



JECRCTM
UNIVERSITY
BUILD YOUR WORLD

School of Engineering

Department (Mechanical Engineering)

Course Structure and Syllabi

Academic Programmes

July, 2015

B.Tech. in Mechanical Engineering**Course Structure (2014-18)****Semester I (Common to all Branches)**

Subject Code	Subject	Contact Hours L-T-P	Credits	
BMC 122A	Economics for Engineers	3-0-0	3	F
BMC 120A	Business Communication & Presentation	2-0-0	2	F
BAS001A	Elementary Mathematics for Engineers	3-0-0	3	F
BAS010A	Applied Physics I	3-0-0	3	F
BAS011A	Chemistry I	3-0-0	3	F
BES001A	Basic Electronics Engineering	3-0-0	3	F
BMC109A	Value Education, Human Right and Legislative Procedures	3-0-0	3	F
BAS012A	Applied Physics Lab	0-0-2	2	F
BMC 121A	Business Communication & Presentation lab	0-0-2	2	F
BES002A	Engineering Graphics	0-0-2	2	F
BES003A	Engineering Workshop	0-0-2	2	F
BES004A	Basic Electronics Engineering Lab	0-0-2	2	F
BHS001A	Professional Skills-I	7	7	F
	TOTAL	27-0-10	37	

Semester II (Common to all Branches)

Subject Code	Subject	Contact Hours L-T-P	Credits	
BMC 123A	Law for Engineers	2-0-0	2	F
BAS002A	Differential Equations	3-0-0	3	F
BAS013A	Applied Physics II	3-0-0	3	F
BAS014A	Chemistry II	3-0-0	3	F
BES005A	Basic Electrical Engineering	3-0-0	3	F
BES006A	Computer Programming	2-0-0	2	F
BES007A	Engineering Mechanics	2-1-0	3	F
BMC051A	Environmental Studies	3-0-0	3	F
BAS015A	Chemistry Lab	0-0-2	2	F
BES008A	Basic Electrical Engineering Lab	0-0-2	2	F
BES009A	Computer Programming Lab	0-0-2	2	F
BES010A	Engineering Mechanics lab	0-0-2	2	F
BHS002A	Professional Skills-II	7	7	F
	TOTAL	28-1-8	37	

Semester III

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS003A	Multivariate Analysis, linear Algebra and special functions	3-0-0	3	F
BES016A	Solid Mechanics	3-1-0	4	F
BES017A	Thermodynamics	3-1-0	4	F
BES018A	Engineering Materials	3-0-0	3	F
BME001A	Mechanisms & Machines I	3-0-0	3	C
BME002A	Primary Manufacturing	3-0-0	3	C
BMC009A	Energy Studies	3-0-0	3	ID
BME003A	Primary Manufacturing lab	0-0-2	2	C
BME004A	Solid Mechanics Lab	0-0-2	2	C
BME005A	Computer Aided Machine Drawing	0-0-2	2	C
BHS003A	Professional Skills-III	7-0-0	7	ID
BME101A	Seminar	0-0-1	1	F
	TOTAL	28-2-7	37	

Semester –IV

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS005A	Complex Analysis	2-0-0	2	F
BAS006A	Probability & Statistics	3-0-0	3	F
BME006A	Mechanisms & Machines II	2-1-0	3	C
BME007A	Machine Tools & Metrology	3-0-0	3	C
BME008A	Production Management	3-0-0	3	C
BME009A	Fluid Mechanics & Machines	3-1-0	4	C
BME010A	Power plant engineering	3-0-0	3	C
BME011A	Mechanisms & Machines Lab	0-0-2	2	C
BME012A	Fluid Mechanics & Machines lab	0-0-2	2	C
BME013A	Machine Tools & Metrology lab	0-0-2	2	C
BME014A	CAD /CAE lab –I	0-0-2	2	C
BHS004A	Professional Skills-IV	6-0-0	6	ID
BME102A	Seminar	0-0-1	1	F
	TOTAL	25-2-9	36	

Semester –V

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS004A	Optimization& calculus of variations	2-0-0	2	F
BAS007A	Discrete Mathematics	2-0-0	2	F
BME015A	Design of Machine Elements	3-1-0	4	C
BME016A	IC Engines & RAC	3-1-0	4	C
	Open Elective –I	3-0-0	3	ID
	Program Elective –I	3-1-0	4	S
	Program Elective –II	3-1-0	4	S
BME017A	IC Engines & RAC lab	0-0-2	2	C
BME018A	CAD /CAE lab –II	0-0-2	2	C
BEE024A	Basic Simulation lab	0-0-2	2	ID
BHS005A	Professional Skills-V	6-0-0	6	ID
BME103A	Seminar	0-0-1	1	C
	TOTAL	25-4-7	36	

Program Elective-I and II (choose from a given group)			
Themal Engg.		Manufacturing	
BME030A	Computational Methods in Thermal and Fluids Engineering	BME033A	Lean manufacturing and Six Sigma
BME031A	Basics of Combustion Modeling	BME090A	Ergonomics
Design		Automation	
BME032A	Non Destructive Evaluation & Testing	BME034A	Pneumatics and Hydraulics systems
BME089A	Product Design and Development	BME035A	Mechatronics System Element
Automotive Engg.			
BME048A	Fuel & Lubricants		
BME053A	Vehicle Maintenance		

Semester –VI

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS008A	Fuzzy Mathematics	2-0-0	2	F
BME019A	Nontraditional & computer aided Manufacturing	3-0-0	3	C
BME020A	Heat and Mass transfer	3-1-0	4	C
BME021A	Mechanical Vibration	3-0-0	3	C
	Open Elective –II	3-0-0	3	ID
	Program Elective –III	3-1-0	4	S
	Program Elective –IV	3-1-0	4	S
BME022A	Computer aided Manufacturing lab	0-0-2	2	C
BME023A	Mechanical Vibration Lab	0-0-2	2	C
BME024A	Heat and Mass transfer lab	0-0-2	2	C
BHS006A	Professional Skills-VI	6-0-0	6	ID
BME104A	Seminar	0-0-1	1	C
	TOTAL	26-3-7	36	

