



MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC - with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

B.TECH. in MECHANICAL ENGINEERING

COURSE STRUCTURE (MLRS - R20)

Applicable From 2020-21 Admitted Batch

I YEAR I SEMESTER

S. No.	Course Code	Course Title	Course Category	Hours Per Week			Total Contact Hour	Credits	Scheme of Examination Maximum Marks		
				L	T	P			Internal (CIE)	External (SEE)	Total
Theory											
1	2010001	Engineering Mathematics - I	BSC	3	1	-	4	4	30	70	100
2	2010007	Engineering Physics	BSC	3	1	-	4	4	30	70	100
3	2010501	Programming for Problem Solving	ESC	3	1	-	4	4	30	70	100
Practical											
4	2010072	Engineering Physics Lab	BSC	-	-	3	3	1.5	30	70	100
5	2010571	Programming for Problem Solving Lab	ESC	-	-	3	3	1.5	30	70	100
6	2010371	Engineering Drawing Practice	ESC	1	-	4	5	3	30	70	100
7		Induction Programme					3 Weeks		-	-	-
Total Credits				10	3	10	23	18	180	420	600

I YEAR II SEMESTER

S. No.	Course Code	Course Title	Course Category	Hours Per Week			Total Contact Hour	Credits	Scheme of Examination Maximum Marks		
				L	T	P			Internal (CIE)	External (SEE)	Total
Theory											
1	2020002	Engineering Mathematics - II	BSC	3	1	-	4	4	30	70	100
2	2020008	Engineering Chemistry	BSC	3	1	-	4	4	30	70	100
3	2020502	Data Structures	ESC	3	-	-	3	3	30	70	100
4	2020009	Communicative English	HSMC	2	-	-	2	2	30	70	100
Practical											
5	2020073	Engineering Chemistry Lab	BSC	-	-	3	3	1.5	30	70	100
6	2020074	Communicative English Lab	HSMC	-	-	2	2	1	30	70	100
7	2020372	Engineering Workshop	ESC	1	-	3	4	2.5	30	70	100
8	2020572	Data Structures Lab	ESC	-	-	2	2	1	30	70	100
9	2020021	Environmental Science	*MC	3	-	-	3	0	-	-	-
Total Credits				14	2	10	27	19	240	560	800

*MC – Satisfied/Unsatisfied

L - Lecture periods, T - Tutorial periods, P - Practical periods



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II Year I Semester

S. No.	Course Code	Course Title	Course Category	Hours Per Week			Total Contact Hour	Credits	Scheme of Examination Maximum Marks		
				L	T	P			Internal (CIE)	External (SEE)	Total
1	2030202	Basic Electrical and Electronic Engineering	HSMC	3	0	0	3	3	30	70	100
2	2020301	Engineering Mechanics	ESC	3	1	0	4	4	30	70	100
3	2030311	Thermodynamics	PCC	3	1	0	4	4	30	70	100
4	2030005	Probability Distributions and Complex Variables	BSC	3	1	0	4	4	30	70	100
5	2030506	Python programming	ESC	2	0	0	2	2	30	70	100
6	2030374	Machine Drawing Practice	PCC	0	0	4	4	2	30	70	100
7	2030272	Basic Electrical and Electronic Engineering Lab	HSMC	0	0	2	2	1	30	70	100
8	2030273	Fuels and Lubricants Lab	PCC	0	0	2	2	1	30	70	100
9	2030575	Python programming Lab	ESC	0	0	2	2	1	30	70	100
10	2030022	Gender Sensitization	*MC	2	0	0	2	0	-	-	-
Total Credits				16	3	10	29	22	270	630	900

II Year – II Semester

S. No.	Course Code	Course Title	Course Category	Hours Per Week			Total Contact Hour	Credits	Scheme of Examination Maximum Marks		
				L	T	P			Internal (CIE)	External (SEE)	Total
1	2040314	Kinematics of Machinery	PCC	3	1	0	4	4	30	70	100
2	2030312	Mechanics of Solids	PCC	3	1	0	4	4	30	70	100
3	2040315	Thermal Engineering-I	PCC	3	0	0	3	3	30	70	100
4	2040316	Production Technology	PCC	3	0	0	3	3	30	70	100
5	2040313	Metallurgy & Material Science	PCC	3	0	0	3	3	30	70	100
6	2040375	Production Technology Lab	PCC	0	0	2	2	1	30	70	100
7	2040376	Material Science and Mechanics of Solids Lab	PCC	0	0	2	2	1	30	70	100
8	2040377	Thermal Engineering – Lab	PCC	0	0	2	2	1	30	70	100
9	2040023	Constitution of India	*MC	3	0	0	3	0	-	-	-
10	2040024	OOPS through C++ Lab	*MC	2	0	0	2	0	-	-	-
Total Credits				20	2	6	28	20	240	560	800

