K.E. Society's
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(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Curriculum Structure and Evaluation Scheme
To be implemented for 2022-26 Batch
Department of Mechanical Engineering
Rev: ME Course Structure/RIT/01/2022-26

B.Tech. in Mechanical Engineering with Multidisciplinary Minor

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Class: S. Y. B. Tech **Semester:** III

Course Code	Course	Teaching Scheme				Evaluation Scheme				
		L	T	P	Credits	Scheme	Theory (Marks %) Max	Theory (Marks %) Min. for passing		Practical (Marks %) Max.	Practical (Marks %) Min. for passing
ME2094	Mathematics for Mechanical Engineers	2	-	-	2	ISE	20	40	40	---	---
						UT1	15				
						UT2	15				
						ESE	50	40			
ME2114	Manufacturing Processes and Machine Tool	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME2134	Engineering Thermodynamics	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME2154	Engineering Mechanics	2	-	-	2	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
-	Multidisciplinary Minor- I	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME2174	Computer Programming C++	-	-	2	1	ISE	---	---	---	50	50
						ESE	---	---		50	50
ME2314	Engineering Mechanics Lab	-	-	2	1	ISE	---	---		100	50
ME2334	Machine Drawing Lab	-	-	2	1	ISE	---	---		50	50
						ESE	---	---		50	50
ME2354	Workshop Practice-I	-	-	2	1	ISE	---	---		100	50
ME2374	Technical Aptitude-I	-	-	2	1	ESE	---	---		100	50
-	Professional Skills Development and Foreign Languages	-	-	2	1	ISE	---	---		100	50
-	**TOTAL**	**13**	-	**12**	**19**	-					
	TOTAL CONTACT HOURS	**25**									

ISE - In Semester Evaluation, UT1 - Unit Test-1, UT2 -Unit Test-2, ESE - End Semester Exam.

Total Contact Hours/week : 25
Total Credits : 19

Technical Aptitude Courses: Mathematics for Mechanical Engineers, Manufacturing Processes and Machine Tools, Engineering Thermodynamics, Engineering Mechanics.

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Sr. No.	Subject Name		Course Code
1.	Professional Skills Development and Foreign Languages	Professional Leadership Skills	**SH2634**
2.		Interpersonal Skills	**SH2614**
3.		Innovation Tools and Methods for Entrepreneurs	**SH2694**
4.		Personal Effectiveness and Body Language	**SH2594**
5.		German Language-III	**SH2734**
6.		Japanese Language-III	**SH2714**

Note:

1. A student has to complete any two courses out of six choices offered under Choice Based Professional Skills Development Programme. A course in each semester will be allocated without any repetition.
2. Foreign Language course selected in F. Y. B. Tech Sem-I will remain the same with next levels in Sem-III & IV. (No new entries in S. Y. B. Tech Sem-III).

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Class: S. Y. B. Tech **Semester:** IV

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks %)			Practical (Marks %)	
							Max	Min. for passing		Max	Min.for passing
ME216	Fluid Mechanics and Turbomachinery	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME2124	Mechanics of Solids	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME2144	Material Science and Metallurgy	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			--	---
						UT2	15			---	---
						ESE	50	40		---	---
-	Multidisciplinary Minor-II	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			--	---
						UT2	15			---	---
						ESE	50	40		---	---
-	Modern Indian Language	2	-	-	2	ISE	100	50	---	---	-
SH2174	Environmental Science	1	-	2	2	ISE	50	40	40	---	---
						ESE	50	40		---	---
ME2204	Fluid Mechanics and Turbomachinery Lab	-	-	2	1	ISE	---	---	---	50	50
						ESE	---	---		50	50
ME2224	CAD Modelling Lab	-	-	2	1	ISE	---	---	---	50	50
						ESE	---			50	50
ME2244	Material Science and Metallurgy Lab	-	-	2	1	ISE	---	---	---	50	50
						ESE	---			50	50
ME2344	Workshop Practice-II	-	-	2	1	ISE	---	---		100	50
ME2364	Technical Aptitude-II	-	-	2	1	ESE	---	---		100	50
-	Professional Skills Development and Foreign Languages-II	-	-	2	1	ISE	---	---	--	100	50
-	**TOTAL**	**15**	**-**	**14**	**22**	-					
	TOTAL CONTACT HOURS	**29**									

ISE - In Semester Evaluation, UT1 - Unit Test I, UT2 - Unit Test II, ESE - End Semester Exam.

Total Contact Hours/week : 29
Total Credits : 22

Technical Aptitude Courses: Fluid Mechanics and Turbomachinery, Mechanics of Solids, Material Science and Metallurgy.

Note: Students are required to undergo industrial / field training of minimum two weeks in the vacation of Semester-IV and its evaluation will be carried out in the Semester-V.