Program Elective-III and IV (choose from a given group)			
Thermal Engg.		Manufacturing	
BME036A	Basic Fuels and combustion	BME039A	Welding Technology
BME042A	Basics of Turbulence and Combustion Modeling	BME041A	Just in Time Manufacturing
Design		Automation	
BME038A	Finite Element Analysis	BME072A	Micro Processor and Micro Controller
BME091A	Design for Manufacturing and Assembly	BME040A	Programmable logic controllers (PLC)
Automotive Engg.			
BME056A	Vehicle Body Engineering		
BME062A	Two and Three Wheeled Vehicles		

Semester –VII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME025A	Control Engineering	3-0-0	3	C
BME026A	Automobile Engineering	3-0-0	3	C
BME027A	Operation research	2-1-0	3	C
BME028A	Quality Assurance & reliability	3-0-0	3	C
	Open Elective –III	3-0-0	3	ID
	Program elective –V	3-1-0	4	S
	Program Elective –VI	3-1-0	4	S
BME029A	Automobile Engineering Lab	0-0-2	2	C
BME095A	Project Work	0-0-4	4	C
BHS007A	Professional Skills-VII	6-0-0	6	ID
BME105A	Seminar	0-0-1	1	C
	TOTAL	26-3-7	36	

Program Elective-V and VI (choose from a given group)			
Thermal Engg.		Manufacturing	
BME043A	Advanced Fuels and combustion	BME045A	Modern Engineering Materials
BME044A	Computational Fluid Dynamics	BME046A	Tribology
Design		Automation	
BME092A	Dynamic Design of Mechanical system	BME047A	Robotics: Mechanics & control
BME094A	Design Of Experiments	BME080A	Mechatronics System design
Automotive Engg.			
BME066A	Off Road Vehicles		
BME064A	Automotive Aerodynamics		

Semester –VIII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME096A	Industrial Project and Dissertation	-----	28	C
	TOTAL		28	

**B.Tech. in Mechanical Engineering with specialization in Automobile
Course Structure (2014-18)**

Semester III

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS003A	Multivariate Analysis, linear Algebra and special functions	3-0-0	3	F
BES016A	Solid Mechanics	3-1-0	4	F
BES017A	Thermodynamics	3-1-0	4	F
BES018A	Engineering Materials	3-0-0	3	F
BME001A	Mechanisms & Machines I	3-0-0	3	C
BME002A	Primary Manufacturing	3-0-0	3	C
BMC009A	Energy Studies	3-0-0	3	ID
BME003A	Primary Manufacturing lab	0-0-2	2	C
BME004A	Solid Mechanics Lab	0-0-2	2	C
BME005A	Computer Aided Machine Drawing	0-0-2	2	C
BHS003A	Professional Skills-III	7-0-0	7	ID
BME101A	Seminar	0-0-1	1	F
	TOTAL	28-2-7	37	

Semester -IV

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS005A	Complex Analysis	2-0-0	2	F
BAS006A	Probability & Statistics	3-0-0	3	F
BME006A	Mechanisms & Machines II	2-1-0	3	C
BME007A	Machine Tools & Metrology	3-0-0	3	C
BME008A	Production Management	3-0-0	3	C
BME009A	Fluid Mechanics & Machines	3-1-0	4	C
BME010A	Power plant engineering	3-0-0	3	C
BME011A	Mechanisms & Machines Lab	0-0-2	2	C
BME012A	Fluid Mechanics & Machines lab	0-0-2	2	C
BME013A	Machine Tools & Metrology lab	0-0-2	2	C
BME014A	CAD /CAE lab -I	0-0-2	2	C
BHS004A	Professional Skills-IV	6-0-0	6	ID
BME102A	Seminar	0-0-1	1	F
	TOTAL	25-2-9	36	

Semester –V

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS004A	Optimization& calculus of variations	2-0-0	2	F
BME048A	Fuel & Lubricants	3-0-0	3	C
BME049A	IC Engines	2-1-0	3	C
BME050A	Automotive Engine Components Design	3-1-0	4	C
	Open Elective –I	3-0-0	3	ID
	Program Elective –I	3-1-0	4	S
	Program Elective –II	3-1-0	4	S
BME051A	Fuel & Lubricants & Engine Testing lab	0-0-2	2	C
BME018A	CAD /CAE lab –II	0-0-2	2	C
BEE024A	Basic Simulation lab	0-0-2	2	ID
BHS005A	Professional Skills-V	6-0-0	6	ID
BME103A	Seminar	0-0-1	1	C
	TOTAL	25-4-7	36	

Program Elective-I and II (choose from a given group)			
Thermal Engg.		Manufacturing	
BME030A	Computational Methods in Thermal and Fluids Engineering	BME033A	Lean manufacturing and Six Sigma
BME031A	Basics of Combustion Modeling	BME090A	Ergonomics
Design		Automation	
BME032A	Non Destructive Evaluation & Testing	BME034A	Pneumatics and Hydraulics systems
BME089A	Product Design and Development	BME035A	Mechatronics System Element
Automotive Engg.			
BME059A	Vibration and Noise Control in Automobiles		
BME061A	Automotive Transmission		

Semester –VI

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS008A	Fuzzy Mathematics	2-0-0	2	F
BME019A	Nontraditional & computer aided Manufacturing	3-0-0	3	C
BME052A	Automotive Chassis Design	3-1-0	4	C
BME053A	Vehicle Maintenance	2-1-0	3	C
	Open Elective –II	3-0-0	3	ID
	Program Elective –III	3-1-0	4	S
	Program Elective –IV	3-1-0	4	S
BME022A	Computer aided Manufacturing lab	0-0-2	2	C
BME054A	Automotive chassis and Automotive Components lab	0-0-2	2	C
BME055A	Vehicle Maintenance Lab	0-0-2	2	C
BHS006A	Professional Skills-VI	6-0-0	6	ID
BME104A	Seminar	0-0-1	1	C
	TOTAL	25-4-7	36	

