B.Tech. (Mechanical Engineering) 2020 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

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	2	0	2	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	18ME2009	Fluid Mechanics Laboratory	0	0	2	1
9	18ME2012	Strength of Materials	3	0	0	3
10	18ME2013	Strength of Materials Laboratory	0	0	2	1
11	20ME2003	Production and Metrology Laboratory	0	0	4	2
12	18ME2016	Design of Machine Elements	3	0	0	3
13	19ME2026	Applied Thermodynamics	3	0	0	3
14	20ME2001	Engineering Design and Analysis Laboratory	0	0	4	2
15	20ME2010	Kinematics and Dynamics of Machinery	3	1	0	4
16	20ME2015	Applied Thermodynamics Laboratory	0	0	4	2
17	20ME2014	Industrial Safety and Quality Standards	3	0	0	3
18	20EE2001	Electric Vehicle Design	3	0	0	3
19	20ME2002	CNC Programming	3	0	0	3

20	18ME2024	Computer Aided Manufacturing Laboratory	0	0	2	1
21	18ME2011	Heat Transfer Laboratory	0	0	2	1
22	18ME2010	Heat and Mass Transfer	3	0	0	3
23	20ME2007	Automation of Product Life Cycle Management	3	0	0	3
24	18ME2040	Computational Fluid Dynamics	3	0	0	3
25	20ME2005	Computational Fluid Dynamics Laboratory	0	0	2	1
26	20ME2011	Finite Element Methods in Engineering	3	0	0	3
27	20ME2004	Design of Medical Devices and Implants	3	0	0	3
28	20ME2009	Intelligent Robotic System	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	18ME2074	Renewable Energy Technologies	3	0	0	3
4	20ME2013	Sensor Technology for Machines	3	0	0	3
5	20ME2008	Application of Machine Learning for Mechanical Engineering Systems	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	18ME2072	Fluid Power Applications	3	0	0	3
2	18ME2077	Fuel Cells Technology	3	0	0	3
3	18ME2079	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	20ME2999	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				
		The students shall earn 5 credits through online courses between 2nd and 7th semester (both inclusive)				

SEMESTERWISE CURRICULUM

		SEMESTER- I				
S. No.	**Course Code**	**Course Title**	**Hours per Week**			**Cred its**
			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 / 19LN1001	English for Engineering and Technology / German Language	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	18ME2009	Fluid Mechanics Laboratory	0	0	2	1
5	18ME2012	Strength of Materials	3	0	0	3
6	18ME2013	Strength of Materials Laboratory	0	0	2	1
7	20ME2003	Production and Metrology Laboratory	0	0	4	2
8	ITP2903 / ISP2993	Industrial training -1 / Internship - 1	15 Days			1
9	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	18ME2016	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	18ME2024	Computer Aided Manufacturing Laboratory	0	0	2	1
3	18ME2011	Heat Transfer Laboratory	0	0	2	1
4	18ME2010	Heat and Mass Transfer	3	0	0	3
5	20ME2007	Automation of Product Life Cycle Management	3	0	0	3
6	18ME2040	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
			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	18ME2074	Renewable Energy Technologies	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
2	20ME2009	Intelligent Robotic System	3	0	0	3
3	20ME2013	Sensor Technology for Machines	3	0	0	3
4	20ME2008	Application of Machine Learning for Mechanical Engineering Systems	3	0	0	3
5	20ME2006	Engineering Economics and Operation Research	3	0	0	3
6	20CS2058	Basics of Data Analytics - R programming and Table au	3	0	2	4
7	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	20ME2999	Project	-	-	-	12
			Total			12