BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI
NEW COURSE STRUCTURE - To be effective from academic session 2021- 22
Based on CBCS system & OBE model
Recommended scheme of study
(For Mechanical Engineering)

Semester of Study	Course Level	Course Code	Course Name	Mode of delivery & credits *L-Lecture; T-Tutorial; P-Practical*			Total Credit *C-Credit*
THEORY				**L (*Periods/ week*)**	**T *(Periods/ week)***	**P *(Periods/ week)***	**C**
FIRST	**FS**	MA103	Mathematics - I	3	1	0	4
		PH113	Physics	3	1	0	4
		BE101	Biological Science for Engineers	2	0	0	2
	GE	EE101	Basic Electrical Engineering	3	1	0	4
		CS101	Programming for Problem Solving	3	1	0	4
	LABORATORIES						
	HSS	MT132	Communication Skills - I	0	0	3	1.5
	FS	PH114	Physics Lab	0	0	3	1.5
	GE	CS102	Programming for Problem Solving Lab	0	0	3	1.5
		PE101	Workshop Practice	0	0	3	1.5
	MC	MC101/102/ 103/104	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1
							25
SECOND	**THEORY**						
	FS	MA107	Mathematics - II	3	1	0	4
		CH101	Chemistry	3	1	0	4
		CE101	Environmental Science	2	0	0	2
	GE	ME101	Basics of Mechanical Engineering	3	1	0	4
		EC101	Basics of Electronics and Communication Engineering	3	1	0	4
	LABORATORIES						
	FS	CH102	Chemistry Lab	0	0	3	1.5
	GE	EC102	Electronics and Communication Lab	0	0	3	1.5
		ME102	Engineering Graphics	0	0	4	2

	MC	MC105/106/ 107/108	Choice of: NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1
							24
THIRD	**THEORY**						
	FS	MA203	Numerical Methods	2	0	0	2
	PC	ME201	Thermodynamics	3	0	0	3
		ME203	Fluid Mechanics & Hyraulic Machines	3	1	0	4
		ME205	Strength of Materials	3	1	0	4
		PE213	Manufacturing Processes	3	0	0	3
		PE214	Metallurgical and Materials Engineering	3	0	0	3
	LABORATORIES						
	FS	MA204	Numerical Methods Lab.	0	0	2	1
	MC	MC201/202/ 203/204	Choice of: NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1
	PC	ME202	Fluid Mechanics & Hyraulic Machines Lab	0	0	3	1.5
		ME204	Mechanical Engineering Lab I	0	0	3	1.5
			TOTAL				**24**
FOURTH	**THEORY**						
	HSS	MT131	Universal Human Values 2(UHV2) : Understanding Harmony	3	0	0	3
	PC	ME207	Kinematics & Dynamics of Machines	3	0	0	3
		ME209	Energy Conversion Systems	3	0	0	3
		ME211	Machine Design	3	0	0	3
	PE		Program Elective -I	3	0	0	3
	OE		Open Elective-I/MOOC	3	0	0	3
	LABORATORIES						
	GE	EE102	Electrical Engineering. Lab	0	0	3	1.5
	MC	MC205/206 / 207/208	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1
	PC	ME208	Dynamics of Machines Lab	0	0	4	2
		PE226	Manufacturing Processes Lab	0	0	3	1.5
			TOTAL				**24**
FIFTH	**THEORY**						
	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 -II	3	0	0	3

	PE		Program Elective -III	3	0	0	3
	OE		Open Elective-II/MOOC	3	0	0	3
	LABORATORIES						
	HSS	MT133	Communication Skills - II	0	0	3	1.5
	PC	ME302	Heat Transfer Lab	0	0	3	1.5
		ME304	Internal Combustion Engines Lab	0	0	3	1.5
		ME306	Mechanical Engineering Lab II	0	0	3	1.5
TOTAL							**24**
SIXTH	**THEORY**						
	PC	ME311	Computer Aided Design	2	0	0	2
		ME305	Automobile Engineering	3	0	0	3
		ME307	Robotics Engineering	3	0	0	3
	PE		Program Elective -IV	3	0	0	3
			Program Elective -V	3	0	0	3
	OE		Open Elective-III/MOOC	3	0	0	3
	PROJ	MC300	Summer Training				2
	LABORATORIES						
	PC	ME308	Robotics &Automation Lab	0	0	3	1.5
		ME310	Automobile Engineering Lab	0	0	3	1.5
TOTAL							**22**
SEVENTH	**THEORY**						
	PC	ME401	Refrigeration & Air Conditioning	3	0	0	3
	HSS	MT204	Constitution of India	2	0	0	NC
	PROJ	ME400M	Minor Project				3
	PE		Program Elective -VI	3	0	0	3
	OE		Open Elective-IV/MOOC	3	0	0	3
	LABORATORIES						
	PC	ME404	Refrigeration & Air Conditioning Lab	0	0	3	1.5
		ME406	Computer Aided Design & Drafting Lab	0	0	3	1.5
TOTAL							**15**
EIGTH	**PROJ**	ME400	Research Project / Industry Internship				**10**
							168

BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI
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PROGRAMME ELECTIVES
(For Mechanical Engineering)

Level	Course Code	Course Name	Mode of delivery & credits *L-Lecture; T-Tutorial; P-Practical*			Total Credit *C- Credit*
			L (*Periods/ week*)	**T *(Periods/ week)***	**P *(Periods/ week)***	**C**
2(PE-I) 4th SEM	ME 213	Thermo Fluid Engineering	3	0	0	3
	ME 215	Composite Materials	3	0	0	3
	ME 217	Renewable Energy Resources	3	0	0	3
	PE 220	Industrial Statistics	3	0	0	3
	ME 219	Non-Destructive Testing	3	0	0	3
3(PE-II) 5th SEM	ME 357	Measurement & Instrumentation	3	0	0	3
	ME 349	Turbomachinery	3	0	0	3
	PE 317	Advanced Welding Technology	3	0	0	3
	ME 351	Finite Element Methods	3	0	0	3
	ME 353	Computational Fluid Dynamics	3	0	0	3
3(PE-III) 5th SEM	ME 355	Advanced Solid Mechanics	3	0	0	3
	ME 377	Mechatronics	3	0	0	3
	PE 318	Rapid Prototyping and Tooling	3	0	0	3
	ME 367	Industrial Tribology	3	0	0	3
3(PE -IV) 6th SEM	ME 363	Vehicle Dynamics	3	0	0	3
	ME 365	Design of Mechanisms	3	0	0	3
	PE 324	Surface Engineering & Laser Additive Manufacturing	3	0	0	3
	ME 359	Power Plant Engineering	3	0	0	3
	ME 369	Gas Dynamics	3	0	0	3
3(PE -V) 6th SEM	ME 373	Hydraulic & Pneumatic Control	3	0	0	3
	ME 375	Power Gear Train	3	0	0	3
	PE 348	Engineering Optimization	3	0	0	3
	ME 361	Combustion	3	0	0	3
4(PE-VI) 7th SEM	ME 409	Industrial Management	3	0	0	3
	ME 479	Advanced Heat Transfer	3	0	0	3
	ME 481	Theory of Elasticity	3	0	0	3
	PE 406	Non- Conventional Machining Processes	3	0	0	3
	ME 483	NonLinear Dynamics and Chaos	3	0	0	3
	PE 413	A I and Data Analytics	3	0	0	3

BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI
NEW COURSE STRUCTURE - To be effective from academic session 2021- 22
Based on CBCS system & OBE model
OPEN ELECTIVES
(For Other than Mechanical Engineering Branches)

Level	Course Code	Course Name	Mode of delivery & credits *L-Lecture; T-Tutorial; P-Practical*			Total Credit *C- Credit*
			L (*Periods/ week*)	**T *(Periods/ week)***	**P *(Periods/ week)***	**C**
2(OE-I) 4th SEM	ME 292	Smart & New Materials	3	0	0	3
	ME 293	Experimental Methods in Engineering	3	0	0	3
3(OE-II) 5th SEM	ME 392	Renewable Energy Sources	3	0	0	3
	ME 393	Elements of Hydel & Thermal Power Plants	3	0	0	3
3(OE-III) 6th SEM	ME 391	Elements of Nuclear & Diesel Power Plants	3	0	0	3
	ME 394	Elements of Modal Analysis	3	0	0	3
4(OE-IV) 7th SEM	ME 489	Mechatronics & its applications	3	0	0	3
	ME 497	Industrial Robotics & Automation	3	0	0	3