



**VARDHAMAN COLLEGE OF ENGINEERING**  
(AUTONOMOUS)

Shamshabad – 501 218, Hyderabad

**COURSE STRUCTURE**

**B. TECH – MECHANICAL ENGINEERING**

**REGULATIONS: VCE-R18**

<b>I YEAR I SEMESTER</b>									
<b>Induction Program for Three Weeks</b>									
Code	Course	Category	Periods per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal	External	Total
A4001	Linear Algebra and Ordinary Differential Equations	BS	3	1	0	4	30	70	100
A4005	Oscillations ,Waves and Optics	BS	4	0	0	4	30	70	100
A4501	Programming for Problem Solving	ES	3	1	0	4	30	70	100
A4301	Engineering Graphics and Computer Aided Drafting	ES	0	0	3	1.5	30	70	100
A4006	Oscillations ,Waves and Optics Laboratory	BS	0	0	2	1	30	70	100
A4502	Programming for Problem Solving Laboratory	ES	0	0	3	1.5	30	70	100
A4021	Social Innovation	ES	0	0	2	1	30	70	100
<b>TOTAL</b>			<b>10</b>	<b>02</b>	<b>10</b>	<b>17</b>	<b>210</b>	<b>490</b>	<b>700</b>
<b>I YEAR II SEMESTER</b>									
Code	Course	Category	Periods per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal	External	Total
A4002	Advanced Calculus	BS	3	1	0	4	30	70	100
A4007	Engineering Chemistry	BS	4	0	0	4	30	70	100
A4303	Engineering Mechanics	ES	3	1	0	4	30	70	100
A4009	Functional English	HS	3	0	0	3	30	70	100
A4302	Engineering Workshop	ES	0	0	3	1.5	30	70	100
A4008	Engineering Chemistry Laboratory	BS	0	0	2	1	30	70	100
A4304	Engineering Mechanics Laboratory	ES	0	0	3	1.5	30	70	100
A4010	English Language Communication Skills Laboratory	HS	0	0	2	1	30	70	100
A4022	Engineering Exploration	ES	0	0	2	1	30	70	100
<b>TOTAL</b>			<b>13</b>	<b>02</b>	<b>12</b>	<b>21</b>	<b>270</b>	<b>630</b>	<b>900</b>

## B. TECH – MECHANICAL ENGINEERING

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II YEAR I SEMESTER									
Code	Course	Category	Periods per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal	External	Total
A4025	Managerial Economics and Financial Analysis	HS	3	0	0	3	30	70	100
A4206	Basic Electrical and Electronics Engineering	ES	3	0	2	4	30	70	100
A4305	Mechanics of Solids	PC	3	1	2	5	30	70	100
A4306	Thermodynamics	PC	3	1	0	4	30	70	100
A4307	Material Science and Metallurgy	PC	3	0	2	4	30	70	100
A4019	Verbal Ability and Logical Reasoning	HS	1	0	0	1	30	70	100
A4013	Gender Sensitization*	MC	2	0	0	0	0*	100*	100*
<b>TOTAL</b>			<b>18</b>	<b>2</b>	<b>6</b>	<b>21</b>	<b>180</b>	<b>420</b>	<b>600</b>
II YEAR II SEMESTER									
Code	Course	Category	Periods per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal	External	Total
A4012	Probability and Statistics	BS	2	1	0	3	30	70	100
A4308	I.C. Engines and Gas Turbines	PC	3	0	2	4	30	70	100
A4309	Kinematics of Machinery	PC	3	0	0	3	30	70	100
A4310	Fluid Mechanics and Hydraulic Machines	PC	3	0	2	4	30	70	100
A4311	Manufacturing Processes	PC	3	0	2	4	30	70	100
A4312	Machine Drawing	PC	0	0	4	2	30	70	100
A4017	Quantitative Aptitude-I	BS	1	0	0	1	30	70	100
A4014	Environmental Science*	MC	2	0	0	0	0	100*	100*
<b>TOTAL</b>			<b>17</b>	<b>1</b>	<b>10</b>	<b>21</b>	<b>210</b>	<b>490</b>	<b>700</b>

## B. TECH – MECHANICAL ENGINEERING

REGULATIONS: VCE-R18

III YEAR I SEMESTER									
Code	Course	Category	Periods per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal	External	Total
A4313	Dynamics of Machinery	PC	3	0	2	4	30	70	100
A4314	Metrology and Machine Tools	PC	3	0	2	4	30	70	100
A4315	Design of Machine Elements	PC	3	1	0	4	30	70	100
A4316	Applied Thermodynamics	PC	3	1	0	4	30	70	100
	<b>Professional Elective - I</b>	PE	3	0	0	3	30	70	100
A4317	Internship – I	PW	0	0	0	2	100	0	100
A4018	Engineering Design Thinking	ES	0	0	2	1	30	70	100
A4015	Essence of Indian Traditional Knowledge*	MC	2	0	0	0	0	100*	100*
<b>TOTAL</b>			<b>17</b>	<b>2</b>	<b>6</b>	<b>22</b>	<b>280</b>	<b>420</b>	<b>700</b>
III YEAR II SEMESTER									
Code	Course	Category	Periods per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal	External	Total
A4318	Machine Design	PC	3	1	0	4	30	70	100
A4319	Heat Transfer	PC	3	0	2	4	30	70	100
A4320	CAD/CAM	PC	3	0	2	5	30	70	100
	<b>Open Elective - I</b>	OE	3	0	0	3	30	70	100
	<b>Professional Elective - II</b>	PE	3	0	0	3	30	70	100
A4020	Product Realization	ES	0	0	2	1	30	70	100
A4321	Mini Project	PW	0	0	4	2	100	0	100
A4016	Indian Constitution*	MC	2	0	0	0	0	100*	100*
<b>TOTAL</b>			<b>17</b>	<b>1</b>	<b>10</b>	<b>22</b>	<b>280</b>	<b>420</b>	<b>700</b>

\*Grade points/marks awarded for audit courses will not be considered for calculating SGPA and CGPA

\*Internship will be carried in semester break after II Year II Semester and assessment will be done in the beginning of the III Year I Semester.

## B. TECH. - MECHANICAL ENGINEERING

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Professional Elective Course - I			
Code	Course	Code	Course
A4351	Additive Manufacturing	A4352	Automobile Engineering
A4353	Advanced Mechanics of Solids		
Professional Elective Course – II			
Code	Course	Code	Course
A4354	Composite Materials	A4355	Energy Conversation and Management
A4356	Tribology		
Open Electives			
A4031	Numerical Techniques	A4032	Entrepreneurship Development
A4131	Project Planning and Management	A4231	Transducer and Measurement
A4331	Basic Mechanical Engineering	A4431	Fundamentals of IoT
A4531	Fundamentals of JAVA	A4532	Operations Research
A4631	Principles Of Software Engineering		

### Course Categories

**HS**–Humanities and Social Sciences

**BS** – Basic Sciences

**ES** – Engineering Sciences

**PC** – Professional Core

**MC** – Mandatory Course

**OE** – Open Elective & Internship – I & II

**PE** – Professional Elective

**PW** – Mini Project & Project Phase – I & II

**Note:** Open electives to be offered will be notified by each department at the time of registration.