

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MECHANICAL ENGINEERING DEPARTMENT

Programme : **M.Tech.**
Specialization : **Manufacturing Engineering**
Department : **Mechanical Engineering**

Semester-I

Course Number	Course Title	L	T	P	C	Course Tag*
ME 899	Communication Skills	PP/NP				C
	Core 1 (Basket 1)	3	1	0	4	C
	Core 2 (Basket 1)	3	1	0	4	C
	Core 3 (Basket 1)	3	1	0	4	C
	Elective I (Basket 2)	3	0	0	6	D
	Elective II	3	0	0	6	D
	Elective III / Institute Elective	3	0	0	6	D/I ^{##}
	Elective IV (Basket 3)	3	0	0	6	D
	Total Credits:				36	

*C: Core; DIC: Department introductory; D: Department elective; I: Institute elective

If the student opts for “I” in 1st semester then he/she has to opt for “D” in 2nd semester and vice versa.

Semester-II

Course Number	Course Title	L	T	P	C	Course Tag*
ME 643	Materials Processing and Simulation Lab	0	0	3	3	C
ME 694	Seminar	0	0	4	4	C
	Elective V (Basket 4)	3	0	0	6	D
	Elective VI	3	0	0	6	D
	Elective VII	3	0	0	6	D
	Elective VIII	3	0	0	6	D
	Elective IX / Institute Elective	3	0	0	6	I/D ^{##}
	Total Credits:				37	

*C: Core; DIC: Department introductory; D: Department elective; I: Institute elective

Semester-III

Course Number	Course Title	L	T	P	C	Course Tag*
ME 797	M.Tech. Project – Stage I	0	0	0	50	C
	Total Credits:				50	

Semester-IV

Course Number	Course Title	L	T	P	C	Course Tag*
ME 798	M.Tech. Project – Stage II	0	0	0	40	C
	Total Credits:				40	

Basket 1 for Core:

Number	Title
ME 785	Machining Processes
ME 786	Welding Processes
ME 787	Deformation Processes
ME 788	Liquid Material Processing

One elective to be chosen from each of following Baskets**Basket 2: Manufacturing system (Elective II)**

Number	Title
ME 711	Manufacturing planning and control
ME 773	Reliability modelling and analysis of engineering systems
ME 477	Introduction to optimization
ME 714	Computer Integrated Manufacturing
ME 712	CNC and Programming
ME 794	Statistical Design of Experiments

Basket 3: Maths (Elective IV)

Number	Title
ME 673	Mathematical Methods in Engineering
ME 621	Mathematical Method for Mechanics and Dynamics

Basket 4: Computational Analysis (Elective V)

Number	Title
ME 613	Finite element methods
ME 415	Computational fluid dynamics and heat transfer
ME 756	Numerical methods for manufacturing processes
ME 789	Computational tools for process modelling
ME 793	Multiscale Materials Informatics, Discovery and Design

Electives: (Elective III, VI, VII, VIII, IX)

Course	Title	Course	Title
ME 795	Cellular Solids: Properties and Engineering Applications	ME 676	Collaborative engineering
ME 800	Additive Manufacturing: Design, Processes and Inspection	ME 669	Design for Manufacturing
MM 621	Advanced Physical and Mechanical Metallurgy	ME 664	Advanced FEM and BEM methods
ME 790	Materials modelling using atomistic first-principles calculations	ME 663	Advanced Heat Transfer

ME 784	Non-Destructive Testing and Evaluation	ME 651	Fluid Dynamics
ME 781	Statistical Machine Learning and Data Mining	ME 645	MEMS– Design,Fabrication&Characterization
ME 778	Moving Boundary Problems in Solidification	ME 642	Advanced Tool Design
ME 775	Mechanisms in Crystal Plasticity	ME 637	Manufacturing Automation
ME 774	Processing of Aerospace Materials-II	ME 636	Advanced Joining Technology
ME 772	Processing of Aerospace Materials-I	ME 617	Rapid Product Development
ME 769	Combustion in Automobile and Gas Turbine Engines	ME 6110	Nanomanufacturing Processes
ME 768	Introduction to Microsystems Packaging	ME 6108	Quality Measurement, Monitoring and Improvement
ME 766	High Performance Scientific Computing	ME 6106	Computational Structural Dynamics
ME 765	Micro-forming	ME 6102	Design of Mechatronic Systems
ME 761	Advanced Stereology and Microstructural Analysis	ME 604	Robotics
ME 754	Textile machinery design and automation	ME 602	Fatigue, Fracture and Failure Analysis
ME 751	Mechanics of Deformable Bodies	ME 460	Solid State Joining
ME 750	Sheet Metal engineering	ME 438	Introduction to modeling of materials from atomistics to continuum
ME 748	Computer Aided simulations of machines	ME 412	Sustainable Development Goals and Corporate Social Responsibility
ME 747	Interfacial Transport Phenomena	IE 705	Quantitative Methods in Project Management
ME 743	Optical Methods in Mechanical Engineering	IE 702	Neural Network and Fuzzy Systems
ME 735	Computer Graphics and Product Modeling	IE 646	Quality Control & Reliability
ME 732	Select Appl. of OR and AI in Mfg. Systems	IE 643	Deep Learning - Theory and Practice
ME 730	Ultra-precision Machining	EE 769	Introduction to Machine Learning
ME 728	Intelligent Product Design and Mfg.	CE 620	Finite Element Methods
ME 699	Magnetohydrodynamics and its engineering applications	AE 484	Finite Element Method
ME 681	Thermal Environmental Engg	TD 632	Sustainable Development Goals and Corporate Social Responsibility

ME 679	Micromechanics of Composites	MM 680	Welding Science and Technology
ME 677	Laser Material Processing	MM 668	Computational Methods for Metal Forming Analysis
ME4101	Design of Welded Structures	MM 626	Thermomechanical Processing and Forming of Steel
MM6101	Additive Manufacturing with Metals		