



SIPNA COLLEGE OF ENGINEERING & TECHNOLOGY, AMRAVATI

An Autonomous Institute Affiliated to

Sant Gadge Baba Amravati University, Amravati, Maharashtra (India)

(Approved by AICTE, New Delhi and Recognized by DTE, Maharashtra)

(Accredited With 'A+' Grade by NAAC)

Bachelor of Technology (B. Tech.)

Programme Scheme of Examination (SoE)

Department of Mechanical Engineering

B. Tech. Mechanical Engineering with Multidisciplinary Minor

(Semester Pattern)

Effective from Academic Year 2024-25

Prepared by: Board of Studies - Mechanical Engineering

Approved by: Academic Council - Sipna COET, Amravati

**SoE. No.
24BTME-01**



			31/08/2024	1.00
Chairman Board of Studies	Dean Academics	Chairman Academic Council	Date of Release	Version



Definition of Subject Code:

1 st & 2 nd letter (Degree Program)	3 rd & 4 th letter (Applicable to which students)	5 th & 6 th letter (Course category)	7 th & 8 th letter (Sr. no. of Subject)	9 th & 10 th letters (Teaching Dept.)	11 th letter (Semester)	12 th letter (Theory or Practical)
BT	AL	BS	01	SH	1	T
BT: B.Tech. MT: M.Tech. MB: MBA	AL: All branches CS: Computer Science and Engineering IT: Information Technology ME: Mechanical Engineering ET: Electronics and Telecommunication Engineering CE: Civil Engineering AD: Artificial Intelligence (AI) and Data Science For MDM 'AL' excluding Teaching Department students'	BS: Basic Science ES: Engineering Science VE: Value Education VS: Vocational and Skill Enhancement AE: Ability Enhancement IK: Indian Knowledge System CC: Co-curricular Course MD: Multidisciplinary Minor OE: Open Elective PC: Program Core PE: Program Elective FP: Field Project H: Humanities N: Entrepreneurship E: Economics M: Management II: Industry Internship RI: Research Internship EI: Entrepreneurship Internship RM: Research Methodology PS: Project and Seminar RP: Research Project and seminar MH: Minors & Honors	Sr. no. of course in the particular Course category from 1 st to 8 th semester.	SH: Science and Humanities CS: Computer Science and Engineering IT: Information Technology ME: Mechanical Engineering ET: Electronics and Telecommunication Engineering CE: Civil Engineering AD: Artificial Intelligence (AI) and Data Science	1. First Semester 2. Second Semester 3. Third Semester 4. Fourth Semester 5. Fifth Semester 6. Sixth Semester 7. Seventh Semester 8. Eighth Semester	T: Theory P: Practical

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Category-wise Course Master Lists

Course Category: Basic Science Courses (BSC)		
Sr. No.	Course Name	Course Code
01	Engineering Mathematics -I	BTALBS01SH1T
02	Engineering Chemistry	BTALBS02SH1T
03	Engineering Chemistry Lab	BTALBS03SH1P
04	Engineering Mathematics -II	BTALBS04SH2T
05	Engineering Physics	BTCSBS05SH2T
06	Engineering Physics Lab	BTCSBS06SH2P
07	Engineering Mathematics -III	BTCSBS07SH4T

Course Category: Engineering Science Courses (ESC)		
Sr. No.	Course Name	Course Code
01	Engineering Graphics	BTALES01ME1T
02	Engineering Graphics Lab	BTALES02ME1P
03	Engineering Mechanics	BTMEES03CE1T
04	Engineering Mechanics Lab	BTMEES04CE1P
05	Basic Electrical Engineering	BTALES05ET2T
06	Basic Electrical Engineering Lab	BTALES06ET2P
07	Programming for Problem Solving	BTMEES07IT2T
08	Programming for Problem Solving Lab	BTMEES08IT2P

Course Category: Vocational and Skill Enhancement Courses (VSEC)		
Sr. No.	Course Name	Course Code
01	Workshop Practice Lab	BTMEVS01ME1P
02	Design Thinking	BTMEVS02ME1T
03	Fundamentals of Computer Graphics Lab	BTMEVS03ME2P
04	Machine Drawing	BTMEVS04ME4P
05	CAD & Simulation	BTMEVS05ME6P

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Course Category: Humanities, Social Science and Management Courses (HSSMC)

Sr. No.	Course Name	Course Code
01	Professional Communication	BTALAE01SH1P
02	Values and Ethics	BTALVE01SH1T
03	Environmental Science	BTALVE02SH1T
04	Indian Knowledge System	BTALIK01SH2T
05	Industrial Management	BTMEHM01ME3T
06	Mechanical Estimation & Costing	BTMEHM02ME4T
07	Regional Language	BTALAE02SH6T

