

**B.Tech. (Mechanical Engineering) - 2021 Batch
COURSE COMPONENTS & CURRICULUM**

PROGRAM STRUCTURE			
S. No.	Category / Component		KITS
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 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*
Total Credits			160+5*

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

COURSE COMPONENTS AND STRUCTURE

Basic Science Courses (BSC)						
S.No	Code No.	Course Title	Hours per week			Credits
			L	T	P	
1	20MA1003	Mathematics for Data Science and Machine Learning	2	0	2	3
2	20MA1004	Mathematical Modelling for Engineering Problems	2	0	2	3
3	20MA2002	Applied Computational Mathematics	2	0	2	3
4	20MA2003	Simulation of Numerical Mathematics	2	0	2	3
5	20CS2058	Basics of Data Analytics - R Programming and Tableau	3	0	2	4
6	20PH1020	Application of Engineering Materials	3	0	0	3
Total Credits						19
Engineering Science Courses (ESC)						
S.No	Code No.	Course Title	Hours per week			Credits
			L	T	P	
1	20ME1002	Computer Aided Drafting Laboratory	0	0	4	2
2	20CS1004	Applications of Python Programming	3	0	0	3
3	20CS1005	Python Programming Laboratory	0	0	2	1
4	20CS2057	Fundamentals of Web Design	3	0	0	3
5	20EC2017	Media Laboratory	0	0	2	1
6	20ME1001	Materials Engineering Laboratory	0	0	2	1
7	20ME1004	Additive manufacturing Laboratory	0	0	2	1
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
Total Credits						16

Humanities & Social Sciences Including Management Courses (HSMC)						
S.No	Code No.	Course Title	Hours per week			Credits
			L	T	P	
Category-1		Humanities, Social Sciences and Management Courses				8
1	20EN1001 /19LN1001	English for Engineering and Technology / German Language	2	0	0	2
2	20ME1003	Soft skills	1	0	0	1
3	20ME1006	Professional Ethics	2	0	0	2
4	20ME2006	Engineering Economics and Operation Research	3	0	0	3
Category-2		Entrepreneurship				10
1	20MS2003	Concept of Entrepreneurship	1	0	0	1
2	20MS2004	Entrepreneurship and Product Development	3	0	0	3
3	20MS2007	Business Plan	3	0	0	3
4	20MS2008	Artificial Intelligence for Business	3	0	0	3
Total Credits						18

PROFESSIONAL CORE COURSES (PCC)						
S. No	Code No.	Course Title	Hours per week			Credits
			L	T	P	
1	19ME1003	Engineering Mechanics	3	0	0	3
2	19ME2020	Drone Technology	3	0	0	3
3	20ME1005	Fluid Power Control and Mechatronics Laboratory	0	0	2	1
4	20ME1007	3D Printing Technology	3	0	0	3
5	20ME1008	Dynamics and Vibration Laboratory	0	0	2	1
6	19ME2025	Thermodynamics	3	0	0	3
7	20ME2016	Fluid Mechanics and Fluid Machines	2	1	0	3
8	20ME2003	Production and Metrology Laboratory	0	0	4	2
9	20ME2004	Design of Medical Devices and Implants	3	0	0	3
10	20ME2005	Computational Fluid Dynamics Laboratory	0	0	2	1
11	20ME2007	Automation of Product Life Cycle Management	3	0	0	3
12	20ME2009	Intelligent Robotic System	3	0	0	3
13	20ME2011	Finite Element Methods in Engineering	3	0	0	3
14	19ME2026	Applied Thermodynamics	3	0	0	3
15	20ME2001	Engineering Design and Analysis Laboratory	0	0	4	2
16	20ME2010	Kinematics and Dynamics of Machinery	3	1	0	4
17	20ME2015	Applied Thermodynamics Laboratory	0	0	4	2
18	20ME2014	Industrial Safety and Quality Standards	3	0	0	3
19	20EE2001	Electric Vehicle Design	3	0	0	3
20	20ME2002	CNC Programming	3	0	0	3
21	21ME2001	Fluid Mechanics Strength of Materials Laboratory	0	0	4	2
22	21ME2002	Strength of Materials	3	0	0	3
23	21ME2003	Design of Machine Elements	3	0	0	3
24	21ME2004	Computer Aided Manufacturing Laboratory	0	0	2	1
25	21ME2005	Heat Transfer Laboratory	0	0	2	1
26	21ME2006	Heat and Mass Transfer	3	0	0	3

27	21ME2007	Computational Fluid Dynamics	3	0	0	3
Total Credits						68
PROFESSIONAL ELECTIVE COURSES (PEC)						
S. No	Code No.	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	21ME2009	Application of AI for Mechanical Engineering Systems	2	0	2	3
4	21ME2008	Biomechanics and Biomaterial	3	0	0	3
5	20ME2013	Sensor Technology for Machines	3	0	0	3
Total Credits						15
OPEN ELECTIVE COURSES (OEC)						
S. No	Code No.	Course Title	Hours per week			Credits
			L	T	P	
1	21ME2010	Fluid Power Applications	3	0	0	3
2	21ME2011	Fuel Cells Technology	3	0	0	3
3	21ME2012	MEMS and Micro System Fabrication	3	0	0	3
Total Credits						9
PROJECT (P)						
Sl. No	Code No.	Course Title	Hours per week			Credits
			L	T	P	
1	ITP2903 / ISP2993	Industrial training -1 / Internship - 1	15 Days			1
2	ITP2904 / ISP2994	Industrial training -2 / Internship - 2	15 Days			1
3	ITP2905 / ISP2995	Industrial training -3 / Internship -3	15 Days			1
4	21ME2999	Project	-	-	-	12
Credits						15
MANDATORY COURSES						
S. No	Code No.	Course Title	Hours per week			Credits
			L	T	P	
1	18CH2001	Environmental Studies	3	0	0	0
2	18MS2014	Constitution of India	2	0	0	0
Total Credits						0
ONLINE COURSES						
<i>The students shall earn 5 credits through online courses between 2nd and 7th semester (both inclusive)</i>						

SEMESTERWISE CURRICULUM

SEMESTER- I						
S. No.	Course Code	Course Title	Hours per Week			Credits
			L	T	P	

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	
						Total Credits	20
SEMESTER- II							
S. No.	Course Code	Course Title	Hours per Week			Credits	
			L	T	P		
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	
						Total Credits	19
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	
						Total Credits	20
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
Total Credits						23
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	3	0	0	3
10	ITP2904 / ISP2994	Industrial training -2 / Internship - 2	15 Days			1
Total Credits						22
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
Total Credits						22
SEMESTER- VII						
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 Table au	3	0	2	4
9	20MS2008	Artificial Intelligence for Business	3	0	0	3
Total Credits						22
SEMESTER- VIII						

S. No.	Course Code	Course Title	Hours per Week			Credits
			L	T	P	
1	21ME2999	Project	-	-	-	12
			Total			12