MECHANICAL ENGINEERING

COURSE CURRICULUM FOR THE NEW PROGRAMME (B.Tech.) w.e.f. 2007 BATCH

Semester I

Course code	Course Name	Credit Structure			
		L	**T**	**P**	**C**
CH 103+	Chemistry	**2**	**1**	**0**	**6**
CS 101	Computer Programming	**2**	**0**	**2**	**6**
HS 101	Economics	**3**	**0**	**0**	**6**
A 105	Calculus	**3**	**1**	**0**	**8**
PH 103*	Electricity and Magnetism	**2**	**1**	**0**	**6**
PH 105*	Modern Physics	**2**	**1**	**0**	**6**
CH 117+	Chemistry Lab	**0**	**0**	**3**	**3**
ME 113*	Workshop Practice	**0**	**1**	**3**	**5**
ME 119*	Engineering Graphics and Drawing	**1**	**0**	**3**	**5**
PH 117+	Physics Lab	**0**	**0**	**3**	**3**
NC 101#	National Cadet Corps (NCC)	**0**	**0**	**0**	**P/NP**
NO 101#	National Sports Organization (NSS)	**0**	**0**	**0**	**P/NP**
NS 101#	National Service Scheme (NSS)	**0**	**0**	**0**	**P/NP**

* Any one of these two courses and any one of these Lab courses only for **D3 D4**
\+ Only for D1 D2
\# Any one of these three P/NP courses

Semester – II

Course Code	Course Name	Credit Structure			
		L	**T**	**P**	**C**
MA 106 And MA 108	Linear Algebra and Ordinary Differential Equations I	**3**	**1**	**0**	**8**
CH 103+	Chemistry	**2**	**1**	**0**	**6**
PH 103*	Electricity and Magnetism	**3**	**0**	**0**	**6**
PH 105*	Modern Physics	**3**	**1**	**0**	**8**
DIC **	Department Introductory Course	**3**	**0**	**0**	**6**
XX 102	Data Analysis and Interpretations	**2**	**1**	**0**	**6**
CH 117*	Chemistry Lab.	**0**	**0**	**3**	**3**
ME 113+	Workshop Practice	**0**	**1**	**3**	**5**
ME 119+	Engineering Graphics and Drawing	**0**	**1**	**3**	**5**
PH 117*	Physics Lab.	**0**	**0**	**3**	**3**
NC 102#	National Cadet Corps (NCC)	**0**	**0**	**0**	**P/NP**
NO 102#	National Sports Organization (NSS)	**0**	**0**	**0**	**P/NP**
NS 102#	National Service Scheme (NSS)	**0**	**0**	**0**	**P/NP**

* Any one of these two courses and any one of these Lab courses only for **D1 D2**
** Engineering Mechanics offered by Civil Engineering Department is the DIC
\+ Only for D3 D4
\# Any one of these three P/NP courses

MECHANICAL ENGINEERING DEPARMENT
COURSE CURRICULUM FOR THE NEW PROGRAMME (B.Tech.) w.e.f. 2007 BATCH

Semester III						**Semester – IV**					
Course code	**Course Name**	**Credit Structure**				**Course Code**	**Course Name**	**Credit Structure**			
		L	**T**	**P**	**C**			**L**	**T**	**P**	**C**
ME 201	Solid Mechanics	**2**	**1**	**0**	**6**	ME 202	Strength of Materials	**2**	**1**	**0**	**6**
ME	Thermodynamics	**2**	**1**	**0**	**6**	ME	Fluid Mechanics	**2**	**1**	**0**	**6**
EE 101	Electric Circuits	**3**	**1**	**0**	**8**	ME	Manufacturing Processes I	**2**	**1**	**0**	**6**
MM 206	Engineering Metallurgy	**2**	**1**	**0**	**6**	MA 214	Numerical Analysis	**3**	**1**	**0**	**8**
XX 115	Experimental Engineering Lab	**0**	**0.5**	**3**	**4**	ME	Solid Mechanics Lab	**0**	**0**	**3**	**3**
						ME 213	Manufacturing Practice Lab.	**0**	**1**	**3**	**5**
Total					**30**	**Total**					**34**
COURSES FOR HONOR REQUIREMENT						COURSES FOR HONOR REQUIREMENT					
COURSES FOR MINOR REQUIREMENT						COURSES FOR MINOR REQUIREMENT					
ME 201	Solid Mechanics	**2**	**1**	**0**	**6**	ME	Fluid Mechanics	**2**	**1**	**0**	**6**