Course Category: Experiential Learning Courses

Sr. No.	Course Name	Course Code
01	Comm. Engineering Project / Field project	BTMEFP01ME5P
02	Project & Seminar / Research Project & Seminar	BTMEPS01ME7P/ BTMERP01ME7P
03	Industry Internship Research Internship	BTMEII01ME8P BTMERI01ME8P
04	Entrepreneurship	BTMEEI01ME8P
05	Research Methodology	BTMERM01ME8T

Course Category: Programme Core Courses (PCC)

Sr. No.	Course Name	Course Code
01	Mechanical Joining Processes	BTMEPC01ME2T
02	Mechanics of Materials	BTMEPC02ME3T
03	Mechanics of Materials Lab	BTMEPC03ME3P
04	Mechanical Shaping & Forming Processes	BTMEPC04ME3T
05	Mechanical Shaping & Forming Process Lab	BTMEPC05ME3P
06	Engineering Thermodynamics	BTMEPC06ME3T
07	Material science	BTMEPC07ME4T
08	Material science Lab	BTMEPC08ME4P
09	Energy Conversion	BTMEPC09ME4T
10	Energy Conversion Lab	BTMEPC10ME4P

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Sr. No.	Course Name	Course Code
11	Mechanical Machining Processes	BTMEPC11ME4T
12	Mechanical Machining Processes Lab	BTMEPC12ME4P
13	Automobile Engineering & EV	BTMEPC13ME4T
14	Metrology & Quality Control	BTMEPC14ME5T
15	Metrology & Quality Control Lab	BTMEPC15ME5P
16	Heat Transfer	BTMEPC16ME5T
17	Heat Transfer Lab	BTMEPC17ME5P
18	Fluid Mechanics & Hydraulic Machines	BTMEPC18ME5T
19	Fluid Mechanics & Hydraulic Machines Lab	BTMEPC19ME5P
20	Design of Machine Elements	BTMEPC20ME6T
21	Design of Machine Elements- lab.	BTMEPC21ME6P
22	Kinematics & Dynamics of Machines	BTMEPC22ME6T
23	Kinematics & Dynamics of Machines Lab	BTMEPC23ME6P
24	Mechatronics	BTMEPC24ME7T
25	Mechatronics- lab.	BTMEPC25ME7P
26	Measurement & Control Systems	BTMEPC26ME7T
27	Measurement & Control Systems Lab	BTMEPC27ME7P
28	Operation Research Techniques	BTMEPC28ME7T

Course Category: Programme Elective Courses (PEC)		
Sr. No.	Course Name	Course Code
01	Power Plant Engineering (PPE)	BTMEPE01ME5T
02	Advance Manufacturing Techniques (AMT)	BTMEPE02ME5T
03	Non-conventional Energy System (NCES)	BTMEPE03ME6T
04	Non-conventional Energy System (NCES) Laboratory	BTMEPE04ME6P
05	Rapid Prototyping (RP)	BTMEPE05ME6T
06	Rapid Prototyping (RP) Laboratory	BTMEPE06ME6P
07	Refrigeration & Air Conditioning (RAC)	BTMEPE07ME6T
08	Refrigeration & Air Conditioning (RAC) Laboratory	BTMEPE08ME6P
09	Robotics & Industrial Application (RIA)	BTMEPE09ME6T
10	Robotics & Industrial Application (RIA) Laboratory	BTMEPE10ME6P

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Sr. No.	Course Name	Course Code
11	Design of Transmission System (DOTS)	BTMEPE11ME7T
12	Productivity Techniques (PT)	BTMEPE12ME7T
13	Internal Combustion Engine (ICE)	BTMEPE13ME7T
14	Internal Combustion Engine (ICE) Laboratory	BTMEPE14ME7P
15	Computer Integrated Manufacturing (CIM)	BTMEPE15ME7T
16	Computer Integrated Manufacturing (CIM) Laboratory	BTMEPE16ME7P

Course Category: Open Elective Courses (OEC)		
Sr. No.	Course Name	Course Code
01	Digital Marketing	BTALOE01CS3T
02	Organization Behavior & Psychology	BTALOE02CS3T
03	Soft Skills & Presentation Skills	BTALOE03IT3T
04	Industry 4.0	BTALOE04IT3T
05	E-Waste Management	BTALOE05ET3T
06	Aptitude & Reasoning	BTALOE06ET3T
07	Green Building Design	BTALOE07CE3T
08	Architectural Graphics	BTALOE08CE3T
09	Introduction to History of Indian Architecture	BTALOE09CE3T
10	Industrial Safety	BTALOE010ME3T
11	International Human Rights System	BTALOE12CS4T
12	Numerical Methods & operational research Techniques	BTALOE13CS4T
13	Cyber Law	BTALOE14IT4T
14	Operations Research	BTALOE15IT4T
15	Non-Conventional Energy Sources	BTALOE16ET4T
16	Consumer Electronics	BTALOE17ET4T
17	Industrial Pollution, Monitoring & Management.	BTALOE18CE4T
18	Air and Noise Pollution Control	BTALOE19CE4T
19	Disaster Management	BTALOE20CE4T
20	Ergonomics	BTALOE21ME4T
21	Industrial Costing	BTALOE22ME4T
22	Quantitative Aptitude	BTETOE23SH4T