Program Elective-III and IV (choose from a given group)			
Thermal Engg.		Manufacturing	
BME036A	Basic Fuels and combustion	BME039A	Welding Technology
BME042A	Basics of Turbulence and Combustion Modeling	BME041A	Just in Time Manufacturing
Design		Automation	
BME038A	Finite Element Analysis	BME072A	Micro Processor and Micro Controller
BME091A	Design for Manufacturing and Assembly	BME040A	Programmable logic controllers (PLC)
Automotive Engg.			
BME062A	Two and Three Wheeled Vehicles		
BME064A	Automotive Aerodynamics		

Semester –VII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME025A	Control Engineering	3-0-0	3	C
BME056A	Vehicle body engineering	3-0-0	3	C
BME057A	Heat transfer applied to IC engines	2-1-0	3	C
BME027A	Operation Research	3-0-0	3	C
	Open Elective –III	3-0-0	3	ID
	Program Elective –V	3-1-0	4	S
	Program Elective –VI	3-1-0	4	S
BME058A	Vehicle reconditioning lab	0-0-2	2	C
BME095A	Project Work	0-0-4	4	C
BHS006A	Professional Skills-VII	6-0-0	6	ID
BME105A	Seminar	0-0-1	1	C
	TOTAL	26-3-7	36	

Program Elective-V and VI (choose from a given group)			
Thermal Engg.		Manufacturing	
BME043A	Advanced Fuels and combustion	BME045A	Modern Engineering Materials
BME044A	Computational Fluid Dynamics	BME046A	Tribology
Design		Automation	
BME092A	Dynamic Design of Mechanical system	BME047A	Robotics: Mechanics & control
BME094A	Design Of Experiments	BME080A	Mechatronics System design
Automotive Engg.			
BME060A	Automotive air conditioning		
BME066A	Off Road Vehicles		

Semester –VIII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME096A	Industrial Project and Dissertation	-----	28	C
	TOTAL		28	

B.Tech. in Mechanical Engineering with specialization in Mechatronics
Course Structure (2014-18)

Semester III

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS003A	Multivariate Analysis, linear Algebra and special functions	3-0-0	3	F
BES016A	Solid Mechanics	3-1-0	4	F
BES017A	Thermodynamics	3-1-0	4	F
BES018A	Engineering Materials	3-0-0	3	F
BME001A	Mechanisms & Machines I	3-0-0	3	C
BME002A	Primary Manufacturing	3-0-0	3	C
BMC009A	Energy Studies	3-0-0	3	ID
BME003A	Primary Manufacturing lab	0-0-2	2	C
BME004A	Solid Mechanics Lab	0-0-2	2	C
BME005A	Computer Aided Machine Drawing	0-0-2	2	C
BHS003A	Professional Skills-III	7-0-0	7	ID
BME101A	Seminar	0-0-1	1	F
	TOTAL	28-2-7	37	

Semester -IV

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS005A	Complex Analysis	2-0-0	2	F
BAS006A	Probability & Statistics	3-0-0	3	F
BME006A	Mechanisms & Machines II	2-1-0	3	C
BME007A	Machine Tools & Metrology	3-0-0	3	C
BME008A	Production Management	3-0-0	3	C
BME009A	Fluid Mechanics & Machines	3-1-0	4	C
BME010A	Power plant engineering	3-0-0	3	C
BME011A	Mechanisms & Machines Lab	0-0-2	2	C
BME012A	Fluid Mechanics & Machines lab	0-0-2	2	C
BME013A	Machine Tools & Metrology lab	0-0-2	2	C
BME014A	CAD /CAE lab -I	0-0-2	2	C
BHS004A	Professional Skills-IV	6-0-0	6	ID
BME102A	Seminar	0-0-1	1	F
	TOTAL	25-2-9	36	

Semester –V

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS004A	Optimization& calculus of variations	2-0-0	2	F
BME068A	Analog system design	3-0-0	3	C
BME069A	Digital system design	3-1-0	4	C
BME015A	Design of Machine Elements	2-1-0	3	C
	Open Elective –I	3-0-0	3	ID
	Program Elective –I	3-1-0	4	S
	Program Elective –II	3-1-0	4	S
BME070A	Analog & Digital Electronics lab	0-0-2	2	C
BME018A	CAD /CAE lab –II	0-0-2	2	C
BEE024A	Basic simulation Lab	0-0-2	2	ID
BHS005A	Professional Skills-V	6-0-0	6	ID
BME103A	Seminar	0-0-1	1	C
	TOTAL	25-4-7	36	

Program Elective-I and II (choose from a given group)			
Thermal Engg.		Manufacturing	
BME030A	Computational Methods in Thermal and Fluids Engineering	BME033A	Lean manufacturing and Six Sigma
BME016A	IC engines & RAC	BME090A	Ergonomics
Design		Automation	
BME032A	Non Destructive Evaluation & Testing	BME034A	Pneumatics and Hydraulics systems
BME089A	Product Design and Development	BME035A	Mechatronics System Element
Automotive Engg.			
BME059A	Vibration and Noise Control in Automobiles		
BME061A	Automotive Transmission		

Semester –VI

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME071A	Intelligent Controllers	3-0-0	3	C
BME019A	Nontraditional & computer aided Manufacturing	3-0-0	3	C
BME072A	Microprocessor and Micro Controller	3-0-0	3	C
BME040A	Programmable Logic Controller	2-1-0	3	C
	Open Elective –II	3-0-0	3	ID
	Program Elective –III	3-1-0	4	S
	Program Elective –IV	3-1-0	4	S
BME022A	Computer aided Manufacturing lab	0-0-2	2	C
BME073A	Microprocessor and Micro Controller Lab	0-0-2	2	C
BME074A	Programmable Logic Controller Lab	0-0-2	2	C
BHS006A	Professional Skills-VI	6-0-0	6	ID
BME104A	Seminar	0-0-1	1	C
	TOTAL	25-4-7	36	

