

**DEPARTMENT OF  
MECHANICAL ENGINEERING**

**B.Tech. (Mechanical Engineering) 2022 Batch  
COURSE COMPONENTS & CURRICULUM**

<b>PROGRAM STRUCTURE</b>			
<b>S. No.</b>	<b>Category / Component</b>		<b>KITS</b>
1	Basic Science courses	BSC	19
2	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	ESC	16
3	Humanities and Social Sciences including Management courses	HSMC	18
4	Professional core courses	PCC	68
5	Professional Elective courses relevant to chosen specialization/branch	PEC	15
6	Open Elective Course Titles – Electives from other technical and /or emerging Course Titles	OES	9
7	Project work, seminar and internship in industry or elsewhere	P	15
8	Mandatory Courses [Environment studies, Induction Programme, Indian Constitution, Value Education, etc.]	MC	0
9	Online Courses		5*
<b>Total Credits</b>			<b>165</b>

*\*The students shall earn 5 credits through online courses between 2<sup>nd</sup> and 7<sup>th</sup> semester (both inclusive)*

**SEMESTERWISE CURRICULUM**

<b>SEMESTER- I</b>						
<b>S. No.</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Hours per Week</b>			<b>Credits</b>
			<b>L</b>	<b>T</b>	<b>P</b>	
1	20PH1020	Application of Engineering Materials	3	0	0	3
2	20MA1003	Mathematics for Data Science and Machine Learning	2	0	2	3
3	20ME1001	Materials Engineering Laboratory	0	0	2	1
4	20ME1002	Computer Aided Drafting Laboratory	0	0	4	2
5	20CS1004	Applications of Python Programming	3	0	0	3
6	20CS1005	Python Programming Laboratory	0	0	2	1
7	20EC2017	Media Laboratory	0	0	2	1
8	20EN1001	English for Engineering and Technology	2	0	0	2
9	20ME1003	Soft Skills	1	0	0	1
10	19ME1003	Engineering Mechanics	3	0	0	3
11		Mandatory Course – I	2	0	0	0
<b>Total Credits</b>						<b>20</b>
<b>SEMESTER- II</b>						
<b>S. No.</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Hours per Week</b>			<b>Credits</b>
			<b>L</b>	<b>T</b>	<b>P</b>	
1	19ME2020	Drone Technology	3	0	0	3
2	20ME1004	Additive manufacturing Laboratory	0	0	2	1
3	20ME1005	Fluid Power Control and Mechatronics Laboratory	0	0	2	1
4	20ME1006	Professional Ethics	2	0	0	2
5	20ME1007	3D Printing Technology	3	0	0	3
6	20ME1008	Dynamics and Vibration Laboratory	0	0	2	1
7	20MA1004	Mathematical Modelling for Engineering Problems	2	0	2	3
8	20EC2018	Fundamentals of Printed Circuit and Arduino Board Design	3	0	0	3
9	20EC2019	Fundamentals of Printed Circuit and Arduino Board Design Lab	0	0	2	1
10	20MS2003	Concept of Entrepreneurship	1	0	0	1
<b>Total Credits</b>						<b>19</b>