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(For ET, CE, ME, AD only)		
		BTCEOE23SH4T
		BTMEOE23SH4T
		BTADOE23SH4T
23	Advanced R Programming for data Analytics in Business	BTALOE24CS5T
24	Introduction to stock market and data analysis	BTALOE25CS5T
25	Intellectual Property Rights	BTALOE26IT5T
26	Product Design in Startup & Innovation	BTALOE27IT5T
27	Application of Drone Technology in Agriculture	BTALOE28ET5T
28	Customer Relationship Management	BTALOE29ET5T
29	Physical Environment & Natural Resources	BTALOE30CE5T
30	Environmental Policies & Governance	BTALOE31CE5T
31	Geology	BTALOE32CE5T
32	Total Quality Management	BTALOE33ME5T

Course Category: Co-curricular Courses (CC)		
Sr. No.	Course Name	Course Code
01	Music Vocal -I/II	BTALCC01SH1P/ BTALCC01SH2P
02	Music Instrumental (Guitar)-I/II	BTALCC03SH1P/ BTALCC03SH2P
03	Dance-I/II	BTALCC05SH1P/ BTALCC05SH2P
04	Basketball -I/II	BTALCC07SH1P/ BTALCC07SH2P
05	Cricket -I/II	BTALCC09SH1P/ BTALCC09SH2P
06	Volleyball-I/II	BTALCC11SH1P/ BTALCC11SH2P
07	Language Sanskrit - I/II	BTALCC13SH1P/ BTALCC13SH2P
08	Human Psychology - I/II	BTALCC15SH1P/ BTALCC15SH2P
09	Drama/ Theater Activity - I/II	BTALCC17SH1P/ BTALCC17SH2P
10	Mindfulness Meditation Program - I/II	BTALCC19SH1P/ BTALCC19SH2P
11	NSS - I/II	BTALCC21SH1P/ BTALCC21SH2P
12	Yoga - I/II	BTALCC23SH1P/ BTALCC23SH2P
13	Film Making - I/II	BTALCC25SH1P/ BTALCC25SH2P


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Course Category: Multidisciplinary Minor Courses (MDM)		
Sr. No.	Course Name	Course Code
01	Manufacturing Processes	BTALMD11ME3T
02	Advance Manufacturing Processes	BTALMD12ME4T
03	Metrology & Quality Control	BTALMD13ME5T
04	Productivity Techniques	BTALMD14ME6T
05	Term Work	BTALMD15ME8P
06	Photovoltaic Energy System	BTALMD21ME3T
07	Energy Management	BTALMD22ME4T
08	Energy Efficiency of Thermal Utility	BTALMD23ME5T
09	Sustainable Energy Conversion System	BTALMD24ME6T
10	Term Work	BTALMD25ME8P


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Scheme Semester - I

Scheme for First Year B. Tech. In Mechanical Engineering (Semester -I)															
Sr. No.	Course Name	Course Code	Course Plan per Week (Hrs)					Theory Evaluation				Practical Evaluation		Total	ESE Time (Hrs)
			L	P	T	Hrs	Credits	MSE - I	MSE - II	TA	ESE	INT	EXT		
Basic Science Courses (BSC)															
1	Engineering Mathematics -I	BTALBS01SH1T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
2	Engineering Chemistry	BTALBS02SH1T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
3	Engineering Chemistry Lab	BTALBS03SH1P	-	2	-	2	1	-	-	-	-	30	20	50	-
Engineering Science Courses (ESC)															
4	Engineering Graphics	BTALES01ME1T	3	-	-	3	3	15	15	10	60	-	-	100	3.0
5	Engineering Graphics Lab	BTALES02ME1P	0	2	-	2	1	-	-	-	-	30	20	50	-
6	Engineering Mechanics	BTMEES03CE1T	2	-	-	2	2	15	15	10	60	-	-	100	2.5
7	Engineering Mechanics Lab	BTMEES04CE1P	-	2	-	2	1	-	-	-	-	30	20	50	-
Vocational and Skill Enhancement Courses (VSEC)															
8	Workshop Practice Lab	BTMEVS01ME1P	-	2	-	2	1	-	-	-	-	30	20	50	-
9	Design Thinking	BTMEVS02ME1T	1	-	-	1	1	-	-	50	-	-	-	50	-
Ability Enhancement Courses (AEC)															
10	Professional Communication Lab	BTALAE01SH1P	-	2	1	3	2	-	-	-	-	30	20	50	-
Value Education Courses (VEC)															
12	Values & Ethics	BTALVE01SH1T	2	-	-	2	2	15	15	10	60	-	-	100	2.5
12	Environmental Studies	BTALVE02SH1T	1	-	-	1	1	-	-	50	-	-	-	50	-
Co-curricular Course (CC)															
13	Co-curricular course (CC1)	--	-	2	-	2	1	-	-	50	-	-	-	50	-
TOTAL			15	12	1	28	22	75	75	200	300	150	100	900	-