Program Elective-III and IV (choose from a given group)			
Thermal Engg.		Manufacturing	
BME036A	Basic Fuels and combustion	BME039A	Welding Technology
BME020A	Heat and Mass transfer	BME041A	Just in Time Manufacturing
Design		Automation	
BME038A	Finite Element Analysis	BME080A	Mechatronics System Design
BME091A	Design for Manufacturing and Assembly	BME081A	Nano Technology
Automotive Engg.			
BME062A	Two and Three Wheeled Vehicles		
BME064A	Automotive Aerodynamics		

Semester –VII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME075A	Control System	2-1-0	3	C
BME076A	Digital Signal Processing	3-0-0	3	C
BME077A	Micro Electro Mechanical Systems	3-0-0	3	C
BME027A	Operation Research	2-1-0	3	C
	Open Elective –III	3-0-0	3	ID
	Program Elective –V	3-1-0	4	S
	Program Elective –VI	3-1-0	4	S
BME079A	Mechatronics Lab	0-0-2	2	C
BME095A	Project Work	0-0-4	4	C
BHS007A	Professional Skills-VII	6-0-0	6	ID
BME105A	Seminar	0-0-1	1	C
	TOTAL	25-4-7	36	

Program Elective-V and VI (choose from a given group)			
Thermal Engg.		Manufacturing	
BME043A	Advanced Fuels and combustion	BME045A	Modern Engineering Materials
BME044A	Computational Fluid Dynamics	BME046A	Tribology
Design		Automation	
BME092A	Dynamic Design of Mechanical system	BME082A	Embedded Systems Design
BME094A	Design Of Experiments	BME078A	Industrial Robotics
Automotive Engg.			
BME060A	Automotive air conditioning		
BME066A	Off Road Vehicles		

Semester –VIII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME096A	Industrial Project and Dissertation	-----	28	C
	TOTAL		28	

OPEN ELECTIVE SUBJECTS OFFERED BY DEPARTMENT OF MECHANICAL ENGINEERING

Subject Code	Subject	Contact Hours L-T-P	Credits	Semester
BME097A	Project Management	3-0-0	3	V
BME098A	Engineering Risk – Benefit and Analysis	3-0-0	3	V
BME099A	Managing Innovation and Entrepreneurship	3-0-0	3	VI
BME100A	Supply Chain Management	3-0-0	3	VII

B. Tech. in Mechanical Engg.

Course Structure (2013-2017)

Semester – I

Code	Subjects	H-1*	H-2**	Credits		
		L-T-P	L-T-P	H-1	H-2	
E1001	Engineering Mathematics – I	3-1-0	3-1-0	4	4	F
E1002	Engineering Physics	4-0-0	-	4	0	F
E1003	Engineering Chemistry	-	4-0-0	-	4	F
E1004	Electrical Engineering	4-0-0	-	4	-	F
E1005	Engineering Mechanics	4-0-0	-	4	-	F
E1006	Electrical Engg. Lab	0-0-2	-	1	-	F
E1007	Engineering Workshop	0-0-2	-	1	-	F
E1008	Engineering Graphics	-	1-1-0	-	2	F
E1009	Engineering Physics Lab	0-0-2	-	1	-	F
E1010	Engineering Chemistry Lab	-	0-0-2	-	1	F
G1010	Programming with C	4-0-0	-	4	-	F
G1201	Programming with C Lab	0-0-2	-	1	-	F
G1004	Communication Skills	-	3-0-0	-	3	F
E1011	Basic Electronics Engineering	-	3-0-0	-	3	F
E1012	Basic Electronics Lab	-	0-0-2	-	1	F
G1005	Communication Skills Lab	-	0-0-2	-	1	F
G1006	Value Studies	-	2-0-0	-	2	F
E1013	Environmental Science	-	3-0-0	-	3	F
Total		19-1-8	19-1-8	24	24	

Semester – II

Code	Subjects	H-1*	H-2**	Credits		
		L-T-P	L-T-P	H-1	H-2	
E2001	Engineering Mathematics – II	3-1-0	3-1-0	4	4	F
E2002	Engineering Physics	-	4-0-0	-	4	F
E2003	Engineering Chemistry	4-0-0	-	4	-	F
E2004	Electrical Engineering	-	4-0-0	-	4	F
E2005	Engineering Mechanics	-	4-0-0	-	4	F
E2006	Electrical Engg. Lab	-	0-0-2	-	1	F
E2007	Engineering Workshop	-	0-0-2	-	1	F
E2008	Engineering Graphics	1-1-0	-	2	-	F
E2009	Engineering Physics Lab	-	0-0-2	-	1	F
E2010	Engineering Chemistry Lab	0-0-2	-	1	-	F
G2010	Programming with C	-	4-0-0	-	4	F
G2201	Programming with C Lab	-	0-0-2	-	1	F
G2004	Communication Skills	3-0-0	-	3	-	F
E2011	Basic Electronics Engineering	3-0-0	-	3	-	F
E2012	Basic Electronics Lab	0-0-2	-	1	-	F
G2005	Communication Skills Lab	0-0-2	-	1	-	F
G2006	Value Studies	2-0-0	-	2	-	F
E2013	Environmental Science	3-0-0	-	3	-	F
Total		19-1-8	19-1-8	24	24	

Semester III

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS003A	Multivariate Analysis, linear Algebra and special functions	3-0-0	3	F
BES016A	Solid Mechanics	3-1-0	4	F
BES017A	Thermodynamics	3-1-0	4	F
BES018A	Engineering Materials	3-0-0	3	F
BME001A	Mechanisms & Machines I	3-0-0	3	C
BME002A	Primary Manufacturing	3-0-0	3	C
BMC009A	Energy Studies	3-0-0	3	ID
BME003A	Primary Manufacturing lab	0-0-2	2	C
BME004A	Solid Mechanics Lab	0-0-2	2	C
BME005A	Computer Aided Machine Drawing	0-0-2	2	C
BHS003A	Professional Skills-III	6-0-0	6	ID
BME101A	Seminar	0-0-1	1	F
	TOTAL	27-2-7	36	