III Year – I Semester



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S. No.	Course Code	Course Title	Course Category	Hours Per Week			Total Contact Hour	Credits	Scheme of Examination Maximum Marks		
				L	T	P			Internal (CIE)	External (SEE)	Total
1	2050317	Design of Machine Members -I	PCC	3	0	0	3	3	30	70	100
2	2050318	Metrology & Machine Tools	PCC	3	0	0	3	3	30	70	100
3	2050319	Dynamics of Machinery	PCC	3	0	0	3	3	30	70	100
4	2050320	Thermal Engineering - II	PCC	3	0	0	3	3	30	70	100
5	2050321	Fluid Mechanics & Hydraulics Machinery	PCC	3	0	0	3	3	30	70	100
6		Professional Elective - I	PEC	3	0	0	3	3	30	70	100
7	2050378	Kinematics & Dynamics of Machinery Lab	PCC	0	0	2	2	1	30	70	100
8	2050379	Metrology & Machine Tools Lab	PCC	0	0	2	2	1	30	70	100
9	2050380	Fluid Mechanics & Hydraulics Machinery Lab	PCC	0	0	2	2	1	30	70	100
10	2050386	Internship*	PROJ	0	0	2	2	1	30	70	100
11		Engineering System Design	*MC	2	0	0	2	0	-	-	-
12		Data science	*MC	3	0	0	3	0	-	-	-
Total Credits				23	0	8	31	22	300	700	1000

III Year – II Semester

S. No.	Course Code	Course Title	Course Category	Hours Per Week			Total Contact Hour	Credits	Scheme of Examination Maximum Marks		
				L	T	P			Internal (CIE)	External (SEE)	Total
1	2050322	Heat Transfer	PCC	3	1	0	4	4	30	70	100
2	2050323	Design of Machine Members -II	PCC	3	0	0	3	3	30	70	100
3	2060010	Business Economics & Financial Analysis	PCC	3	0	0	3	3	30	70	100
4		Open Elective – I	OEC	3	0	0	3	3	30	70	100
5		Professional Elective - II	PEC	3	0	0	3	3	30	70	100
6	2060075	Advanced English Communication Skills Lab	HSMC	0	0	2	2	1	30	70	100
7	2050381	Heat Transfer Lab	PCC	0	0	3	3	1.5	30	70	100
8	2050382	CADD and MAT LAB	PCC	0	0	3	3	1.5	30	70	100
9		Machine learning	*MC	3	0	0	3	0	-	-	-
10		Professional Ethics	*MC	2	0	0	2	0	-	-	-
Total Credits				20	1	8	29	20	240	560	800



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IV Year – I Semester

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Total Contact Hour	Credits	Scheme of Examination Maximum Marks		
				L	T	P			Internal (CIE)	External (SEE)	Total
1	2070323	CAD/ CAM	PCC	3	0	0	3	3	30	70	100
2	2070324	Instrumentation and Control Systems	PCC	3	0	0	3	3	30	70	100
3		Open Elective - II	OEC	3	0	0	3	3	30	70	100
4		Professional Elective - III	PEC	3	0	0	3	3	30	70	100
5		Professional Elective - IV	PEC	3	0	0	3	3	30	70	100
6	2050381	Industry Oriented Mini Project	PROJ	0	0	4	4	2	100	-	100
7	2070382	CAD/CAM Lab	PCC	0	0	2	2	1	30	70	100
8	2070383	Instrumentation and Control Systems Lab	PCC	0	0	2	2	1	30	70	100
Total Credits				15	0	10	25	19	310	490	800

IV Year – II Semester

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Total Contact Hour	Credits	Scheme of Examination Maximum Marks		
				L	T	P			Internal (CIE)	External (SEE)	Total
1		Open Elective - III	PEC	3	0	0	3	3	30	70	100
2		Professional Elective - V	PEC	3	0	0	3	3	30	70	100
3		Professional Elective - VI	OEC	3	0	0	3	3	30	70	100
4	2070384	Technical seminar	PROJ	0	0	2	2	1	30	70	100
5	2070385	Major Project	PROJ	0	0	20	20	10	30	70	100
Total Credits				9	0	20	31	20	150	350	500



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PROFESSIONAL ELECTIVE COURSES

PEC-1

1. UNCONVENTIONAL MACHINING PROCESS	-2050341
2. TOTAL QUALITY MANAGEMENT	-2050342
3. OPERATIONAL RESEARCH	-2050343
4. NON DESTRUCTIVE TESTING	-2050344

PEC-2

1. MACHINE TOOL DESIGN	-2060345
2. FINITE ELEMENT METHODS	-2060346
3. MECHATRONICS	-2060347
4. MECHANICAL VIBRATIONS	-2060348

PEC-3

1. RENEWABLE ENERGY SOURCES	-2070349
2. ROBOTICS	-2070350
3. COMPUTATIONAL FLUID DYNAMICS	-2070351
4. TURBOMACHINERY	-2070352

PEC-4

1. REFRIGERATION AND AIR CONDITIONER	-2070353
2. AUTOMOBILE ENGINEERING	-2070354
3. I.C. ENGINES & GAS TURBINES	-2070355
4. JET PROPULSION & ROCKET ENGINEERING	-2070356

PEC-5

1. ADDITIVE MANUFACTURING TECHNOLOGY	-2080357
2. FLEXIBLE MANUFACTURING SYSTEM	-2080358
3. AUTOMATION IN MANUFACTURING	-2080359
4. PLANT LAYOUT AND MATERIAL HANDLING	-2080360

PEC-6

1. POWDER METALLURGY	-2080361
2. COMPOSITE MATERIALS	-2080362
3. SURFACE ENGINEERING	-2080363
4. NANO MATERIALS	-2080364



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OPEN ELECTIVES

1.ELEMENTS OF MECHANICAL ENGINEERING	-2060302
2.FABRICATION PROCESS	-2070303
3.ALTERNATE ENERGY SOURCES	-2080304
4.ENTREPRENEURSHIP DEVELOPMENT	-2080305