L: Lecture P: Practical T: Tutorial MSE: Mid Semester Exam ESE: End Semester Exam TA: Teacher Assessment INT: Internal EXT: External

List of Co-Curricular Courses (CC1) Semester-I (Choose any one course)

Sr. No.	Course Code Sem. I	Co-curricular Courses	Course Code Sem. II	S.N.	Course Code Sem. I	Co-curricular Courses	Course Code Sem. II
1	BTALCC01SH1P	Music Vocal - I	BTALCC01SH2P	8	BTALCC15SH1P	Human psychology - I	BTALCC15SH2P
2	BTALCC03SH1P	Music Instrumental (Guitar) - I	BTALCC03SH2P	9	BTALCC17SH1P	Drama/ Theater Activity - I	BTALCC17SH2P
3	BTALCC05SH1P	Dance - I	BTALCC05SH2P	10	BTALCC19SH1P	Mindfulness Meditation Program - I	BTALCC19SH2P
4	BTALCC07SH1P	Basketball - I	BTALCC07SH2P	11	BTALCC21SH1P	NSS - I	BTALCC21SH2P
5	BTALCC09SH1P	Cricket - I	BTALCC09SH2P	12	BTALCC23SH1P	Yoga - I	BTALCC23SH2P
6	BTALCC11SH1P	Volleyball - I	BTALCC11SH2P	13	BTALCC25SH1P	Film Making - I	BTALCC25SH2P
7	BTALCC13SH1P	Language Sanskrit - I	BTALCC13SH2P	--	--	--	--

Note: Six hours per week are allotted for continuous evaluation process of above subjects (Total contact hours per week = 34 Hrs).

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8
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24BTME-01

Scheme Semester - II

Sr. No.	Course Name	Course Code	Course Plan per Week (Hrs)					Theory Evaluation				Practical Evaluation		Total	ESE Time (Hrs)
			L	P	T	Hrs	Credits	MSE - I	MSE - II	TA	ESE	INT	EXT		
			Scheme for First Year B. Tech. In Mechanical Engineering (Semester -II)												
Basic Science Courses (BSC)															
1	Applied Mathematics -II	BTALBS04SH2T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
2	Engineering Physics	BTMEBS05SH2T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
3	Engineering Physics Lab	BTMEBS06SH2P	-	2	-	2	1	-	-	-	-	30	20	50	-
Engineering Science Courses (ESC)															
4	Basic Electrical Engineering	BTALES05ET2T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
5	Basic Electrical Engineering Lab	BTALES06ET2P	-	2	-	2	1	-	-	-	-	30	20	50	-
6	Programming for Problem Solving	BTMEES07IT2T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
7	Programming for Problem Solving Lab	BTMEES08IT2P	-	2	-	2	1	-	-	-	-	30	20	50	-
8	Mechanical Joining Processes Lab	BTMEES09ME2P	-	2	-	2	1	-	-	-	-	30	20	50	-
Vocational and Skill Enhancement Courses (VSEC)															
9	Fundamentals of Computer Graphics Lab	BTMEVS03ME2P	-	2	-	2	1	-	-	-	-	50	-	50	-
Program Core Courses (PCC)															
10	Mechanical Joining Processes	BTMEPC01ME2T	2	-	-	2	2	15	15	10	60	-	-	100	2.5
Indian Knowledge System (IKS)															
11	Indian Knowledge System	BTALIK01SH2T	2	-	-	2	2	-	-	50	-	-	-	50	-
Co-curricular Courses (CC)															
12	Co-curricular Course (CC-2)	-----	-	2	-	2	1	-	-	50	-	-	-	50	-
TOTAL			16	12	-	28	22	75	75	150	300	170	80	850	

L: Lecture P: Practical T: Tutorial MSE: Mid Semester Exam ESE: End Semester Exam TA: Teacher Assessment INT: Internal EXT: External

List of Co-Curricular Courses (CC2) Semester-II (Choose any one course)

