

BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI
NEWCOURSE STRUCTURE - To be effective from academic session 2018- 19
Based on CBCS & OBE model
Recommended scheme of study
(For Mechanical Engineering)

Semester/ Session of Study (Recommended)	Course Level	Category of course	Course Code	Courses	Mode of delivery & credits <i>L-Lecture; T-Tutorial;P- Practicals</i>			Total Credits <i>C- Credits</i>
					L <i>(Periods/ week)</i>	T <i>(Periods/ week)</i>	P <i>(Periods/ week)</i>	C
					THEORY			
THIRD Monsoon	SECOND	FS	MA203	Numerical Methods	2	0	0	2
	FIRST		CE101	Environmental Sciences	2	0	0	2
	SECOND	PC	ME201	Thermodynamics	3	0	0	3
			ME203	Fluid Mechanics & Hydraulic Machines	3	0	0	3
			PE213	Manufacturing Processes	3	0	0	3
			ME205	Strength of Materials	3	1	0	4
LABORATORIES								
	SECOND	GE	IT202	Basic IT Workshop	0	0	2	1
		FS	MA204	Numerical Methods Lab	0	0	2	1
		MC	MC201/2 02/203/2 04	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1
		PC	ME202	Fluid Mechanics & Hydraulic Machines Lab	0	0	3	1.5
			ME204	Mechanical Engineering Lab I	0	0	3	1.5
TOTAL								23
THEORY								
	SECOND	GE	IT201	Basics of Intelligent Computing	3	0	0	3
	FIRST	FS	BE101	Biological Science for Engineers	2	0	0	2

FOURTH Spring	SECOND	PC	ME207	Kinematics & Dynamics of Machines	3	0	0	3
			ME209	Energy Conversion Systems (Pre-req. ME201)	3	0	0	3
			ME211	Machine Design (Pre-req. ME205)	3	0	0	3
	SECOND	PE		Program Elective I	3	0	0	3
	LABORATORIES							
	FIRST	GE	EE102	Electrical Engineering Lab	0	0	3	1.5
	SECOND	MC	MC205/206/207/208	Choice of : NCC/NSS/PT & Games/ Creative Arts (CA)	0	0	2	1
		PC	ME208	Dynamics of Machine Lab	0	0	3	1.5
			PE205	Manufacturing Processes Lab	0	0	3	1.5
	TOTAL							
FIFTH Monsoon	THEORY							
	FIRST	HSS	MT123	Business Communications	2	0	2	3
	THIRD	PC	ME301	I C Engines & Gas Turbines	3	0	0	3
			ME303	Mechanical Vibration	3	0	0	3
			ME315	Heat & Mass Transfer	3	0	0	3
		PE		Program Elective 2	3	0	0	3
		OE		Open Elective 1	3	0	0	3
	LABORATORIES							
	THIRD	PC	ME302	Heat Transfer Lab	0	0	3	1.5
			ME304	Internal Combustion Engine Lab	0	0	3	1.5
			ME 306	Mechanical Engineering Lab II	0	0	2	1
TOTAL								22

SIXTH Spring	THEORY							
	THIRD	PC	ME305	Automobile Engineering	3	0	0	3
			ME307	Robotics Engineering	3	0	0	3
		PE		Program Elective 3	3	0	0	3
				Program Elective 4	3	0	0	3
		OE		Open Elective 2	3	0	0	3
				Open Elective 3/MOOC I	3	0	0	3
		MC	MC300	Summer Training- Mandatory	N/A			3
LABORATORIES								
	THIRD	PC	ME306	Robotics & Automation Lab	0	0	3	1.5
			ME310	Automobile Engineering Lab	0	0	3	1.5
TOTAL							24	
THEORY								
SEVENTH Monsoon	FOURTH	HSS	ME413	Professional Practice, Law and Ethics	2	0	0	2
		PC	ME401	Refrigeration & Air Conditioning	3	0	0	3
			ME403	Hydraulic & Pneumatic Control	3	0	0	3
			ME409	Industrial Management	3	0	0	3
			ME411	Computer Aided Design	3	0	0	3
		OE		Open Elective 4/MOOC II	3	0	0	3
	SECOND	MC	MT204	Constitution of India	2	0	0	NC
LABORATORIES								