Semester -IV

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS005A	Complex Analysis	2-0-0	2	F
BAS006A	Probability & Statistics	3-0-0	3	F
BME006A	Mechanisms & Machines II	2-1-0	3	C
BME007A	Machine Tools & Metrology	3-0-0	3	C
BME008A	Production Management	3-0-0	3	C
BME009A	Fluid Mechanics & Machines	3-1-0	4	C
BME010A	Power plant engineering	3-0-0	3	C
BME011A	Mechanisms & Machines Lab	0-0-2	2	C
BME012A	Fluid Mechanics & Machines lab	0-0-2	2	C
BME013A	Machine Tools & Metrology lab	0-0-2	2	C
BME014A	CAD /CAE lab -I	0-0-2	2	C
BHS004A	Professional Skills-IV	6-0-0	6	ID
BME102A	Seminar	0-0-1	1	F
	TOTAL	25-2-9	36	

Semester –V

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS004A	Optimization& calculus of variations	2-0-0	2	F
BAS007A	Discrete Mathematics	2-0-0	2	F
BME015A	Design of Machine Elements	3-1-0	4	C
BME016A	IC Engines & RAC	3-1-0	4	C
	Open Elective –I	3-0-0	3	ID
	Program Elective –I	3-1-0	4	S
	Program Elective –II	3-1-0	4	S
BME017A	IC Engines & RAC lab	0-0-2	2	C
BME018A	CAD /CAE lab –II	0-0-2	2	C
BEE024A	Basic Simulation lab	0-0-2	2	ID
BHS005A	Professional Skills-V	6-0-0	6	ID
BME103A	Seminar	0-0-1	1	C
	TOTAL	25-4-7	36	

Program Elective-I and II (choose from a given group)			
Themal Engg.		Manufacturing	
BME030A	Computational Methods in Thermal and Fluids Engineering	BME033A	Lean manufacturing and Six Sigma
BME031A	Basics of Combustion Modeling	BME090A	Ergonomics
Design		Automation	
BME032A	Non Destructive Evaluation & Testing	BME034A	Pneumatics and Hydraulics systems
BME089A	Product Design and Development	BME035A	Mechatronics System Element
Automotive Engg.			
BME048A	Fuel & Lubricants		
BME053A	Vehicle Maintenance		

Semester –VI

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS008A	Fuzzy Mathematics	2-0-0	2	F
BME019A	Nontraditional & computer aided Manufacturing	3-0-0	3	C
BME020A	Heat and Mass transfer	3-1-0	4	C
BME021A	Mechanical Vibration	3-0-0	3	C
	Open Elective –II	3-0-0	3	ID
	Program Elective –III	3-1-0	4	S
	Program Elective –IV	3-1-0	4	S
BME022A	Computer aided Manufacturing lab	0-0-2	2	C
BME023A	Mechanical Vibration Lab	0-0-2	2	C
BME024A	Heat and Mass transfer lab	0-0-2	2	C
BHS006A	Professional Skills-VI	6-0-0	6	ID
BME104A	Seminar	0-0-1	1	C
	TOTAL	26-3-7	36	

Program Elective-III and IV (choose from a given group)			
Thermal Engg.		Manufacturing	
BME036A	Basic Fuels and combustion	BME039A	Welding Technology
BME042A	Basics of Turbulence and Combustion Modeling	BME041A	Just in Time Manufacturing
Design		Automation	
BME038A	Finite Element Analysis	BME072A	Micro Processor and Micro Controller
BME091A	Design for Manufacturing and Assembly	BME040A	Programmable logic controllers (PLC)
Automotive Engg.			
BME056A	Vehicle Body Engineering		
BME062A	Two and Three Wheeled Vehicles		

Semester –VII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME025A	Control Engineering	3-0-0	3	C
BME026A	Automobile Engineering	3-0-0	3	C
BME027A	Operation research	2-1-0	3	C
BME028A	Quality Assurance & reliability	3-0-0	3	C
	Open Elective –III	3-0-0	3	ID
	Program elective –V	3-1-0	4	S
	Program Elective –VI	3-1-0	4	S
BME029A	Automobile Engineering Lab	0-0-2	2	C
BME095A	Project Work	0-0-4	4	C
BHS007A	Professional Skills-VII	6-0-0	6	ID
BME105A	Seminar	0-0-1	1	C
	TOTAL	26-3-7	36	

Program Elective-V and VI (choose from a given group)			
Thermal Engg.		Manufacturing	
BME043A	Advanced Fuels and combustion	BME045A	Modern Engineering Materials
BME044A	Computational Fluid Dynamics	BME046A	Tribology
Design		Automation	
BME092A	Dynamic Design of Mechanical system	BME047A	Robotics: Mechanics & control
BME094A	Design Of Experiments	BME080A	Mechatronics System design
Automotive Engg.			
BME066A	Off Road Vehicles		
BME064A	Automotive Aerodynamics		

Semester –VIII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME096A	Industrial Project and Dissertation	-----	28	C
	TOTAL		28	

**B.Tech. in Mechanical Engineering with specialization in Automobile
Course Structure (2013-17)**

Semester – I

Code	Subjects	H-1*	H-2**	Credits		
		L-T-P	L-T-P	H-1	H-2	
E1001	Engineering Mathematics – I	3-1-0	3-1-0	4	4	F
E1002	Engineering Physics	4-0-0	-	4	0	F
E1003	Engineering Chemistry	-	4-0-0	-	4	F
E1004	Electrical Engineering	4-0-0	-	4	-	F
E1005	Engineering Mechanics	4-0-0	-	4	-	F
E1006	Electrical Engg. Lab	0-0-2	-	1	-	F
E1007	Engineering Workshop	0-0-2	-	1	-	F
E1008	Engineering Graphics	-	1-1-0	-	2	F
E1009	Engineering Physics Lab	0-0-2	-	1	-	F
E1010	Engineering Chemistry Lab	-	0-0-2	-	1	F
G1010	Programming with C	4-0-0	-	4	-	F
G1201	Programming with C Lab	0-0-2	-	1	-	F
G1004	Communication Skills	-	3-0-0	-	3	F
E1011	Basic Electronics Engineering	-	3-0-0	-	3	F
E1012	Basic Electronics Lab	-	0-0-2	-	1	F
G1005	Communication Skills Lab	-	0-0-2	-	1	F
G1006	Value Studies	-	2-0-0	-	2	F
E1013	Environmental Science	-	3-0-0	-	3	F
	Total	19-1-8	19-1-8	24	24	