Sr. No.	Course Code Sem. I	Co-curricular Courses	Course Code Sem. II	S.N.	Course Code Sem. I	Co-curricular Courses	Course Code Sem. II
1	BTALCC02SH1P	Music Vocal -II	BTALCC02SH2P	8	BTALCC16SH1P	Human psychology -II	BTALCC16SH2P
2	BTALCC04SH1P	Music Instrumental (Guitar)-II	BTALCC04SH2P	9	BTALCC18SH1P	Drama/ Theater Activity -II	BTALCC18SH2P
3	BTALCC06SH1P	Dance-II	BTALCC06SH2P	10	BTALCC20SH1P	Mindfulness Meditation Program -II	BTALCC20SH2P
4	BTALCC08SH1P	Basketball -II	BTALCC08SH2P	11	BTALCC22SH1P	NSS-II	BTALCC22SH2P
5	BTALCC10SH1P	Cricket -II	BTALCC10SH2P	12	BTALCC24SH1P	Yoga -II	BTALCC24SH2P
6	BTALCC12SH1P	Volleyball -II	BTALCC12SH2P	13	BTALCC26SH1P	Film Making - II	BTALCC26SH2P
7	BTALCC14SH1P	Language Sanskrit -II	BTALCC14SH2P	--	--	--	--

Note: Six hours per week are allotted for continuous evaluation process of above subjects (Total contact hours per week = 34 Hrs).

Scheme for Multiple Entry and Exit

Exitoption1 (L1 - 4.5): Award of UG Certificate in Major with 44 credits and an additional 8 credits.		
Exit Courses	Method	Credits
1. Welding Technology / Joining Process	Online certification Course	2
2. One Month Internship at Industry	As per the instruction from the department	6



Scheme Semester - III

Scheme for Second Year B. Tech. In Mechanical Engineering (Semester-III)															
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)				Credit	Theory Evaluation				Practical Evaluation		Total	ESE Time Hrs.
			L	P	T	Hrs		MSE-I	MSE-II	TA	ESE	INT	EXT		
Engineering Science Courses (ESC)															
1	Applied Mathematics -III	BTMEBS07SH3T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
Program Core Courses (PCC)															
2	Mechanics of Materials	BTMEPC02ME3T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
3	Mechanics of Materials Lab	BTMEPC03ME3P	-	2	-	2	1	-	-	-	-	30	20	50	-
4	Mechanical Shaping & Forming Process	BTMEPC04ME3T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
5	Mechanical Shaping & Forming Processes Lab	BTMEPC05ME3P	-	2	-	2	1	-	-	-	-	30	20	50	-
6	Engineering Thermodynamics	BTMEPC06ME3T	3	-	1	4	4	15	15	10	60	-	-	100	2.5
Multidisciplinary Minor Courses (MDM)															
7	Multidisciplinary Minor-I	--	3	-	-	3	3	15	15	10	60	-	-	100	2.5
Open Elective Courses (OEC)															
8	Open Elective-I	--	2	-	-	2	2	15	15	10	60	-	-	100	2.5
Entrepreneurship/ Economics/ Management Course (HSSMC)															
9	Industrial Management	BTMEHM01ME3T	2	-	-	2	2	15	15	10	60	-	-	100	2.5
TOTAL			19	4	1	24	22	105	105	70	420	60	40	800	-

L: Lecture P: Practical T: Tutorial MSE: Mid Semester Exam ESE: End Semester Exam TA: Teacher Assessment INT: Internal EXT: External

Note: For syllabus and course code of Multidisciplinary Minor - I (Semester - III) refer Departmental MDM document.

List of Open Elective Courses (OE-I) Semester-III (Choose any one course)

Sr. No.	Open Elective - I	Course Code	Faculty	Sr. No.	Open Elective - I	Course Code	Faculty
1	Digital Marketing	BTALOE01CS3T	Management and Finance	7	Green Building Design	BTALOE07CE3T	Science
2	Organization Behavior & Psychology	BTALOE02CS3T	Psychology	8	Architectural Graphics	BTALOE08CE3T	Architecture
3	Soft Skills & Presentation Skills	BTALOE03IT3T	Management	9	Introduction to History of Indian Architecture	BTALOE09CE3T	Architecture
4	Industry 4.0	BTALOE04IT3T	Management	10	Industrial Safety	BTALOE10ME3T	Health & Safety
5	E-Waste Management	BTALOE05ET3T	Commerce	11	Quantitative Aptitude (For CS, IT only)	BTCOE011SH3T BTITOE011SH3T	Science
6	Aptitude & Reasoning	BTALOE06ET3T	Humanities Science	--	----	----	----

Note: For syllabus of Open Elective - I (Semester III) [click here](#).

