buddhist Ethics	2-0-0	2
		<u>PRACTICALS</u>		
8	CY103/PH104	Engineering Chemistry Lab/ Engineering Physics Lab	0-0-2	1
9	CE103	Engineering Graphics	0-0-3	2
10	CS103	Computer Programming Lab-I	0-0-3	2
11	EC103/EE104	Basic Electronics Lab/ Electrical Technology Lab	0-0-2	1
12	GP101	General Proficiency	-	1
		<b>Total</b>	<b>16-3-10</b>	<b>26</b>
		Total Contact Hours	29	

SEMESTER - II				
Sr. No.	Subject Code	Courses	L-T-P	Credits
		<u>THEORY</u>		
1	PH102/CY101	Engineering Physics/ Engineering Chemistry	3-1-0	4
2	MA102	Mathematics - II	3-1-0	4
3	CE102	Concepts of Built Environment	2-1-0	3
4	CS102	Computer Programming - II	2-0-0	2
5	EE102/EC101	Electrical Technology/ Basic Electronics	2-0-0	2
6	HU102	Professional Communication	2-0-0	2
7	SS102	History of Science & Technology	2-0-0	2
		<u>PRACTICALS</u>		
8	PH104/CY103	Engineering Physics Lab/ Engineering Chemistry Lab	0-0-2	1
9	CE104	Built Environment Lab	0-0-3	2
10	EE104/EC103	Electrical Technology Lab/ Basic Electronics Lab	0-0-2	1
11	ME102	Workshop Practices	0-0-3	2
12	GP102	General Proficiency	-	1
		<b>Total</b>	<b>16-3-10</b>	<b>26</b>
		Total Contact Hours	29	

SEMESTER-III				
Sr. No.	Subject Code	Courses	L-T-P	Credits
		<u>THEORY</u>		
1	MA201	Quantitative Techniques	3-1-0	4
2	ME201	Material Sciences	2-0-0	2
3	ME203	Manufacturing Technology-I	3-1-0	4
4	CE203	Fluid Mechanics	3-1-0	4
5	CE205	Mechanics of Materials	3-1-0	4
6	ME205	Kinematics of Machines	2-0-0	2
		<u>PRACTICALS</u>		
7	ME211	Manufacturing Technology Lab-I	0-0-3	2
8	CE211	Material Testing Lab	0-0-2	1
9	CE209	Fluid Mechanics Lab	0-0-3	2
10	GP201	General Proficiency	-	1
		<b>Total</b>	<b>16-4-8</b>	<b>26</b>
		Total Contact Hour	28	

SEMESTER - IV				
Sr. No.	Subject Code	Courses	L-T-P	Credits
		<u>THEORY</u>		
1	MA202	Numerical Methods of Analysis	3-1-0	4
2	ME202	Manufacturing Technology-II	2-1-0	3
3	ME204	Machine Dynamics	3-1-0	4
4	ME206	Engineering Thermodynamics	3-1-0	4
5	ME208	Fluid Machines	2-1-0	3
6	EE202	Measurements and Instrumentation	2-0-0	2
		<u>PRACTICALS</u>		
7	ME210	Machine Dynamics Lab	0-0-3	2
8	ME212	Fluid Machine Lab	0-0-3	2
9	EE216	Measurements and Instrumentation Lab	0-0-2	1
10	GP102	General Proficiency	-	1
		<b>Total</b>	<b>15-5-8</b>	<b>26</b>
		Total Contact Hour	28	

SEMESTER - V				
Sr. No.	Subject Code	Courses	L-T-P	Credits
		<u>THEORY</u>		
1	ME301	Heat and Mass Transfer	3-1-0	4
2	ME303	Measurement and Meteorology	2-1-0	3
3	ME305	Energy Systems	3-0-0	3
4	ME307	Air conditioning and Refrigeration	3-1-0	4
5	ME309	Internal Combustion Engine	3-1-0	4
6	ME311	Principles of Technology Management	2-0-0	2
		<u>PRACTICALS</u>		
7	ME313	Air conditioning and Refrigeration Lab	0-0-3	2
8	ME315	Measurement and Meteorology Lab	0-0-2	1
9	ME317	IC Engine Lab	0-0-3	2
10	GP301	General Proficiency		1
		<b>Total</b>	<b>16-4-8</b>	<b>26</b>
		Total Contact Hours	28	