Semester – II

Code	Subjects	H-1*	H-2**	Credits		
		L-T-P	L-T-P	H-1	H-2	
E2001	Engineering Mathematics – II	3-1-0	3-1-0	4	4	F
E2002	Engineering Physics	-	4-0-0	-	4	F
E2003	Engineering Chemistry	4-0-0	-	4	-	F
E2004	Electrical Engineering	-	4-0-0	-	4	F
E2005	Engineering Mechanics	-	4-0-0	-	4	F
E2006	Electrical Engg. Lab	-	0-0-2	-	1	F
E2007	Engineering Workshop	-	0-0-2	-	1	F
E2008	Engineering Graphics	1-1-0	-	2	-	F
E2009	Engineering Physics Lab	-	0-0-2	-	1	F
E2010	Engineering Chemistry Lab	0-0-2	-	1		F
G2010	Programming with C	-	4-0-0	-	4	F
G2201	Programming with C Lab	-	0-0-2	-	1	F
G2004	Communication Skills	3-0-0	-	3	-	F
E2011	Basic Electronics Engineering	3-0-0	-	3	-	F
E2012	Basic Electronics Lab	0-0-2	-	1	-	F
G2005	Communication Skills Lab	0-0-2	-	1	-	F
G2006	Value Studies	2-0-0	-	2	-	F
E2013	Environmental Science	3-0-0	-	3	-	F
	Total	19-1-8	19-1-8	24	24	

Semester III

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS003A	Multivariate Analysis, linear Algebra and special functions	3-0-0	3	F
BES016A	Solid Mechanics	3-1-0	4	F
BES017A	Thermodynamics	3-1-0	4	F
BES018A	Engineering Materials	3-0-0	3	F
BME001A	Mechanisms & Machines I	3-0-0	3	C
BME002A	Primary Manufacturing	3-0-0	3	C
BMC009A	Energy Studies	3-0-0	3	ID
BME003A	Primary Manufacturing lab	0-0-2	2	C
BME004A	Solid Mechanics Lab	0-0-2	2	C
BME005A	Computer Aided Machine Drawing	0-0-2	2	C
BHS003A	Professional Skills-III	6-0-0	6	ID
BME101A	Seminar	0-0-1	1	F
	TOTAL	27-2-7	36	

Semester -IV

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS005A	Complex Analysis	2-0-0	2	F
BAS006A	Probability & Statistics	3-0-0	3	F
BME006A	Mechanisms & Machines II	2-1-0	3	C
BME007A	Machine Tools & Metrology	3-0-0	3	C
BME008A	Production Management	3-0-0	3	C
BME009A	Fluid Mechanics & Machines	3-1-0	4	C
BME010A	Power plant engineering	3-0-0	3	C
BME011A	Mechanisms & Machines Lab	0-0-2	2	C
BME012A	Fluid Mechanics & Machines lab	0-0-2	2	C
BME013A	Machine Tools & Metrology lab	0-0-2	2	C
BME014A	CAD /CAE lab -I	0-0-2	2	C
BHS004A	Professional Skills-IV	6-0-0	6	ID
BME102A	Seminar	0-0-1	1	F
	TOTAL	25-2-9	36	

Semester –V

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS004A	Optimization& calculus of variations	2-0-0	2	F
BME048A	Fuel & Lubricants	3-0-0	3	C
BME049A	IC Engines	2-1-0	3	C
BME050A	Automotive Engine Components Design	3-1-0	4	C
	Open Elective –I	3-0-0	3	ID
	Program Elective –I	3-1-0	4	S
	Program Elective –II	3-1-0	4	S
BME051A	Fuel & Lubricants & Engine Testing lab	0-0-2	2	C
BME018A	CAD /CAE lab –II	0-0-2	2	C
BEE024A	Basic Simulation lab	0-0-2	2	ID
BHS005A	Professional Skills-V	6-0-0	6	ID
BME103A	Seminar	0-0-1	1	C
	TOTAL	25-4-7	36	

Program Elective-I and II (choose from a given group)			
Thermal Engg.		Manufacturing	
BME030A	Computational Methods in Thermal and Fluids Engineering	BME033A	Lean manufacturing and Six Sigma
BME031A	Basics of Combustion Modeling	BME090A	Ergonomics
Design		Automation	
BME032A	Non Destructive Evaluation & Testing	BME034A	Pneumatics and Hydraulics systems
BME089A	Product Design and Development	BME035A	Mechatronics System Element
Automotive Engg.			
BME059A	Vibration and Noise Control in Automobiles		
BME061A	Automotive Transmission		

Semester –VI

Subject Code	Subject	Contact Hours L-T-P	Credits	
BAS008A	Fuzzy Mathematics	2-0-0	2	F
BME019A	Nontraditional & computer aided Manufacturing	3-0-0	3	C
BME032A	Automotive Chassis Design	3-1-0	4	C
BME053A	Vehicle Maintenance	2-1-0	3	C
	Open Elective –II	3-0-0	3	ID
	Program Elective –III	3-1-0	4	S
	Program Elective –IV	3-1-0	4	S
BME022A	Computer aided Manufacturing lab	0-0-2	2	C
BME054A	Automotive chassis and Automotive Components lab	0-0-2	2	C
BME055A	Vehicle Maintenance Lab	0-0-2	2	C
BHS006A	Professional Skills-VI	6-0-0	6	ID
BME104A	Seminar	0-0-1	1	C
	TOTAL	25-4-7	36	