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Scheme Semester - IV

Scheme for Second Year B. Tech. In Mechanical Engineering (Semester -IV)															
Sr. No.	Course Name	Code	Course Plan / Week (Hrs)				Credits	Theory Evaluation				Practical Evaluation		Total	ESE Time Hrs.
			L	P	T	Hrs		MSE-I	MSE-II	TA	ESE	INT	EXT		
Program Core Courses (PCC)															
1	Material science	BTMEPC07ME4T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
2	Material science Lab	BTMEPC08ME4P	0	2	-	2	1	-	-	-	-	30	20	50	-
3	Energy Conversion	BTMEPC09ME4T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
4	Energy Conversion Lab	BTMEPC10ME4P	-	2	-	2	1	-	-	-	-	30	20	50	-
5	Mechanical Machining Processes	BTMEPC11ME4T	2	-	-	2	2	15	15	10	60	-	-	100	2.5
6	Mechanical Machining Processes Lab	BTMEPC12ME4P	-	2	-	2	1	-	-	-	-	30	20	50	-
7	Automobile Engineering & EV	BTMEPC13ME4T	2	-	-	2	2	15	15	10	60	-	-	100	2.5
Multidisciplinary Minor Courses (MDM)															
8	Multidisciplinary Minor - II	--	3	-	-	3	3	15	15	10	60	-	-	100	2.5
Vocational and Skill Enhancement Courses (VSEC)															
9	Machine Drawing	BTMEVS04ME4P	1	2	-	3	2	-	-	-	-	50	-	50	-
Open Elective Courses (OEC)															
10	Open Elective- II	--	2	-	-	2	2	15	15	10	60	-	-	100	2.5
Entrepreneurship/ Economics/ Management Course (HSSMC)															
11	Mechanical Estimation & Costing	BTMEHM02ME4T	2	-	-	2	2	15	15	10	60	-	-	100	2.5
TOTAL			18	8	0	26	22	105	105	70	420	140	60	900	-

L: Lecture P: Practical T: Tutorial MSE: Mid Semester Exam ESE: End Semester Exam TA: Teacher Assessment INT: Internal EXT: External

Note: For syllabus and course code of Multidisciplinary Minor - II (Semester - IV) refer Departmental MDM document.

List of Open Elective Courses (OE-II) Semester-IV (Choose any one course)

Sr. No.	Open Elective-II	Course Code	Faculty	Sr. No.	Open Elective-II	Course Code	Faculty
1	International Human Rights System	BTALOE12CS4T	Law	7	Industrial Pollution, Monitoring & Mgmt.	BTALOE18CE4T	Environmental Science
2	Numerical Methods & operational research Techniques	BTALOE13CS4T	Management	8	Air and Noise Pollution Control	BTALOE19CE4T	Environmental Science
3	Cyber Law	BTALOE14IT4T	Law	9	Disaster Management	BTALOE20CE4T	Environmental Science
4	Operations Research	BTALOE15IT4T	Management	10	Ergonomics	BTALOE21ME4T	Health & Safety
5	Non-Conventional Energy Sources	BTALOE16ET4T	Humanities Science	11	Industrial Costing	BTALOE22ME4T	Commerce
6	Consumer electronics	BTALOE17ET4T	Commerce	12	Quantitative Aptitude (For ET, CE, ME, AD only)	BTETOE23SH4T BTCEOE23SH4T BTMEOE23SH4T BTADOE23SH4T	Science

Note: For syllabus of Open Elective - II (Semester - IV) [click here](#).

Scheme for Multiple Entry and Exit

Exit option 2 (L2 - 5.0): Award of Two Years UG Diploma in Major with 88 credits and an additional 8 credits

Exit Courses		Credits
1. Advance certification course on any one of 2 nd year PCC.	Online certification Course	3
2. One Month Internship at Industry	As per the instruction from Department	5



Scheme Semester - V

Scheme for Third Year B. Tech. In Mechanical Engineering (Semester -V)																
Sr. No.	Course Name	Code	Course Plan / Week (Hrs)				Credits	Theory Evaluation				Practical Evaluation		Total	ESE Time (Hrs)	
			L	P	T	Hrs		MSE-I	MSE- II	TA	ESE	INT	EXT			
Program Core Courses (PCC) / Program Elective Courses (PEC)																
1	Metrology & Quality Control	BTMEPC14ME5T	3	-	-	3	3	15	15	10	60	-	-	100	2.5	
2	Metrology & Quality Control Lab	BTMEPC15ME5P	-	2	-	2	1	-	-	-	-	30	20	50	-	
3	Heat Transfer	BTMEPC16ME5T	3	-	-	3	3	15	15	10	60	-	-	100	2.5	
4	Heat Transfer Lab	BTMEPC17ME5P	-	2	-	2	1	-	-	-	-	30	20	50	-	
5	Fluid Mechanics & Hydraulic Machines	BTMEPC18ME5T	3	-	-	3	3	15	15	10	60	-	-	100	2.5	
6	Fluid Mechanics & Hydraulic Machines Lab	BTMEPC19ME5P	-	2	-	2	1	-	-	-	-	30	20	50	-	
7	Program Elective - I	--	3	-	1	4	4	15	15	10	60	-	-	100	2.5	
8	Comm. Engg. Project/Field project	BTMEFP01ME5P	-	2	-	2	1	-	-	-	-	50	-	50	-	
Multidisciplinary Minor Courses (MDM)																
9	Multidisciplinary Minor - III	--	3	-	-	3	3	15	15	10	60	-	-	100	2.5	
Open Elective Courses (OEC)																
10	Open Elective- III	--	2	-	-	2	2	15	15	10	60	-	-	100	2.5	
TOTAL			17	8	1	26	22	90	90	60	360	140	60	800	-	

L: Lecture P: Practical T: Tutorial MSE: Mid Semester Exam ESE: End Semester Exam TA: Teacher Assessment INT: Internal EXT: External

Note: For syllabus and course code of Multidisciplinary Minor - III (Semester - V) refer Departmental MDM document.

