

**SANJIVANI RURAL EDUCATION SOCIETY'S**  
**SANJIVANI COLLEGE OF ENGINEERING**  
**KOPARGAON**

*( An Autonomous Institute Affiliated to SPPU Pune)*



**DEPARTMENT OF MECHANICAL ENGINEERING**  
**COURSE STRUCTURE - 2020 PATTERN**  
**SECOND YEAR to FINAL YEAR B. TECH.**

LIST OF ABBREVIATIONS			
Abbreviation	Full Form	Abbreviation	Full Form
ES	Engineering Science	HSMC	Humanity Science
PCC	Professional Core	CA	Continuous Assessment
PE	Professional Elective	OR	End Semester Oral Examination
OE	Open Elective	PR	End Semester Practical Examination
ISE	In-Semester Evaluation	TW	Continuous Term work Evaluation
ESE	End-Semester Evaluation	BSC	Basic Science Course
PRJ	Project	MC	Mandatory Course

**COURSE STRUCTURE- 2020 PATTERN**  
**SECOND YEAR B. TECH: MECHANICAL ENGINEERING**

**SEMESTER-III**

Cat.	Code	Course Title	Teaching Scheme			Credits	Evaluation Scheme-Marks						
			L (hrs)	T (hrs)	P (hrs)		Theory			OR	PR	TW	Total
							ISE	ESE	CA				
PCC	ME201	General Prof. Skills	-	-	2	1	-	-	-	-	-	50	50
BSC	BS202	Engineering Mathematics-III	3	1	-	4	30	50	20	-	-	-	100
PCC	ME203	Basic Thermodynamics	3	-	-	3	30	50	20	-	-	-	100
PCC	ME204	Manufacturing Processes	3	-	-	3	30	50	20	-	-	-	100
PCC	ME206	Strength of Materials	3	-	-	3	30	50	20	-	-	-	100
HSMC	HS205	Universal Human Values & Ethics	3	-	-	3	30	50	20	-	-	-	100
PCC	ME207	Basic Thermodynamics Lab	-	-	2	1	-	-	-	50	-	-	50
PCC	ME208	Machine Shop - I	-	-	2	1	-	-	-	-	50	-	50
PCC	ME209	Strength of Materials Lab	-	-	2	1	-	-	-	50	-	-	50
MLC	MC210	Mandatory Course-III	2	-	-	No	-	-	-	-	-	-	-
<b>Total</b>			17	1	8	20	150	250	100	100	50	50	700

**SEMESTER-IV**

Cat.	Code	Course Title	Teaching Scheme			Credits	Evaluation Scheme-Marks						
			L (hrs)	T (hrs)	P (hrs)		Theory			OR	PR	TW	Total
							ISE	ESE	CA				
PCC	ME211	Numerical Methods	3	-	-	3	30	50	20	-	-	-	100
PCC	ME212	Fluid Mechanics	4	-	-	4	30	50	20	-	-	-	100
PCC	ME213	Materials Science & Metallurgy	3	-	-	3	30	50	20	-	-	-	100
PC	ME214	Kinematics of Machines	4	-	-	4	30	50	20	-	-	-	100
PRJ	ME215	Seminar	-	-	2	1	-	-	-	50	-	-	50
PCC	ME216	Machine Drawing & Geometrical Modeling	1	-	4	3	-	-	-	-	-	50	50
PCC	ME217	Numerical Methods Lab	-	-	2	1	-	-	-	-	50	-	50
PCC	ME218	Fluid Mechanics Lab	-	-	2	1	-	-	-	-	50	-	50
PCC	ME219	Materials Science & Metallurgy Lab	-	-	2	1	-	-	-	50	-	-	50
PCC	ME220	Kinematics of Machines Lab	-	-	2	1	-	-	-	50	-	-	50
MLC	MC221	Mandatory Course-IV	2	-	-	No	-	-	-	-	-	-	-
<b>Total</b>			17	-	14	22	120	200	80	150	100	50	700