SEMESTER - VI				
Sr. No.	Subject Code	Courses	L-T-P	Credits
		<u>THEORY</u>		
1	ME302	Machine Design	3-1-0	4
2	ME304	Steam Power Engineering	3-1-0	4
3	ME306	Mechanical Vibration	2-1-0	3
4	ME308	Industrial Engineering	3-0-0	3
5	ME310	Automobile Engineering	3-0-0	3
6	ME312	Entrepreneurship & Innovation	2-0-0	2
		<u>PRACTICALS</u>		
7	ME314	Steam Power Engineering Lab	0-0-3	2
8	ME316	Vibration Lab	0-0-3	2
9	ME318	Automobile Engineering Lab	0-0-3	2
10	GP302	General Proficiency		1
		<b>Total</b>	<b>16-3-9</b>	<b>26</b>
		Total Contact Hours	28	

SEMESTER - VII				
Sr. No.	Subject Code	Courses	L-T-P	Credits
		<u>THEORY</u>		
1	SS401	Social Aspects of Engineering	2-0-0	2
2	ME401	Contracts, Specifications & Economics	2-0-0	2
3	ME403	Computer Aided Mechanical Design	3-1-0	4
4	ME405	Automation and Control	3-1-0	4
5		Elective - I	3-0-0	3
6		Elective - II	2-1-0	3
		<u>PRACTICALS</u>		
7	ME411	Automation and Control Lab	0-0-3	2
8	ME413	Computer Aided Mechanical Design Lab	0-0-3	2
9	ME415	Seminar	0-0-3	2
10	GP401	General Proficiency	-	1
		<b>Total</b>	<b>15-3-9</b>	<b>25</b>
		Total Contact Hours	27	

SEMESTER – VIII				
Sr. No.	Subject Code	Courses	L-T-P	Credits
		<u>THEORY</u>		
1	ME402	Machine Tool Engineering	3-0-0	3
2	ME404	Flexible Manufacturing Systems	3-1-0	4
3	ME406	Modelling and Simulation	3-1-0	4
4		Specialisation Elective – I	3-1-0	4
5		Specialisation Elective – II	2-1-0	3
6		Specialisation Elective – III	2-0-0	2
		<u>PROJECTS</u>		
7		Special Problem - I	0-0-3	2
8		Project	0-0-3	2
9	GP402	General Proficiency		1
		<b>Total</b>	<b>16-4-6</b>	<b>25</b>
		Total Contact Hours	26	

SUMMER SEMESTER (After VIII SEMESTER)				
Sr. No.	Subject Code	Courses	L-T-P	Credits
1		Project	0-0-20	10
		<b>Total</b>	<b>0-0-20</b>	<b>10</b>
		Total Contact Hours	20	

SEMESTER – IX				
Sr. No.	Subject Code	Courses	L-T-P	Credits
		<u>THEORY</u>		
1		Specialisation Elective- IV	2-1-0	3
2		Specialisation Elective- V	3-1-0	4
3		Specialisation Elective- VI	3-0-0	3
4		Specialisation Elective- VII	3-1-0	4
5		Specialisation Elective- VIII	2-1-0	3
6		Open Elective - I	2-0-0	2
		<u>PROJECTS</u>		
7		Laboratory – I/ Special Problem - II	0-0-3	2
8		Research Project (Preliminary)	1 <sup>**</sup> -0-4	3
9	GP501	General Proficiency		1
		<b>Total</b>	<b>16-4-7</b>	<b>25</b>
		Total Contact Hours	27	

**\*\* This will not be a usual lecture session, but this is one to one interaction of each student with the concerned faculty member**

SEMESTER – X				
Sr. No.	Subject Code	Courses	L-T-P	Credits
1		Research Project	.....	24
2	GP502	General Proficiency	-	1
		<b>Total</b>	<b>.....</b>	<b>25</b>

