

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MECHANICAL ENGINEERING DEPARTMENT

Programme : MTech
Specialization : Design Engineering
Department : Mechanical Engineering

Semester-I

Course Number	Course Title	L	T	P	C	Course Tag*
ME 899	Communication Skills	PP/NP				C
ME 601	Stress Analysis	3	0	0	6	C
ME 603	Kinematics & Dynamics of Machinery	3	0	0	6	C
ME 782	Design Optimization	3	0	0	6	C
ME 721	Design Engineering Laboratory	0	0	4	4	C
	Elective I	3	0	0	6	D
	Elective II / Institute Elective	3	0	0	6	D/I ^{##}
	Total Credits:				34	

*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 694	Seminar	0	0	0	4	C
	Elective III or R&D Project	3 0	0 0	0 0	6 6	D
	Elective IV / Institute Elective	3	0	0	6	I/D ^{##}
	Elective V	3	0	0	6	D
	Elective VI	3	0	0	6	D
	Elective VII	3	0	0	6	D
	Total Credits:				34	

*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	

List of prescribed courses under Elective I, II III, IV, V, VI, VII:

Course	Title	Course	Title
ME 645	MEMS: Design Fabrication and Characterization	AE 755	Optimization for Engineering Design
ME 610	Applied Tribology	AE 775	System Modelling, Dynamics and Control
ME 618	Pressure Vessel Design	BB 610	Biomedical Microsystems
ME 606	Computer Aided Design of Machines	CE 620	Finite Element Methods
ME 604	Robotics	CL 603	Optimization
ME 613	Finite Element and Boundary Element Methods	CL 724	Technology Design and Development Laboratory
ME 670	Nonlinear system analysis and control	CS 684	Embedded Systems
ME 477	Introduction to Optimization	EE 613	Nonlinear Dynamical Systems
ME 456	Automobile Engineering (Transmission)	EE 615	Control and Computational Laboratory
ME 478	Management Principles and Practice	EE 622	Optimal Control Systems
ME 710	Vibrations	ES 600	Environmental Science and Engineering
ME 744	Applied Random Vibrations	GNR 602	Advanced Methods in Satellite Image Processing
ME 748	Computer Aided simulations of machines	HS 621	Contemporary Indian Philosophy
ME 754	Textile machinery design and automation	ME 415	Computational Fluid Dynamics and Heat Transfer
ME 639	Linear Systems Theory	ME 472	Nonlinear Dynamics and Chaos
ME 664	Advanced finite element and boundary element methods	ME 611	Machine Tool Design
ME 615	Machinery Vibration and Diagnostics	ME 6114	Joint Biomechanics
ME 667	Industrial Noise Control	ME 6116	Design of Fiber Reinforced Composites
ES 684	Design of Water and Wastewater Systems	ME 617	Rapid Product Development
ME 669	Design for Manufacturing	ME 637	Manufacturing Automation
ME 675	Theory of Plasticity	ME 649	Advanced Manufacturing Processes I
ME 621	Mathematical methods for Mechanics and Dynamics	ME 651	Fluid Dynamics

ME 647	Automatic Control Engineering	ME 676	Collaborative Engineering
ME 434	Finite Element and Boundary Element Methods	ME 679	Micromechanics of Composites
ME 673	Mathematical Methods in Engineering	ME 683	Cryogenic Engineering - I
ME 753	Mechanics of Polymers	ME 699	Magnetohydrodynamics and its engineering applications
ME 751	Mechanics of Deformable Bodies	ME 712	Computer Numerical Control and Programming.
ME 755	Advanced mechanics of solids	ME 735	Computer Graphics and Product Modeling
ME 759	Nonlinear Finite Element Methods	ME 743	Optical Methods in Mechanical Engineering
SC 635	Advanced Topics in Mobile Robotics	ME 758	Microfluidics
ME 762	Advanced Engineering Dynamics	ME 766	High Performance Scientific Computing
ME 602	Fatigue, Fracture and Failure Analysis	ME 768	Introduction to Microsystems Packaging
ME 616	Fracture Mechanics	ME 770	Thermal Design of Electronic Equipment
ME 781	Statistical Machine Learning and Data Mining	ME 772	Processing of Aerospace Materials-I
ME 6102	Design of Mechatronic Systems	ME 773	Reliability Modelling and Analysis for Engineering Systems
ME 6106	Computational Structural Dynamics	ME 774	Processing of Aerospace Materials-II
ME 6112	Acoustics and Hearing	ME 779	Control Systems
AE 484	Finite Element Method	ME 789	Computational Tools for Process Modeling
ME 734	Vibro-acoustics	ME 794	Statistical Design of Experiments
CE 629	Elastic Waves in Solids	ME 795	Cellular Solids: Properties and Engineering Applications
ME 438	Introduction to modeling of materials from atomistics to continuum	MM 445	Continuum Plasticity of Metals
ME 775	Mechanisms in Crystal Plasticity	PS 613	Water Policy I: introduction to Water Science and Policy
ME 791	Acoustic Devices	SC 601	Modelling and Identification of Dynamical Systems
AE 639	Continuum Mechanics	SC 620	Automation and Feedback Control
AE 676	Elastic Analysis of Plates and Laminates	SC 634	Introduction to Wheeled Mobile Robotics
AE 738	Tensors for Engineers		