Program Elective-III and IV (choose from a given group)			
Thermal Engg.		Manufacturing	
BME036A	Basic Fuels and combustion	BME039A	Welding Technology
BME042A	Basics of Turbulence and Combustion Modeling	BME041A	Just in Time Manufacturing
Design		Automation	
BME038A	Finite Element Analysis	BME072A	Micro Processor and Micro Controller
BME091A	Design for Manufacturing and Assembly	BME040A	Programmable logic controllers (PLC)
Automotive Engg.			
BME062A	Two and Three Wheeled Vehicles		
BME064A	Automotive Aerodynamics		

Semester –VII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME025A	Control Engineering	3-0-0	3	C
BME056A	Vehicle body engineering	3-0-0	3	C
BME057A	Heat transfer applied to IC engines	2-1-0	3	C
BME027A	Operation Research	3-0-0	3	C
	Open Elective –III	3-0-0	3	ID
	Program Elective –V	3-1-0	4	S
	Program Elective –VI	3-1-0	4	S
BME058A	Vehicle reconditioning lab	0-0-2	2	C
BME095A	Project Work	0-0-4	4	C
BHS006A	Professional Skills-VII	6-0-0	6	ID
BME105A	Seminar	0-0-1	1	C
	TOTAL	26-3-7	36	

Program Elective-V and VI (choose from a given group)			
Thermal Engg.		Manufacturing	
BME043A	Advanced Fuels and combustion	BME045A	Modern Engineering Materials
BME044A	Computational Fluid Dynamics	BME046A	Tribology
Design		Automation	
BME092A	Dynamic Design of Mechanical system	BME047A	Robotics: Mechanics & control
BME094A	Design Of Experiments	BME080A	Mechatronics System design
Automotive Engg.			
BME060A	Automotive air conditioning		
BME066A	Off Road Vehicles		

Semester –VIII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME096A	Industrial Project and Dissertation	-----	28	C
	TOTAL		28	

B. Tech. in Mechanical Engg.

Course Structure (2012-2016)

Semester – I

Code	Subjects	H-1*	H-2**	Credits		
		L-T-P	L-T-P	H-1	H-2	
E1001	Engineering Mathematics – I	3-1-0	3-1-0	4	4	F
E1002	Engineering Physics– I	3-1-0	3-1-0	4	4	F
E1003	Engineering Chemistry	3-0-0	3-0-0	3	3	F
E1004	Electrical & Electronics Engineering	4-0-0	---	4	-	F
E1005	Engineering Mechanics	-	4-0-0	-	4	F
E1006	Electrical & Electronics Engg. Lab	0-0-2	-	1	-	F
E1007	Mechanical Workshop	-	0-0-2	-	1	F
E1008	Practical Geometry	0-0-2	0-0-2	1	1	F
E1009	Engineering Physics Lab – I	0-0-2	0-0-2	1	1	F
E1010	Engineering Chemistry Lab	0-0-2	0-0-2	1	1	F
G1002	Computer Applications– I	2-0-0	2-0-0	2	2	F
G1003	Computer Applications Lab – I	0-0-2	0-0-2	1	1	F
G1004	Communication Skills-I	3-0-0	3-0-0	3	3	F
Total		18-2-10	18-2-10	25	25	

Semester – II

Code	Subjects	H-1*	H-2**	Credits		
		L-T-P	L-T-P	H-1	H-2	
E2001	Engineering Mathematics– II	3-1-0	3-1-0	4	4	F
E2002	Engineering Physics– II	3-0-0	3-0-0	3	3	F
E2003	Environmental Chemistry	3-0-0	3-0-0	3	3	F
E2004	Electrical & Electronics Engineering	---	3-0-0	-	3	F
E2005	Engineering Mechanics	3-0-0	-	3	-	F
E2006	Electrical & Electronics Engg. Lab	-	0-0-2	-	1	F
E2007	Mechanical Workshop	0-0-2	-	1	-	F
E2008	Machine Drawing	0-0-2	0-0-2	1	1	F
E2009	Engineering Physics Lab – II	0-0-2	0-0-2	1	1	F
E2010	Environmental Chemistry Lab	0-0-2	0-0-2	1	1	F
G2002	Computer Applications– II	3-0-0	3-0-0	3	3	F
G2003	Computer Applications Lab – II	0-0-2	0-0-2	1	1	F
G2004	Communication Skills-II	3-0-0	3-0-0	3	3	F
Total		18-1-10	18-1-10	24	24	

H₁* and H₂** are Various Combinations of 1st and 2nd Semester branches.

Semester III

Code	Subject	Contact Hours L-T-P	Credits	
ME3001	Engineering Mathematics III	3-1-0	4	F
ME3002	Material Science in Engineering	3-0-0	3	C
ME3003	Kinematics of Machine	3-1-0	4	C
G3005	Object Oriented Programming	3-0-0	3	ID
ME3004	Thermodynamics – I	3-1-0	4	C
ME3005	Fluid Mechanics	3-1-0	4	C
ME3201	Thermodynamics Lab	0-0-2	1	C
ME3202	Fluid Mechanics Lab	0-0-2	1	C
G3201	Object Oriented Programming Lab	0-0-2	1	ID
ME3203	Auto-CAD lab	0-0-2	1	C
	TOTAL	18-4-8	26	

Semester IV

Code	Subject	Contact Hours L-T-P	Credits	
G4005	Web Designing Techniques	3-0-0	3	ID
ME4001	Thermodynamics – II	3-1-0	4	C
ME4002	Strength of Material	3-1-0	4	C
ME4003	Dynamics of Machine	3-1-0	4	C
ME 4004	Industrial Engineering	3-0-0	3	C
ME 4005	Electrical Machines	3-0-0	3	ID
ME 4201	Electrical Machines Lab	0-0-2	1	ID
ME4202	Strength of material Lab	0-0-2	1	C
ME4203	Dynamics of Machine Lab	0-0-2	1	C
ME 4204	Machine Drawing lab	0-0-2	1	C
G4201	Web Designing Lab	0-0-2	1	ID
	TOTAL	18-3-10	26	