Programme Elective Courses (PEC-I) Semester-V (Choose any one course)

Sr. No.	Course Name	Course Code
1	Power Plant Engineering (PPE)	BTMEPE01ME5T
2	Advance Manufacturing Techniques (AMT)	BTMEPE02ME5T

Note: Suitable number of hours per week are allotted for continuous evaluation process for above subjects (Total contact hours per week = 34 Hrs.).

List of Open Elective Courses (OE-III) Semester-V (Choose any one course)

Sr. No.	Open Elective-III	Course Code	Faculty	Sr. No.	Open Elective-III	Course Code	Faculty
1	Advanced R Programming for data Analytics in Business	BTALOE24CS5T	Management Finance	6	Customer Relation Management	BTALOE29ET5T	Commerce
2	Introduction to stock market and data analysis	BTALOE25CS5T	Finance	7	Physical Environment & Natural Resources	BTALOE30CE5T	Science
3	Intellectual Property Rights	BTALOE26IT5T	Management	8	Environmental Policies & Governance	BTALOE31CE5T	Science
4	Product Design in Startup & Innovation	BTALOE27IT5T	Management	9	Geology	BTALOE32CE5T	Science
5	Application of Drone Technology in Agriculture	BTALOE28ET5T	Agriculture	10	Total Quality Management	BTALOE33ME5T	Management

Note: For syllabus of Open Elective - III (Semester - V) [click here](#)

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Academic Council Meeting

12



Scheme Semester - VI

Scheme for Third Year B. Tech. In Mechanical Engineering (Semester -VI)																
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)				Credit	Theory Evaluation				Practical Evaluation		Total	ESE Time Hrs.	
			L	P	T	Hrs		MSE-I	MSE- II	TA	ESE	INT	EXT			
Program Core Courses (PCC) / Program Elective Courses (PEC)																
1	Design of Machine Elements	BTMEPC20ME6T	3	-	-	3	3	15	15	10	60	-	-	100	2.5	
2	Design of Machine Elements lab	BTMEPC21ME6P	-	2	-	2	1	-	-	-	-	30	20	50	-	
3	Kinematics & Dynamics of Machines	BTMEPC22ME6T	3	-	-	3	3	15	15	10	60	-	-	100	2.5	
4	Kinematics & Dynamics of Machines Lab	BTMEPC23ME6P	-	2	-	2	1	-	-	-	-	30	20	50	-	
5	Prof. Elective - II	--	3	-	-	3	3	15	15	10	60	-	-	100	2.5	
6	Prof. Elective - II Lab	--	-	2	-	2	1	-	-	-	-	30	20	50	-	
7	Prof. Elective - III	--	3	-	-	3	3	15	15	10	60	-	-	100	2.5	
8	Prof. Elective - III Lab	--	-	2	-	2	1	-	-	-	-	30	20	50	-	
Ability Enhancement Courses (AEC)																
9	Regional Language	BTALAE02SH6T	1	-	-	1	1	-	-	50	-	-	-	50	2.0	
Multidisciplinary Minor Courses (MDM)																
10	Multidisciplinary Minor - IV	--	3	-	-	3	3	15	15	10	60	-	-	100	2.5	
Vocational and Skill Enhancement Courses (VSEC)																
11	CAD & Simulation	BTMEVS05ME6P	1	2	-	3	2	-	-	-	-	50	-	50	2.5	
TOTAL			17	10	-	27	22	75	75	100	300	170	80	800	-	

L: Lecture P: Practical T: Tutorial MSE: Mid Semester Exam ESE: End Semester Exam TA: Teacher Assessment INT: Internal EXT: External

Note: For syllabus and course code of Multidisciplinary Minor - IV (Semester - VI) refer Departmental MDM document.

Programme Elective Courses (PEC-II) Semester-VI (Choose any one course with corresponding lab.)

Sr. No.	Course Name	Course Code
1	Non-conventional Energy System (NCES)	BTMEPE03ME6T
2	Non-conventional Energy System (NCES) Lab	BTMEPE04ME6P
3	Rapid Prototyping (RP)	BTMEPE05ME6T
4	Rapid Prototyping (RP) Lab	BTMEPE06ME6P

Programme Elective Courses (PEC-III) Semester-VI (Choose any one course with corresponding lab.)