COURSE CURRICULUM FOR THE NEW PROGRAMME (B.Tech.) w.e.f. 2007 BATCH

Semester V

Course code	Course Name	Credit Structure			
		L	**T**	**P**	**C**
ME	Heat Transfer	**2**	**1**	**0**	**6**
ME	Industrial Engg. and Operations Research	**2**	**1**	**0**	**6**
ME	Manufacturing Processes II	**2**	**1**	**0**	**6**
HS	HSS Core	**3**	**0**	**0**	**6**
ME	Manufacturing Processes Lab	**0**	**0**	**3**	**3**
ME	Fluid Mechanics Lab	**0**	**0**	**3**	**3**
Total					**30**
COURSES FOR HONOR REQUIREMENT					
COURSES FOR MINOR REQUIREMENT					

Semester – VI

Course Code	Course Name	Credit Structure			
		L	**T**	**P**	**C**
ME	Applied Thermodynamics	**2**	**1**	**0**	**6**
ME	Kinematics and Dynamics of Machines	**2**	**1**	**0**	**6**
ME	Departmental Elective I	**3**	**0**	**0**	**6**
ES 403	Environmental Studies	**3**	**0**	**0**	**6**
ME	Kinematics and Dynamics of Machines Lab	**0**	**0**	**3**	**3**
ME	Heat Transfer and Metrology Lab	**0**	**0**	**3**	**3**
Total					**30**
COURSES FOR HONOR REQUIREMENT					
ME	Course 1	**3**	**0**	**0**	**6**
COURSES FOR MINOR REQUIREMENT					

COURSE CURRICULUM FOR THE NEW PROGRAMME (B.Tech.) w.e.f. 2007 BATCH											
ME	Thermodynamics	**2**	**1**	**0**	**6**	ME	Manufacturing Processes I	**2**	**1**	**0**	**6**

COURSE CURRICULUM FOR THE NEW PROGRAMME (B.Tech.) w.e.f. 2007 BATCH											
Semester VII						**Semester – VIII**					
Course code	**Course Name**	**Credit Structure**				**Course Code**	**Course Name**	**Credit Structure**			
		L	**T**	**P**	**C**			**L**	**T**	**P**	**C**
ME	Machine Design	**2**	**1**	**2**	**8**	ME	Departmental Elective III	**3**	**0**	**0**	**6**
ME	Microprocessors and Automatic Control	**2**	**1**	**0**	**6**	ME	Departmental Elective IV	**3**	**0**	**0**	**6**
ME	Departmental Elective II	**3**	**0**	**0**	**6**	ME	Departmental Elective V	**3**	**0**	**0**	**6**
	Institute Elective I	**3**	**0**	**0**	**6**	ME	Departmental Elective VI	**3**	**0**	**0**	**6**
							Institute Elective II	**3**	**0**	**0**	**6**
ME	Applied Thermodynamics Lab	**0**	**0**	**3**	**3**						
ME	Microprocessors and Automatic Control Lab	**0**	**0**	**3**	**3**						
Total					**32**	**Total**					**30**
COURSES FOR HONOR REQUIREMENT						COURSES FOR HONOR REQUIREMENT					
ME	Course 2	**3**	**0**	**0**	**6**	ME	Project (Stage 2)	**0**	**0**	**0**	**12**
ME	Project (Stage 1)	**0**	**0**	**0**	**6**						
COURSES FOR MINOR REQUIREMENT						COURSES FOR MINOR REQUIREMENT					
ME	Manufacturing Processes II	**2**	**1**	**0**	**6**	ME	Kinematics and Dynamics of Machines	**2**	**1**	**0**	**6**

Important Instructions and List of Electives for B.Tech.

(i) B.Tech. program consists of 255 credits including 36 credits (for 6 electives).

(ii) Each student must select any 6 courses from the elective list I to IV given below.

(iii) Honors can be earned by completing 2 electives (12 credits) and an 18-credit project. The project, guide and the electives must be decided by the end of semester V. The project should be taken up in the semesters VII and VIII. 2 electives must be slanted towards the project and decided in consultation with the project guide from the list of department electives I to VI given below.

