SYLLABUS FOR CREDIT BASED CURRICULUM
(For Students Admitted in 2013 – 2014)

B. TECH. DEGREE
MECHANICAL ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY
TIRUCHIRAPPALLI - 620 015
INDIA

JULY 2014

DEPARTMENT OF MECHANICAL ENGINEERING
B.Tech. SYLLABUS (Revised)

For the Students Joining III Semester in 2014

The total credits required for completing the B.Tech. Programme in Mechanical Engineering is 183.

SEMESTER III

CODE	COURSE OF STUDY	L	T	P	C
MA211	Special Functions and Statistics	3	0	0	3
EE223	Applied Electrical Engineering	2	0	2	3
EC217	Applied Electronics Engineering	2	0	2	3
PR221	Production Technology - I	3	0	0	3
ME203	Engineering Thermodynamics	3	1	0	4
ME205	Strength of Materials	3	0	0	3
Practical					
ME211	Machine Drawing	0	0	6	2
ME213	Strength of Materials Lab	0	0	2	1
	Total	**16**	**1**	**12**	**22**

SEMESTER IV

CODE	COURSE OF STUDY	L	T	P	C
MA208	Fourier Series and Partial Differential Equations	3	0	0	3
MT252	Engineering Metallurgy	3	0	0	3
PR222	Production Technology - II	3	0	0	3
ME202	Thermal Engineering	3	0	0	3
ME204	Mechanics of Machines - I	3	1	0	4
ME206	Fluid Mechanics	3	1	0	4
Practical					
MT262	Metallurgy Lab	0	0	2	1
PR232	Production Process Lab	0	0	3	2
ME208	Thermal Engineering Lab - I	0	0	3	2
ME210	Fluid Mechanics Lab	0	0	2	1
	Total	**18**	**2**	**10**	**26**

SEMESTER V

CODE	COURSE OF STUDY	L	T	P	C
MA301	Numerical Methods	3	0	0	3
ME 303	Heat and Mass Transfer	3	0	0	3
ME 305	Mechanics of Machines - II	3	1	0	4
ME 307	Analysis and Design of Machine Components	3	0	0	3
ME 309	Mechatronics	3	0	0	3
ME 3E1	Elective – I	3	0	0	3
Practical					
ME 311	Mechatronics Lab	0	0	2	1
ME 313	Dynamics Lab	0	0	3	2
ME 315	Production Drawing and Cost Estimation	1	0	2	2
	Total	**19**	**1**	**7**	**24**

SEMESTER VI

CODE	COURSE OF STUDY	L	T	P	C
ME302	Turbomachines	3	0	0	3
ME304	Automobile Engineering	3	0	0	3
ME306	Design of Mechanical Drives	3	0	0	3
ME308	Computer Aided Design and Drafting	3	0	0	3
ME3E2	Elective – II	3	0	0	3
ME3E3	Elective – III	3	0	0	3
	Industrial Lectures				1
	Internship/Ind. Training/Academic Attachment				2
Practical					
ME312	Thermal Engineering Lab II	0	0	3	2
ME314	Automobile Engineering Lab	0	0	3	2
ME316	Computer Aided Design and Drafting Practice	0	0	2	1
	Total	**18**	**0**	**8**	**26**

SEMESTER VII

CODE	COURSE OF STUDY	L	T	P	C
HM401	Industrial Economics	3	0	0	3
ME403	Power Plant Engineering	3	0	0	3
ME405	Metrology and Quality Control	3	0	0	3
ME407	Finite Element Method	3	0	0	3
ME4E4	Elective – IV	3	0	0	3
ME4E5	Elective – V	3	0	0	3
Practical					
ME409	Metrology Lab	0	0	2	1
ME411	Comprehensive Viva-voce	0	3	0	3
ME413	Project Work Phase – I	0	1	0	0
	Total	**18**	**4**	**2**	**22**