MC210	Mandatory Course-III	Constitution of India – Basic features and fundamental principles
MC221	Mandatory Course-IV	Innovation - Project based – Sc., Tech, Social, Design & Innovation

*Note: For evaluation of Oral/Practical/TW, students should submit the journal regularly. Non submission of journal will be treated as absentees in concern head.*

**T.Y.B. Tech SEM V 2020**

Cat	Code	Course Title	Hrs./Week			Credits	Marks						
			L	T	P		Theory			OR	PR	TW	Total
							ISE	ESE	CIA				
PCC	ME301	Production Technology	3	-	-	3	30	50	20	-	-	-	100
PCC	ME302	Machine Design –I	3	-	-	3	30	50	20	-	-	-	100
PCC	ME303	Metrology and QC	3	-	-	3	30	50	20	-	-	-	100
PCC	ME304	Heat Transfer	3	-	-	3	30	50	20	-	-	-	100
PEC	ME305	Professional Elective-I	3	-	-	3	30	50	20	-	-	-	100
PCC	ME306	Machine Design –I Lab	-	-	2	1	-	-	-	-	-	25	25
PCC	ME307	Metrology and QC Lab	-	-	2	1	-	-	-	25	-	-	25
PCC	ME308	Heat Transfer Lab	-	-	2	1	-	-	-	-	50	-	50
PCC	ME309	Production Technology Lab			2	1				50			50
PRJ	ME310	Mini Project based on Skill based Credit Course	-	-	2	1	-	-	50	-	-	-	50
MLC	ME311	Mandatory Learning Course-V	1	-	-	NC	-	-	-	-	-	-	-
		<b>Total</b>	<b>16</b>		<b>10</b>	<b>21</b>	<b>150</b>	<b>250</b>	<b>150</b>	<b>75</b>	<b>50</b>	<b>25</b>	<b>700</b>

**T.Y.B. Tech SEM VI**

Cat	Code	Course Title	Hrs./Week			Credits	Marks						
			L	T	P		Theory			OR	PR	TW	Total
							ISE	ESE	CIA				
PCC	ME312	Applied Thermodynamics	3	-	-	3	30	50	20	-	-	-	100
PCC	ME313	Machine Design –II	4	-	-	4	30	50	20	-	-	-	100
PCC	ME314	Hydraulic and Pneumatics	3	-	-	3	30	50	20	-	-	-	100
PEC	ME315	Professional Elective-II	3	-	-	3	30	50	20	-	-	-	100
HSMC	ME316	Corporate Readiness	2	-	-	2	-	-	50	-	-	-	50
PRJ	ME317	IPR & EDP	2	-	-	2	15	25	10	-	-	-	50
PCC	ME318	Hydraulic and Pneumatics Lab	-	-	2	1	-	-	-	-	-	50	50
PCC	ME319	Applied Thermodynamics Lab	-	-	2	1	-	-	-	-	50	-	50
PCC	ME320	Machine Design –II Lab	-	-	2	1	-	-	-	50	-	-	50
PRJ	ME321	Creational Activity Lab	-	-	2	1	-	-	-	-	-	50	50
MLC	ME322	Mandatory Learning Course-VI	1	-	-	NC	-	-	-	-	-	-	-
		<b>Total</b>	<b>18</b>		<b>8</b>	<b>21</b>	<b>135</b>	<b>225</b>	<b>140</b>	<b>50</b>	<b>50</b>	<b>150</b>	<b>700</b>

Professional Elective – I		Professional Elective – II	
ME305A	Refrigeration System	ME315A	Turbo Machinery
ME305B	Reliability Engineering	ME315B	Operation Research
ME306C	Industrial Tribology	ME315C	Process Equipment Design

ME311	Mandatory Learning Course	Proficiency Skills (Design Thinking)
ME322	Mandatory Learning Course	Proficiency Skills (Programing Skills)