Department Electives I to VI

1) ME 342 Analytical Methods in Engineering
2) ME 348 Computer Aided Solution
3) ME 350 Refrigeration and Air-Conditioning
4) ME 356 Mechanization
5) ME 360 Power Plant Engineering
6) ME 366 Experimental Stress Analysis
7) ME 403 Internal Combustion Engines
8) ME 406 Steam and Gas Turbines
9) ME 408 Industrial Engineering and Operations Research II
10) ME 410/758 Microfluidics
11) ME 415 Computational Fluid Dynamics and Heat Transfer

12) ME 427 Design for Fatigue and Fracture
13) ME 440 Industrial Tribology
14) ME 445 Fuels and Combustion
15) ME 450 Vibration and Noise Control
16) ME 456 Automobile Engineering (Transmission)
17) ME 472 Non Linear Dynamics and Chaos
18) ME 477 Introduction to Optimization
19) ME 601 Stress Analysis
20) ME 602 Fatigue, Fracture and Failure Analysis *
21) ME 603 Kinematics and Dynamics of Machinery
22) ME 604 Robotics
23) ME 606 Computer Aided Design of Machines
24) ME 607 Machine Design
25) ME 610 Applied Tribology
26) ME 613 Finite and Boundary Element Methods
27) ME 616 Fracture Mechanics *
28) ME 617 Rapid Product Development
29) ME 618 Pressure Vessel Design
30) ME 621 Mathematical Methods for Applied Mechanics
31) ME 623 Cryogenics II
32) ME 639 Linear Systems Theory
33) ME 645 MEMS: Design, Fabrication and Charaterization
34) ME 664 Advanced Finite and Boundary Element Methods
35) ME 662 Convective Heat and Mass Transfer

36) ME 663 Advanced Heat Transfer
37) ME 665 Conduction and Radiation Heat Transfer
38) ME 667 Industrial Noise Control
39) ME 669 Design for Manufacturing
40) ME 676 Collaborative Engineering
41) ME 678 Fundamentals of Gas Dynamics
42) ME 681 Thermal Environment Engineering
43) ME 683 Cryogenic I
44) ME 684 Air-Conditioning System Design
45) ME 704 Computational Methods in Thermal and Fluids Engineering
46) ME 714 Computer Integrated Manufacturing
47) ME 724 Essential of Turbulence
48) ME 730 Ultra Precision Machining
49) ME 732 Selected Application of AI & OR in Manufacturing Systems
50) ME 734 Vibro-Acoustics
51) ME 750 Sheet Metal Engineering
52) ME 754 Textile Machinery and Automation
53) ME 756 Numerical Modeling of Manufacturing Processes
54) ME 7XX Casting Design and Simulation
55) ME 7XX Science and Technology of Welding
56) ME 7XX Analysis of Metal Forming Processes
57) ME 7XX Advances in Material Removal Processes
58) EN 601 Non-Conventional Energy Sources
59) EN 604 Fuel Cells

60) EN 613 Nuclear Reactor Theory
61) EN 615 Wind Energy Conversion Systems
62) EN 616 Direct Energy Conversion
63) EN 618 Energy Systems Modeling & Analysis
64) EN 619 Solar Energy for Industrial Process Heat
65) EN 630 Utilization of Solar Energy
66) EN 634 Nuclear Reactor Thermal Hydraulics and Safety
67) EN 640 Solar Photovoltaic: Fundamentals, Technologies and Applications
68) EN 642 Power Generation and Systems Planning
69) IE 601 Deterministic Models of Optimization and Operations Research
70) IE 603 Discrete Event System Simulation
71) IE 611 Introduction to Stochastic Models
72) IE 612 Introduction to Financial Engineering
73) IE 642 Engineering Economic Analysis
74) IE 645 Industrial Scheduling
75) IE 646 Quality Engineering and Management Systems
76) IE 647 Applied Integer Programming
77) IE 651 Inventory Control and Management Systems
78) IE 604 System Dynamics Modeling and Analysis
79) IE 702 Neural Networks, Fuzzy Systems and Applications
80) IE 703 Introduction to Knowledge Based Systems and Applications
81) IE 704 Selected Applications of AI in Operations Research
82) IE 705 Quantitative Methods in Project Management
83) IE 706 Pricing and Revenue Management

84) IE 707 Multi-Player Decision Making Models

85) IE 708 Markov Decision Processes

86) IE 710 O.R. Applications in Infrastructure & Service Sectors

87) IE 712 Selected Applications of Stochastic Models

88) IE 714 Quantitative Models for Supply Chain Management

* Students are permitted to register for only one of these two (ME 602 and 616) courses.

List of Courses for Minor in Mechanical Engineering

A student can be awarded a minor in Mechanical Engineering provided he completes any five of the following courses.

1) Solid Mechanics (ME 201)
2) Thermodynamics (ME XXX)
3) Fluid Mechanics (ME XXX)
4) Kinematics and Dynamics of Machines (ME XXX)
5) Manufacturing Processes I (ME XXX)
6) Manufacturing Processes II (ME XXX)