



**VISHNU INSTITUTE OF TECHNOLOGY:: BHIMAVARAM**  
**(Autonomous)**

Approved by AICTE, Accredited by NAAC & Affiliated to JNTUK, Kakinada

**COURSE STRUCTURE & DETAILED SYLLABUS**

**For UG-R19**

**B. Tech- Mechanical Engineering**

**(Applicable for batches admitted from 2019-2020)**



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**MECHANICAL ENGINEERING DEPARTMENT**

**R19 Course Structure for B.Tech.(ME) (With effect from 2019-2020)**

**I-Year I-Semester**

S.No	Course Title	L	T	P	C
1	Communicative English	2	-	-	2
2	Mathematics – I (Linear Algebra & Calculus)	3	1	-	4
3	Engineering Physics	3	-	-	3
4	Problem Solving & Programming	2	1	-	3
5	English Communication Skills Lab	-	-	3	1.5
6	Engineering Physics Lab	-	-	3	1.5
7	Problem Solving & Programming Lab	-	-	3	1.5
8	Constitution of India	3	-	-	-
	<b>Total</b>	13	2	9	16.5

**I-Year II-Semester**

S.No	Course Title	L	T	P	C
1	Mathematics–II (PDE & Vector Calculus)	2	1	-	3
2	Engineering Chemistry	3	-	-	3
3	Engineering Graphics and Design	2	-	3	3.5
4	Elements of Electrical & Electronics Engineering	3	-	-	3
5	Engineering Chemistry Lab			3	1.5
6	Electrical & Electronics Engineering Lab			3	1.5
7	Computer Programming Lab	-	-	3	1.5
8	Engineering Workshop	-	-	3	1.5
9	Environmental Science	3	-	-	-
	<b>Total</b>	13	1	15	18.5

**II-Year I-Semester**

S. No	Course Title	L	T	P	C
1	Material Science and Metallurgy	3	-	-	3
2	Manufacturing Processes	3	-	-	3
3	Mathematics-III (Numerical Methods & Applied Statistics)	3	-	-	3
4	Engineering Mechanics	3	-	-	3
5	Thermodynamics	3	-	-	3
6	Metallurgy Lab	-	-	3	1.5
7	Manufacturing Processes Lab	-	-	3	1.5
8	Quantitative Aptitude - I	-	-	2	-
	<b>Total</b>	15	-	8	18

**II-Year II-Semester**

S.No	Course Title	L	T	P	C
1	Instrumentation and Metrology	3	-	-	3
2	Fluid Mechanics and Hydraulic Machines	3	-	-	3
3	Mechanics of Solids	3	-	-	3
4	Applied Thermodynamics	3	-	-	3
5	Kinematics of Machinery	3	-	-	3
6	Instrumentation and Metrology Lab	-	-	3	1.5
7	Fluid Mechanics and Hydraulic Machines Lab	-	-	3	1.5
8	Mechanics of Solids Lab	-	-	3	1.5
9	Applied Thermodynamics Lab	-	-	3	1.5
10	Business English Communication Lab	-	-	3	1.5
11	Innovative Idea Project	-	-	3	1.5
	<b>Total</b>	15	-	18	24

**III-Year I-Semester**

S. No	Course Title	L	T	P	C
1	Dynamics of Machinery	3	-	-	3
2	Design of Machine Members	3	-	-	3
3	Machine Tools	3	-	-	3
4	<b>Professional Elective-I</b> Automobile Engineering Gas Dynamics and Jet Propulsion Renewable Energy Sources Refrigeration & Air Conditioning	3	-	-	3
5	<b>Open Elective-I</b> Remote Sensing & Geographical Information Systems OOPS through JAVA Computer Graphics Automotive Electronics	3	-	-	3
6	<b>Open Elective-II (Inter Disciplinary Elective – I)</b> MATLAB and Simulink for Engineers Principles of Electronic Communication Systems AI Tools, Techniques & Applications Green Building Technologies	3	-	-	3
7	Machine Drawing	-	-	3	1.5
8	Dynamics of Machinery Lab	-	-	3	1.5
9	Machine Tools Lab	-	-	3	1.5
10	Computer Aided Simulation And Analysis Lab	-	-	2	1
11	Advanced English Communication Skills Lab	-	-	3	1.5
	<b>Total</b>	18	-	14	25

**III-Year II-Semester**

S. No	Course Title	L	T	P	C
1	CAD/CAM	3	-	-	3
2	Heat Transfer	3	-	-	3
3	<b>Professional Elective-II</b> Advanced Machine Design Mechanical Vibrations Design Thinking & Product Innovation Robotics	3	-	-	3
4	<b>Open Elective-III (Inter Disciplinary Elective – II)</b> Solar Energy Systems Soft Computing Techniques Internet of Things Solid Waste Management	3	-	-	3
5	<b>Humanities Elective-I</b> Managerial Economics & Financial Analysis Life Sciences for Engineering Foreign Language	3	-	-	3
6	CAD/CAM Lab	-	-	3	1.5
7	Heat Transfer Lab	-	-	3	1.5
8	Quantitative Aptitude – II	-	-	2	1
9	Mini Project	-	-	4	2
	<b>Total</b>	15	-	12	21

## IV-Year I-Semester

S. No	Course Title	L	T	P	C
1	Finite Element Methods	3	-	-	3
2	Mechatronics	3	-	-	3
3	<b>Professional Elective-III</b> Operations Research Advanced Engines and Gas Turbines Rapid Manufacturing Processes Production Planning and Control	3	-	-	3
4	<b>Professional Elective-IV</b> Advanced Materials Advanced Machining Processes Automation in Manufacturing Machine Tool Design	3	-	-	3
5	<b>Open Elective-IV (Inter Disciplinary Elective – III)</b> Web Technologies Embedded Systems Cyber Security Ground Improvement Techniques	3	-	-	3
6	<b>Humanities Elective-II</b> Management Science IPR & Patents Education, Technology and Society	3	-	-	3
7	Finite Element Methods Lab	-	-	3	1.5
8	Mechatronics Lab	-	-	3	1.5
9	Seminar / Internship	-	-	2	1
10	Major Project phase-I	-	-	6	3
	<b>Total</b>	18	-	14	25

## IV-Year II-Semester

S. No	Course Title	L	T	P	C
1	<b>Professional Elective-V (MOOC)</b> Nano Technology Geometric Dimensioning and Tolerancing Non-Destructive Testing Design for Manufacturing and Assembly	3	-	-	3
2	<b>Open Elective-V (MOOC)</b> Power plant Engineering Computational Fluid Dynamics Data Analytics Quality & Reliability Engineering	3	-	-	3
3	Major Project Phase-II	-	-	12	6
	<b>Total</b>	6	-	12	12