SEMESTER VIII

CODE	COURSE OF STUDY	L	T	P	C
HM402	Management Principles and Concepts	3	0	0	3
ME4E6	Elective – VI	3	0	0	3
ME4E7	Elective – VII	3	0	0	3
ME4E8	Elective – VIII	3	0	0	3
ME410	Project Work Phase – II	0	0	15	6
	Total	**12**	**0**	**15**	**18**

Credits for I Year	- 45
Credits for Mechanical Engineering (III to VIII Semester)	- 138
Total Credits	- 183

LIST OF ELECTIVES

ELECTIVE STREAM 1: THERMAL ENGINEERING

CODE	COURSE OF STUDY	L	T	P	C
ME001	Compressible Flow and Jet Propulsion	3	0	0	3
ME002	Computational Fluid Dynamics	3	0	0	3
ME003	Advanced IC Engines	3	0	0	3
ME004	Combustion Engineering	3	0	0	3
ME005	Renewable Energy	3	0	0	3
ME006	Biofuels	3	0	0	3
ME007	Fundamentals of HVAC Systems	3	0	0	3
ME008	Cryogenic Engineering	3	0	0	3
ME009	Nanotechnology	3	0	0	3
ME010	Vehicle Dynamics	3	0	0	3

ELECTIVE STREAM 2: ENGINEERING DESIGN

CODE	COURSE OF STUDY	L	T	P	C
ME021	Computer Applications in Design	3	0	0	3
ME022	Advanced Tool Design	3	0	0	3
ME023	Finite Element Method	3	0	0	3
ME024	Design of Gears and Cams	3	0	0	3
ME025	Optimization in Engineering Design	3	0	0	3
ME026	Dynamics of Machinery	3	0	0	3
ME027	MEMS Devices – Design and Fabrication	3	0	0	3
ME028	Composite Materials	3	0	0	3
ME029	Advanced Engineering Materials	3	0	0	3
ME030	Vibration Analysis and Control	3	0	0	3

ELECTIVE STREAM 3: MANUFACTURING

CODE	COURSE OF STUDY	L	T	P	C
ME041	Tool Engineering and Design	3	0	0	3
ME042	Advances in Welding Technology	3	0	0	3
ME043	Advanced Metal Forming Techniques	3	0	0	3
ME044	Lean Manufacturing and Six Sigma	3	0	0	3

ME045	Rapid Manufacturing Processes	3	0	0	3
ME046	Advanced Materials Technology	3	0	0	3
ME047	Advanced Machining Processes	3	0	0	3
ME048	Industrial Safety	3	0	0	3
ME049	Oil Hydraulics and Pneumatics	3	0	0	3
ME050	Industrial Robotics	3	0	0	3
ME051	Mechatronics and Instrumentation	3	0	0	3
ME052	Advances in Manufacturing Technology	3	0	0	3

LIST OF B.TECH. HONOURS ELECTIVES

CODE	COURSE OF STUDY	L	T	P	C
ME091	Advanced Thermodynamics	3	0	0	3
ME092	Advanced Heat Transfer	3	0	0	3
ME093	Advanced Fluid Mechanics	3	0	0	3
ME094	Advanced Finite Element Analysis	3	0	0	3
ME095	Advanced Optimization Techniques	3	0	0	3
ME096	Simulation of IC Engines	3	0	0	3
ME097	Design and Analysis of Turbo Machines	3	0	0	3
ME098	Advanced Mechanics of Materials	3	0	0	3
ME099	Advanced Metrology and Computer Aided Inspection	3	0	0	3
ME100	Fuzzy Logic and Neural Networks	3	0	0	3

SUBJECTS OFFERED TO OTHER DEPARTMENTS

CODE	COURSE OF STUDY	L	T	P	C
CE282	Fluid Mechanics and Machinery	3	0	0	3
ME325	Thermal Engineering	3	0	0	3
ME 331	Fluid Machinery and Thermal Engg. Lab	0	0	3	2
ME471	Automobile Engineering	3	0	0	3
ME 231	Thermal Engineering	3	0	0	3
CE285	Thermodynamics & Fluid Mechanics Lab	0	0	3	2
ME297	Mechanical Technology	3	0	0	3