SEMESTER- III						
S. No.	Course Code	Course Title	Hours per Week			Credits
			L	T	P	
1	20MA2002	Applied Computational Mathematics	2	0	2	3
2	19ME2025	Thermodynamics	3	0	0	3
3	20ME2016	Fluid Mechanics and Fluid Machines	2	1	0	3
4	21ME2001	Fluid Mechanics and Strength of Materials Laboratory	0	0	4	2
5	21ME2002	Strength of Materials	3	0	0	3
6	20ME2003	Production and Metrology Laboratory	0	0	4	2
7	ITP2903 / ISP2993	Industrial training -1 / Internship – 1	15 Days			1
8	20MS2004	Entrepreneurship and Product Development	3	0	0	3
<b>Total Credits</b>						<b>20</b>
SEMESTER- IV						
S. No.	Course Code	Course Title	Hours per Week			Credits
			L	T	P	
1	20MA2003	Simulation of Numerical Mathematics	2	0	2	3
2	21ME2003	Design of Machine Elements	3	0	0	3
3	19ME2026	Applied Thermodynamics	3	0	0	3
4	20ME2001	Engineering Design and Analysis Laboratory	0	0	4	2
5	20ME2010	Kinematics and Dynamics of Machinery	3	1	0	4
6	20ME2015	Applied Thermodynamics Laboratory	0	0	4	2
7	20ME2014	Industrial Safety and Quality Standards	3	0	0	3
8	20EE2001	Electric Vehicle Design	3	0	0	3
9		Mandatory Course – II	2	0	0	0
<b>Total Credits</b>						<b>23</b>
SEMESTER- V						
S. No.	Course Code	Course Title	Hours per Week			Credits
			L	T	P	
1	20ME2002	CNC Programming	3	0	0	3
2	21ME2004	Computer Aided Manufacturing Laboratory	0	0	2	1
3	21ME2005	Heat Transfer Laboratory	0	0	2	1
4	21ME2006	Heat and Mass Transfer	3	0	0	3
5	20ME2007	Automation of Product Life Cycle Management	3	0	0	3
6	21ME2007	Computational Fluid Dynamics	3	0	0	3
7	20ME2005	Computational Fluid Dynamics Laboratory	0	0	2	1
8	20ME2011	Finite Element Methods in Engineering	3	0	0	3
9	20CS2057	Fundamentals of Web Design	2	0	2	3
10	ITP2904 / ISP2994	Industrial Training -2 / Internship - 2	15 Days			1
<b>Total Credits</b>						<b>22</b>
SEMESTER- VI						
S. No.	Course Code	Course Title	Hours per Week			Credits
			L	T	P	
1	20ME2012	Internet of Things for Mechanical Systems	3	0	0	3
2	20ME2017	Automotive Materials and Electronics	3	0	0	3
3	21ME2008	Biomechanics and Biomaterials	3	0	0	3
4		Open Elective-I	3	0	0	3
5		Open Elective-II	3	0	0	3
6		Open Elective-III	3	0	0	3

7	ITP2905 / ISP2995	Industrial training -3 / Internship -3	15 Days			1
8	20MS2007	Business Plan	3	0	0	3
<b>Total Credits</b>						<b>22</b>
<b>SEMESTER- VII</b>						
Sl. No.	Course Code	Course Title	Hours per Week			Credits
			L	T	P	
1	20ME2004	Design of Medical Devices and Implants	3	0	0	3
3	20ME2009	Intelligent Robotic System	3	0	0	3
4	20ME2013	Sensor Technology for Machines	3	0	0	3
5	21ME2009	Application of AI for Mechanical Engineering Systems	2	0	2	3
6	20ME2006	Engineering Economics and Operation Research	3	0	0	3
7	20CS2058	Basics of Data Analytics - R programming and Tableau	3	0	2	4
9	20MS2008	Artificial Intelligence for Business	3	0	0	3
<b>Total Credits</b>						<b>22</b>
<b>SEMESTER- VIII</b>						
S. No.	Course Code	Course Title	Hours per Week			Credits
			L	T	P	
1	22ME2999	Project	-	-	-	12
<b>Total</b>						<b>12</b>

**B.Tech. (Hons.) Mechanical Engineering with Specialization in 3D Printing  
COURSE STRUCTURE**

S.No.	Course Code	Course Title	Course Component	No of Courses	Credits for Courses	Total Credits
1	21ME2013	Design for Additive Manufacturing	Professional Elective Courses	1	3	3
2	21ME2014	Advanced Additive Manufacturing Laboratory	Laboratory Course	1	2	2
3	22ME2997		Project	1	6	6
4			MOOC Courses	3	1	3
5			Certificate Courses	1	4	4
<b>Total</b>						<b>18</b>

**B.Tech. (Hons.) Mechanical Engineering with Specialization in Electric Vehicles  
COURSE STRUCTURE**

S.No.	Course Code	Course Title	Course Component	No of Courses	Credits for Courses	Total Credits
1	21ME2015	Design of Electric Vehicles and Battery Management	Professional Elective Courses	1	3	3
2	21ME2016	Electric Vehicles Laboratory	Laboratory Course	1	2	2
3	22ME2998		Project	1	6	6
4			MOOC Course	3	1	3
5			Certificate Courses	1	4	4
<b>Total</b>						<b>18</b>