INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MECHANICAL ENGINEERING DEPARTMENT

Programme : MTech
Specialization : Thermal & Fluids Engineering
Department : Mechanical Engineering

Semester-I

Course Number	Course Title	L	T	P	C	Course Tag*
ME 899	Communication Skills	PP/NP				C
ME 651	Fluid Dynamics	3	0	0	6	C
ME 661	Advanced Thermodynamics & Combustion	3	0	0	6	C
ME 663	Advanced Heat Transfer	3	0	0	6	C
ME 704	Computational Methods in Thermal & Fluids Engg	3	0	0	6	C
ME 673	Mathematical Methods in Engineering	3	0	0	6	C
	Total Credits:				30	

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

Semester-II

Course Number	Course Title	L	T	P	C	Course Tag*
ME 657	Thermal & Fluids Engg Lab.	0	0	6	6	C
ME 694	Seminar	0	0	0	4	C
	Elective I	3	0	0	6	D
	Elective II	3	0	0	6	D
	Elective III	3	0	0	6	D
	Elective IV	3	0	0	6	D
	Elective V / Institute Elective	3	0	0	6	D/I ##
	Total Credits:				40	

*C: Core; DIC: Department introductory; D: Department elective; I: Institute elective
If the student opts for "I" in 2nd semester then he/ she has to opt for "D" in 3rd semester and vice versa.

Semester-III

Course Number	Course Title	L	T	P	C	Course Tag*
	Institute Elective / Elective V	3	0	0	6	I/D ##
ME 797	M.Tech. Project – Stage I	0	0	0	50	C
	Total Credits:				56	

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:

Course	Title	Course	Title
ME 683	Cryogenic Engineering -I	AE 738	Tensors for Engineers
ME 665	Conduction and Radiation	BB 610	Biomedical Microsystems
ME 680	Two Phase Flow and Heat Transfer	CL 724	Technology Design and Development Laboratory
ME 655	Theory and Design of Fluid Machinery	ME 308	Industrial Engineering and Operations Research I
ME 662	Convective Heat and Mass Transfer	ME 412	CFD and HT Lab
ME 666	Design of Heat Exchange Equipment	ME 434	Finite Element and Boundary Element Methods
ME 684	Air Conditioning System Design	ME 439	Cryogenic Engineering II
ME 415	Computational Fluid Dynamics and Heat Transfer	ME 445	Fuels and Combustion
AE 755	Optimization for Engineering Design	ME 480	Two Phase flow and Heat Transfer
ME 678	Fundamentals of Gas Dynamics	ME 6101	Lattice Dynamics and Thermal Energy Transport
ME 724	Essentials of Turbulence	ME 6106	Computational Structural Dynamics
ME 758	Microfluidics	ME 6112	Acoustics and Hearing
AE 624	Hypersonic Flow Theory	ME 613	Finite Element and Boundary Element Methods
ME 623	Cryogenic Engineering II	ME 617	Rapid Product Development
ME 685	Analytical Combustion	ME 618	Pressure Vessel Design
ME 725	Introduction to Transport Phenomena	ME 637	Manufacturing Automation
ME 687	Fire Dynamics	ME 649	Advanced Manufacturing Processes I
ME 695	Introduction to Nuclear Engg.	ME 669	Design for Manufacturing
ME 739	Combustion & Emissions in IC Engines	ME 676	Collaborative Engineering
ME 741	Basics of Turbulence and Combustion Modeling	ME 679	Micromechanics of Composites
ME 743	Optical Methods in Mechanical Engineering	ME 699	Magnetohydrodynamics and its engineering applications
ME 760	Fuels and Combustion	ME 748	Computer Aided simulations of machines

ME 747	Interfacial Transport Phenomena	ME 754	Textile machinery design and automation
ME 733	Nuclear Safety & Reliability	ME 759	Nonlinear Finite Element Methods
ME 729	Nuclear Reactor Analysis	ME 768	Introduction to Microsystems Packaging
ME 757	Galerkin Methods for Fluid Dynamics	ME 772	Processing of Aerospace Materials-I
ME 738	Nuclear Reactor Thermal Hydraulics	ME 773	Reliability Modelling and Analysis for Engineering Systems
ME 763	Geophysical Fluid Dynamics	ME 774	Processing of Aerospace Materials-II
ME 766	High Performance Scientific Computing	ME 779	Control Systems
ME 777	Combustion of Energetic Materials	ME 781	Statistical Machine Learning and Data Mining
ME 769	Combustion in Automobile and Gas Turbine Engines	ME 789	Computational Tools for Process Modeling
ME 770	Thermal Design of Electronic Equipment	ME 790	Materials modelling using atomistic first-principles calculations
AE 622	Computing of High Speed Flows	ME 793	Multiscale Materials Informatics, Discovery and Design
AE 663	Software Development Techniques for Engineering and Scientists	ME 794	Statistical Design of Experiments
ME 780	Introduction to Biofluid Mechanics	ME 795	Cellular Solids: Properties and Engineering Applications
ME 776	Fluid Structure Interaction	MM 722	Molecular Simulations for Mateirals Engineering
AE 484	Finite Element Method	MNG629	Technology Design and End To End Innovation -I
IE 643	Deep Learning - Theory and Practice	PH 534	Quantum Information and Computing
ME 438	Introduction to modeling of materials from atomistics to continuum	SC 601	Modelling and Identification of Dynamical Systems
CS 772	Deep Learning for Natural Language Processing	SC 620	Automation and Feedback Control
AE 639	Continuum Mechanics	ME6118	Spray theory and application