**Final. B.Tech SEM VII 2020**

Cat	Code	Course Title	Hrs./Week			Credits	Marks						
			L	T	P		Theory			OR	PR	TW	Total
							ISE	ESE	CIA				
PCC	ME401	Finite Element Analysis	3	-	-	3	30	50	20	-	-	-	100
PCC	ME402	HVAC Heating Ventilation and Air Conditioning	3	-	-	3	30	50	20	-	-	-	100
PCC	ME403	Dynamics of Machines	3	-	-	3	30	50	20	-	-	-	100
PEC	ME404	Professional Elective-III	4	-	-	4	30	50	20	-	-	-	100
PEC	ME405	Professional Elective-IV	3	-	-	3	30	50	20	-	-	-	100
PCC	ME406	Finite Element Analysis Lab	-	-	2	1				-	50	-	50
PCC	ME407	HVAC Heating Ventilation and Air Conditioning Lab	-	-	2	1	-	-	-	-	50	-	50
PCC	ME408	Dynamics of Machines Lab	-	-	2	1	-	-	-	50	-	-	50
PRJ	ME409	Project Stage-I	-	-	2	1	-	-	-	50	-	-	50
MLC	ME410	Mandatory Learning Course-VII	(1)	-	-	Non-Credit	-	-	-	-	-	-	-
<b>Total</b>			<b>13</b>	<b>-</b>	<b>10</b>	<b>20</b>	<b>150</b>	<b>250</b>	<b>100</b>	<b>125</b>	<b>25</b>	<b>-</b>	<b>700</b>

**Final. B.Tech SEM VIII**

Cat	Code	Course Title	Hrs./Week			Credits	Marks						
			L	T	P		Theory			OR	PR	TW	Total
							ISE	ESE	CIA				
OE	ME411	Open Elective-I	3	-	-	3	30	50	20	-	-	-	100
OE	ME412	Open Elective-II	3	-	-	3	30	50	20	-	-	-	100
OE	ME413	Open ELECTIVE-III [Online through MOOCs]	2	-	-	2	-	-	100	-	-	-	100
PCC	ME415	Research Project OR Industrial Internship OR Entrepreneurship Development Project	-	-	12	6	-	-	-	50	-	50	100
PRJ	ME417	Project Stage-II	-	-	8	4			50	50	-	-	100
MLC	ME418	Mandatory Learning Course-VIII	(1)	-	-	Non-Credit	-	-	-	-	-	-	-
<b>Total</b>			<b>9</b>	<b>-</b>	<b>20</b>	<b>18</b>	<b>60</b>	<b>100</b>	<b>190</b>	<b>100</b>	<b>-</b>	<b>50</b>	<b>500</b>

Professional Elective – III		Professional Elective – IV	
ME404A	Additive Manufacturing	ME405A	Advanced Finite Element Analysis
ME404B	Computational Fluid Dynamics	ME405B	Mechatronics
ME404C	Robotics and Automation	ME405C	Automobile Engg

Open Electives-I		Open Electives-II		Open Electives-III	
ME411A	IoT (Internet of Things)	ME412A	Optimization Techniques	ME413A	Industrial Safety
ME411B	Artificial Intelligence	ME412B	Artificial Neural Networks and Fuzzy Systems	ME413B	Logistics & ware-housing
ME411C	Digital Marketing	ME412C	Cyber Law and Ethics		
ME411D	Enterprise Resource Planning	ME412D	Speech and Image Processing		
		ME412E	Fire Safety (Health Safety and Environment )		
		ME412F	Quality Management System		

<b>ME410</b>	<b>Mandatory Learning Course</b>
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## Credit Structure