Sr. No.	Course Name	Course Code
1	Refrigeration & Air Conditioning (RAC)	BTMEPE07ME6T
2	Refrigeration & Air Conditioning (RAC) Lab	BTMEPE08ME6P
3	Robotics & Industrial Application (RIA)	BTMEPE09ME6T
4	Robotics & Industrial Application (RIA) Lab	BTMEPE10ME6P

Scheme for Multiple Entry and Exit

Exit option 3 (L3 - 5.5): Award of Three Years Bachelor's Degree (B. Voc. Or B.Sc.) in Major with 132 credits and an additional 8 credits			Credits
Exit Courses			
1.	Certified course of graphic software OR Advance certified course on 3 rd year PCC or PEC.	Online certification Course	3
1.	Certified course of analysis software OR Advance certified course on 3 rd year PCC or PEC.	Online certification Course	3
2.	One Month Internship at Industry	As per the instruction from Department	2



Semester - VII

Scheme for Fourth Year B. Tech. In Mechanical Engineering (Semester -VII)															
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)				Credits	Theory Evaluation				Practical Evaluation		Total	ESE Time Hrs.
			L	P	T	Hrs		MSE-I	MSE-II	TA	ESE	INT	EXT		
Program Core Courses (PCC) / Program Elective Courses (PEC)															
1	Mechatronics	BTMEPC24ME7T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
2	Mechatronics- lab.	BTMEPC25ME7P	-	2	-	2	1	-	-	-	-	30	20	50	-
3	Measurement & Control Systems	BTMEPC26ME7T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
4	Measurement & Control Systems Lab	BTMEPC27ME7P	-	2	-	2	1	-	-	-	-	30	20	50	-
5	Operation Research Techniques	BTMEPC28ME7T	3	-	-	3	3	15	15	10	60	-	-	100	2.5
6	Program Elective - IV	--	3	-	-	3	3	15	15	10	60	-	-	100	2.5
7	Program Elective - V	--	3	-	-	3	3	15	15	10	60	-	-	100	2.5
8	Program Elective - V Lab	--	-	2	-	2	1	-	-	-	-	30	20	50	-
9	Project & Seminar / Research Project & Seminar	BTMEPS01ME7P BTMERP01ME7P	-	8	-	8	4	-	-	-	-	30	20	50	-
TOTAL			15	14	-	29	22	75	75	50	300	120	80	700	-

L: Lecture P: Practical T: Tutorial MSE: Mid Semester Exam ESE: End Semester Exam TA: Teacher Assessment INT: Internal EXT: External

Programme Elective Courses (PEC-IV) Semester-VII(Choose any one course)

Sr. No.	Course Name	Course Code
1	Design of Transmission System (DOTS)	BTMEPE11ME7T
2	Productivity Techniques (PT)	BTMEPE12ME7T

Programme Elective Courses (PEC-V) Semester-VII (Choose any one course with corresponding lab.)

Sr. No.	Course Name	Course Code
1	Internal Combustion Engine (ICE)	BTMEPE13ME7T
2	Internal Combustion Engine (ICE) Lab	BTMEPE14ME7P
3	Computer Integrated Manufacturing (CIM)	BTMEPE15ME7T
4	Computer Integrated Manufacturing (CIM) Lab	BTMEPE16ME7P


 APPROVED in.....^{1st}.....
 Academic Council Meeting
 Dated:-...31/08/2024.....



Semester - VIII

Scheme for Fourth Year B. Tech. In Mechanical Engineering (Semester -VIII)															
Sr. No.	Course Name	Code	Course Plan / Week (Hrs)				Credits	Theory Evaluation				Practical Evaluation		Total	ESE Time Hrs.
			L	P	T	Hrs		MSE- I	MSE- II	TA	ESE	INT	EXT		
Program Core Courses (PCC)															
1	Industry Internship/ Research Internship / Entrepreneurship	BTMEII01ME8P/ BTMERI01ME8P/ BTMEEI01ME8P	-	24	-	24	12	-	-	-	-	-	100	100	-
2	Research Methodology	BTMERM01ME8T	3	-	1	4	4	15	15	10	60	-	-	100	2.5
Multidisciplinary Minor Courses (MDM)															
3	Multidisciplinary Minor - V	--	-	4	-	4	2	-	-	-	-	50	-	50	-
TOTAL			3	28	1	32	18	15	15	10	60	50	100	250	-

L: Lecture P: Practical T: Tutorial MSE: Mid Semester Exam ESE: End Semester Exam TA: Teacher Assessment INT: Internal EXT: External

Note: 1. For course code of Multidisciplinary Minor - V (Semester - VIII) refer Departmental MDM document.
 2. Suitable number of hours per week are allotted for continuous evaluation process of all subjects from semester 3 to semester 8 (Total contact hours per week = 34 Hrs).

APPROVED in.....
 Academic Council Meeting
 Dated: 31/08/2024