**Grand Total Credits of Dual Degree = 266**

## **List of Electives for B.Tech**

### **Elective-I**

1. ME407: Composite Material
2. ME409: Modelling and Simulation of Dynamic Systems
3. ME411: Operation and Research
4. ME413: Mechanical Handling Systems and Equipments

### **Elective-II**

1. ME415: Vibration and Noise Control
2. ME417: Design and Manufacturing of Composites
3. ME419: Soft Computing Techniques

## **List of Electives for M. Tech (CAD&CAM)**

### **Specialisation Elective-I**

1. ME408: Flexible Competitive Manufacturing Systems
2. ME410: Manufacturing Systems and Simulation
3. ME412: Ultra Precision Engineering and Metrology

### **Specialisation Elective-II**

1. ME414: Computer Graphics and Visualisation
2. ME416: Advance Vibration Engineering
3. ME418: Maintenance Engineering and Management

### **Specialisation Elective-III**

1. ME420: Advance Mechanism Design
2. ME422: Robotics and Sensors Applications
3. ME424: Design of Material Handling Equipments

### **Specialisation Elective-IV**

1. ME501: Computer Added Process Planning
2. ME503: Total Quality Management
3. ME505: Design and Analysis of Experiments

### **Specialisation Elective-V**

1. ME507: Advance Material Processing
2. ME509: Data Communication in CAD/CAM
3. ME511: Design of Hydraulic and Pneumatic Systems

### **Specialisation Elective-VI**

1. ME513: Computer Integrated Manufacturing
2. ME515: Manufacturing Information System

### **Specialisation Elective-VII**

1. ME517: Mechatronics in Manufacturing Systems
2. ME519: Vehicle Aerodynamics
3. ME521: Performance Modelling and Analysis of Manufacturing Systems

### **Specialisation Elective-VIII**

1. ME523: Computational Fluid Dynamics
2. ME525: Industrial Safety Management
3. ME527: Computer Graphics and Visualization

### **Laboratory: 1**

1. ME529: Flexible Manufacturing Systems Lab
2. ME531: Advance Computer Integrated Manufacturing Lab
3. ME533: Virtual Prototype Modelling Lab

## **List of Electives for M. Tech (Manufacturing Engineering)**

### **Specialisation Elective-I**

1. ME408: Flexible Competitive Manufacturing Systems
2. ME410: Manufacturing Systems and Simulation
3. ME418: Maintenance Engineering and Management

### **Specialisation Elective-II**

1. ME422: Advance Manufacturing Technologies
2. ME424: Rapid Prototyping
3. ME426: Micro Electro Mechanical Systems

### **Specialisation Elective-III**

1. ME428: Metal Forming Processes
2. ME430: Numerical Modelling of Manufacturing Processes
3. ME432: Manufacturing Resource Planning

### **Specialisation Elective-IV**

1. ME503: Total Quality Management
2. ME521: Performance Modelling and Analysis of Manufacturing Systems
3. ME541: Theory of Abrasive Machining

### **Specialisation Elective-V**

1. ME545: Industrial Automation & Control
2. ME547: Laser Engineering
3. ME549: Manufacturing Information System

### **Specialisation Elective-VI**

1. ME551: Advanced Production Planning & Inventory Control
2. ME553: Processing by Powder Metallurgy Techniques
3. ME555: Supply Chain Management

### **Specialisation Elective-VII**

1. ME559: Virtual Manufacturing
2. ME561: Advanced Welding Technology
3. ME563: Robotics

### **Specialisation Elective-VIII**

1. ME565: Advanced Metal Casting Technology
2. ME567: Product Design and Life Cycle Management
3. ME569: Knowledge Based System in Engineering

### **Laboratory – I**

1. ME529: Flexible Manufacturing Systems Lab
2. ME533: Virtual Prototype Modelling Lab

### **Open Elective – 1**

1. ME571: Project Management
2. ME573: Operation Management
3. ME575: Buisness Process Re-engineering
4. ME577: Logistics Management