Semester	Teaching Scheme			Credits (L+T+P)	Examination Scheme						Grand Total
	L	T	P		Theory			Practical			
					ISE	ESE	CIA	OR	PR	TW	
<b>I</b>	15	1	8	20	135	270	45	0	0	125	575
<b>II</b>	17	1	8	20	135	270	45	0	0	125	575
<b>III</b>	17	1	8	20	150	250	100	100	50	50	700
<b>IV</b>	17	-	14	22	120	200	80	150	100	50	700
<b>V</b>	17		06	21	150	250	150	75	50	25	700
<b>VI</b>	17	-	10	21	135	225	90	50	50	150	700
<b>VII</b>	13	-	10	20	150	250	100	125	25	-	650
<b>VIII</b>	9	-	20	18	60	100	190	100	-	50	500
<b>Grand Total</b>	<b>122</b>	<b>3</b>	<b>84</b>	<b>162</b>	<b>1035</b>	<b>1815</b>	<b>800</b>	<b>600</b>	<b>275</b>	<b>575</b>	<b>5100</b>

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**T.Y.B. Tech SEM V 2020**

Cat	Code	Course Title	Hrs./Week			Credits	Marks						
			L	T	P		Theory			OR	PR	TW	Total
							ISE	ESE	CIA				
PRJ	ME301		-	-	-	2	-	-	-	50	-	-	50
PCC	ME302	Production Technology	3	-	-	3	30	50	20	-	-	-	100
PCC	ME303	Machine Design –I	3	-	-	3	30	50	20	-	-	-	100
PCC	ME304	Metrology and QC	3	-	-	3	30	50	20	-	-	-	100
PCC	ME305	Heat Transfer	3	-	-	3	30	50	20	-	-	-	100
PEC	ME306	Professional Elective-I	3	-	-	3	30	50	20	-	-	-	100
PCC	ME307	Machine Design –I Lab	-	-	2	1	-	-	-	-	-	25	25
PCC	ME308	Metrology and QC Lab	-	-	2	1	-	-	-	25	-	-	25
PCC	ME309	Heat Transfer Lab	-	-	2	1	-	-	-	-	50	-	50
PRJ	ME310	Mini Project based on Skill based Credit Course	1	-	-	1	-	-	50	-	-	-	50
MLC	ME311	Mandatory Learning Course-V	1	-	-	NC	-	-	-	-	-	-	-
<b>Total</b>			<b>17</b>		<b>06</b>	<b>21</b>	<b>150</b>	<b>250</b>	<b>150</b>	<b>75</b>	<b>50</b>	<b>25</b>	<b>700</b>

**T.Y.B. Tech SEM VI**

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			L	T	P		Theory			OR	PR	TW	Total
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PCC	ME312	Applied Thermodynamics	3	-	-	3	30	50	20	-	-	-	100
PCC	ME313	Machine Design –II	3	-	-	3	30	50	20	-	-	-	100
PEC	ME314	Professional Elective-II	3	-	-	3	30	50	20	-	-	-	100
PCC	ME315	<b>Hydraulic and Pneumatics</b>	4	-	-	4	30	50	20	-	-	-	100
HSMC	ME316	Employability Skill Development	1	-	2	2	-	-	-	-	-	50	50
PRJ	ME317	IPR & EDP	2	-	-	2	15	25	10	-	-	-	50
PCC	ME318	Machine Shop-II Lab	-	-	2	1	-	-	-	-	-	50	50
PCC	ME319	Applied Thermodynamics Lab	-	-	2	1	-	-	-	-	50	-	50
PCC	ME320	Machine Design –II Lab	-	-	2	1	-	-	-	50	-	-	50
PRJ	ME321	IPR & EDP Lab	-	-	2	1	-	-	-	-	-	50	50
MLC	ME322	Mandatory Learning Course-V	1	-	-	NC	-	-	-	-	-	-	-
<b>Total</b>			<b>17</b>		<b>10</b>	<b>21</b>	<b>135</b>	<b>225</b>	<b>90</b>	<b>50</b>	<b>50</b>	<b>150</b>	<b>700</b>

Professional Elective – I		Professional Elective – II	
ME306A	Refrigeration System	ME314A	Turbo Machinery
ME306B	Reliability Engineering	ME314B	Operation Research
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