Semester V

Code	Subject	Contact Hours L-T-P	Credits	
BME 016A	IC Engine & RAC	3-1-0	4	C
BME 015A	Design of Machine Elements	3-1-0	4	C
BME 083A	Fluid Machines	3-0-0	3	C
BME 002A	Primary Manufacturing	3-0-0	3	C
	Program Elective –I	3-0-0	3	S
	Program Elective –II	3-0-0	3	S
BME 017A	IC engines & RAC lab	0-0-2	2	C
BME 003A	Primary Manufacturing Lab	0-0-2	2	C
BME 084A	Fluid Machinery Lab	0-0-2	2	C
BME 004A	Solid Mechanics Lab	0-0-2	2	C
BEE024A	Basic Simulation Lab	0-0-2	2	ID
BHS008A	Professional Skills	6-0-0	6	ID
	TOTAL	24-2-10	36	

Program Elective-I and II (choose from a given group)			
Thermal Engg.		Manufacturing	
BME030A	Computational Methods in Thermal and Fluids Engineering	BME033A	Lean manufacturing and Six Sigma
BME031A	Basics of Combustion Modeling	BME090A	Ergonomics
Design		Automation	
BME032A	Non Destructive Evaluation & Testing	BME034A	Pneumatics and Hydraulics systems
BME089A	Product Design and Development	BME035A	Mechatronics System Element
Automotive Engg.			
BME048A	Fuel & Lubricants		
BME053A	Vehicle Maintenance		

Semester –VI

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME 007A	Machine Tools & Metrology	3-0-0	3	C
BME 019A	Nontraditional & computer aided Manufacturing	3-1-0	4	C
BME 020A	Heat and Mass transfer	3-1-0	4	C
BME 021A	Mechanical Vibration	3-1-0	4	C
	Program Elective –III	3-0-0	3	S
	Program Elective –IV	3-0-0	3	S
BME 022A	Computer aided Manufacturing lab	0-0-2	2	C
BME 013A	Machine Tools & Metrology lab	0-0-2	2	C
BME 023A	Mechanical Vibration Lab	0-0-2	2	C
BME 024A	Heat and Mass transfer lab	0-0-2	2	C
BHS 009A	Professional Skills	6-0-0	6	ID
BME106A	Seminar	0-0-1	1	C
	TOTAL	24-3-9	36	

Program Elective-III and IV (choose from a given group)			
Thermal Engg.		Manufacturing	
BME036A	Basic Fuels and combustion	BME039A	Welding Technology
BME042A	Basics of Turbulence and Combustion Modeling	BME041A	Just in Time Manufacturing
Design		Automation	
BME038A	Finite Element Analysis	BME072A	Micro Processor and Micro Controller
BME091A	Design for Manufacturing and Assembly	BME040A	Programmable logic controllers (PLC)
Automotive Engg.			
BME056A	Vehicle Body Engineering		
BME062A	Two and Three Wheeled Vehicles		

Semester –VII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME025A	Control Engineering	3-0-0	3	C
BME026A	Automobile Engineering	3-0-0	3	C
BME027A	Operation research	2-1-0	3	C
BME028A	Quality Assurance & reliability	3-0-0	3	C
	Open Elective –III	3-0-0	3	ID
	Program elective –V	3-1-0	4	S
	Program Elective –VI	3-1-0	4	S
BME029A	Automobile Engineering Lab	0-0-2	2	C
BME095A	Project Work	0-0-4	4	C
BHS007A	Professional Skills-VII	6-0-0	6	ID
BME105A	Seminar	0-0-1	1	C
	TOTAL	26-3-7	36	

Program Elective-V and VI (choose from a given group)			
Thermal Engg.		Manufacturing	
BME043A	Advanced Fuels and combustion	BME045A	Modern Engineering Materials
BME044A	Computational Fluid Dynamics	BME046A	Tribology
Design		Automation	
BME092A	Dynamic Design of Mechanical system	BME047A	Robotics: Mechanics & control
BME094A	Design Of Experiments	BME080A	Mechatronics System design
Automotive Engg.			
BME066A	Off Road Vehicles		
BME064A	Automotive Aerodynamics		

Semester –VIII

Subject Code	Subject	Contact Hours L-T-P	Credits	
BME096A	Industrial Project and Dissertation	-----	28	C
	TOTAL		28	

M.Tech. in CAD/CAM (Total Credits: 100)**Teaching Scheme****Semester I**

Code	Subject	Contact Hours L-T-P	Credits	
MME 003A	Advanced Heat and Mass Transfer	3-1-0	4	C
MME 012A	Finite Element Method	3-1-0	4	C
MME 030A	Advanced Engineering Materials	3-1-0	4	C
MME 031A	Advance Computer Integrated Manufacturing	3-1-0	4	C
MME 005A	Thermal Engineering Laboratory	0-0-2	2	C
MME 010A	Advance CAD Lab	0-0-2	2	C
MME 038A	Seminar	0-0-2	2	F
	TOTAL	12-4-6	22	

Semester II

Code	Subject	Contact Hours L-T-P	Credits	
MME 020A	Experimental Stress Analysis	3-1-0	4	C
MME 032A	Advanced Mechanics of Solids	3-1-0	4	C
MES001A	Research Methodology	3-0-0	3	ID
MME 033A	MEMS & NEMS	3-1-0	4	C
MME 006A	Computational Fluid Dynamics Laboratory	0-0-2	2	C
MME 025A	Mechatronics and Automation Lab	0-0-2	2	C
MME 039A	Seminar	0-0-2	2	C
	Quantitative Techniques & Computer Applications Lab	0-0-1	1	ID
	TOTAL	12-3-7	22	

Semester III

Code	Subject	Contact Hours L-T-P	Credits	
MME 026A	Composite Materials & Processing	3-1-0	4	C
MME 034A	Advance Metal Forming	3-1-0	4	C
MME 004A	Design of Thermal System	3-1-0	4	C
MME 035A	Precision & Micro-machining	3-1-0	4	C
MME 016A	Dissertation I	0-0-12	12	C
	TOTAL	12-4-12	28	

Semester IV

Code	Subject	Contact Hours L-T-P	Credits	
MME 017A	Dissertation II	0-0-28	28	C
	TOTAL	0-0-28	28	