	FOURTH	PC	ME404	Refrigeration & Air Conditioning Lab	0	0	3	1.5
			ME406	Computer Aided Design & Drafting Lab	0	0	3	1.5
TOTAL								20
EIGHT Spring	FOURTH	PC	ME400	Research Project / Industry Internship	Total			12
GRAND TOTAL <i>Minimum requirement for Degree award</i>								167

**DEPARTMENT OF MECHANICAL ENGINEERING
PROGRAMME ELECTIVES (PE)*
OFFERED FOR LEVEL 1-4**

PE / LEVEL		Code no.	Name of the PE courses	Prerequisites courses with code	L	T	P	C
2	PE 1	ME 251	Thermo Fluid Engineering	NIL	3	0	0	3
2		ME 253	Composite Materials	NIL	3	0	0	3
2		ME 255	Renewable Energy Resources	NIL	3	0	0	3
2		ME 257	Non Destructive Testing	NIL	3	0	0	3
3	PE 2	ME 347	Advanced Thermodynamics	ME 201	3	0	0	3
3		ME 349	Turbo Machinery	ME 203	3	0	0	3
3		ME 351	Finite Element Methods	NIL	3	0	0	3
3		ME 353	Computational Fluid Dynamics	ME 203	3	0	0	3
3		ME 355	Advanced Solid Mechanics	ME 205	3	0	0	3
3		ME 357	Measurement & Instruments	NIL	3	0	0	3
	PE 3	ME 359	Power Plant Engineering	NIL	3	0	0	3
3		ME 361	Combustion	ME 301	3	0	0	3
3		ME 363	Vehicle Dynamics	ME 305	3	0	0	3
3		ME 365	Design of Mechanisms	ME 207	3	0	0	3
3		ME 367	Industrial Tribology	NIL	3	0	0	3
3		ME 369	Gas Dynamics	ME 203	3	0	0	3
3	PE 4	ME 373	Design, Modeling and Application of Solar Energy	NIL	3	0	0	3
3		ME 375	Power Gear Train	ME 211	3	0	0	3
3		ME 377	Mechatronics	NIL	3	0	0	3
3		ME 379	Reliability in Mechanical Design	NIL	3	0	0	3
3		ME 381	Design of Brake System	ME 211	3	0	0	3
3		ME 383	Automation in Manufacturing	PE 213	3	0	0	3
3		ME 385	Theory of Elasticity	ME 205	3	0	0	3
3		ME 387	Advanced Heat Transfer	ME 315	3	0	0	3

**DEPARTMENT OF MECHANICAL ENGINEERING
OPEN ELECTIVES (OE)*
OFFERED FOR LEVEL 1-4**

OE / LEVEL	Code no.	Name of the OE courses	Prerequisites courses with code	L	T	P	C
2	ME 291	Renewable Energy Sources	NIL	3	0	0	3
2	ME 292	Smart & New Materials	NIL	3	0	0	3
3	ME 387	Motor Vehicle Acts	NIL	3	0	0	3
3	ME 391	Elements of Nuclear & Diesel Power Plant	NIL	3	0	0	3
3	ME 393	Elements of Hydel & Thermal Power Plant	NIL	3	0	0	3
3	ME 397	Industrial Robotics & Automation	NIL	3	0	0	3
3	ME 389	Mechatronics & its Applications	NIL	3	0	0	3

*** OPEN ELECTIVES TO BE OPTED ONLY BY OTHER DEPARTMENT STUDENTS**

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THEORY								
FIFTH Monsoon	SECOND	PC	ME201	Thermodynamics	3	0	0	3
			ME203	Fluid Mechanics & Hydraulic Machines	3	0	0	3
	LABORATORIES							
	SECOND	PC	ME202	Fluid Mechanics & Hydraulic Machines Lab	0	0	3	1.5
TOTAL								7.5
SIXTH Spring	SECOND	PC	ME205	Strength of Materials	3	1	0	4
	THIRD		ME301	IC Engines & Gas Turbines	3	0	0	3
	LABORATORIES							
	THIRD	PC	ME304	IC Engines Lab	0	0	3	1.5
TOTAL								8.5
SEVENTH Monsoon	SECOND	PC	ME211	Machine Design	3	0	0	3
	LABORATORIES							
	FOURTH	PC	ME406	Computer Aided Design and Drafting Lab	0	0	3	1.5
TOTAL								4.5
GRAND TOTAL <i>Minimum requirement for Minor degree award</i>								20.5