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Sr. No.	Subject Name		Course Code
1.	Professional Skills Development and Foreign Languages	Professional Leadership Skills	**SH2634**
2.		Interpersonal Skills	**SH2614**
3.		Innovation Tools and Methods for Entrepreneurs	**SH2694**
4.		Personal Effectiveness and Body Language	**SH2594**
5.		German Language-IV	**SH2644**
6.		Japanese Language-IV	**SH2624**

Note:

1. A student has to complete any two courses out of six choices offered under Choice Based Professional Skills Development Programme. A course in each semester will be allocated without any repetition.
2. Foreign Language course selected in F. Y. B. Tech Sem-I will remain the same with next levels in Sem-III & IV. (No new entries in S. Y. B. Tech Sem-III)

Sr. No.	Modern Indian Language: Subject Name	Course Code
1.	मराठी भाषिक कौशल्यविकास	SH202
2.	हिंदी कथा साहित्य एवं प्रयोजमूलक हिंदी	SH204

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Class: T. Y. B. Tech **Semester:** V

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks %)			Practical (Marks %)	
							Max	Min. for Passing		Max	Min. for passing
ME3114	Heat and Mass Transfer	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME313	Kinematics and Dynamics of Machines	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
-	Program Elective-I	2	-	-	2	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
-	Open Elective-I	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
-	Multidisciplinary Minor- III	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
-	Multidisciplinary Minor- IV	2	-	-	2	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH3034	Scholastic Aptitude-I	2	-	-	2	ISE	20	40	40	---	----
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME3214	Heat and Mass Transfer Lab	-	-	2	1	ISE	---	---	---	50	50
						ESE	---	---	---	50	50
ME3234	Kinematics and Dynamics of Machines Lab	-	-	2	1	ISE	---	---	---	100	50
ME3254	Software Training Lab-I	-	-	2	1	ISE	---	---	---	100	50
ME3814	Technical Aptitude-III	-	-	2	1	ESE	---	---	---	100	50
ME3834	Summer Internship	-	-	-	2	ISE	---	---	---	100	50
-	**TOTAL**	**18**	**-**	**8**	**24**	-					
	TOTAL CONTACT HOURS	**26**									

ISE - In Semester Evaluation, UT1 - Unit Test I, UT2 - Unit Test II, ESE - End Semester Exam.

Total Contact Hours/week : 26
Total Credits : 24
Technical Aptitude Courses : Heat and Mass Transfer, Kinematics and Dynamics of Machines.

Program Elective-I

Sr. No	Course Code	Domain	Course
1.	**ME3314**	Design	Mechanics of Composite Material
2.	**ME333**		Engineering Optimization
3.	**ME3354**		Fracture Mechanics
4.	**ME336**		Python Programing
5.	**ME3414**	Thermal	Cogeneration and Waste Heat Utilization
6.	**ME343**		Alternative Sources of Energy
7.	**ME345**		Hybrid and Electric Vehicles
8.	**ME3514**	Manufacturing	World Class Manufacturing
9.	**ME3534**		Non-Traditional Machining Processes
10.	**ME359**		Operations Research
11.	**ME363**		Quality Management System
12.	**ME3594**		Production and Operation Management
13.	**ME361**		Sensors and Actuators in Robotic Technology

Open Elective- I			
Sr. No	**Course Code**	**Course Name**	**Offered By Department**
1.	OE345	Soft Computing	Computer Science & Information Technology
2.	OE361	Object Oriented Modeling and Design	Computer Science & Information Technology
3.	OE343	Data Science	Computer Science & Engineering (Artificial Intelligence and Machine Learning)
4.	OE347	New Product Design & Development	Mechanical Engineering
5.	OE349	Non-Conventional Energy Sources	Mechanical Engineering
6.	OE351	Hydrogen & Fuel Cell Technology	Mechanical Engineering
7.	OE3044	Renewable Energy Sources	Automobile Engineering
8.	OE353	Factory Automation	Mechatronics Engineering
9.	OE355	Cyber Physical Systems	Mechatronics Engineering
10.	OE3104	Network Administration	Computer Science & Engineering
11.	OE3064	Environmental Impact	Civil Engineering

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		Assessment	
12	OE350	Operations Research	Civil Engineering
13	OE341	Energy Auditing and Management	Electrical Engineering
14	OE357	Internet of Things	Electronics & Telecommunication Engineering
15	OE359	Drone Technology	Electronics & Telecommunication Engineering

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Class: T. Y. B. Tech **Semester:** VI

Course Code	Course	Teaching Scheme				Evaluation Scheme					
							Theory (Marks %)			Practical (Marks %)	
		L	T	P	Credits	Scheme	Max	Min. for passing		Max	Min. for passing
ME3104	Finite Element Method	2	-	-	2	ISE	20	40	40	---	---
						UT1	15				
						UT2	15				
						ESE	50	40			
ME3124	Applied Thermal Engineering	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME3144	Design of Machine Elements	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME316	Research Methodology	2	-	-	2	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
-	Program Elective-II	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
-	Open Elective-II	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
-	Multidisciplinary Minor-V	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
SH3064	Scholastic Aptitude-II	2	-	-	2	ISE	20	40	40	---	----
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
ME3644	Software Training Lab-II	-	-	2	1	ISE	--	--	--	100	50
ME3664	Applied Thermal Engineering Lab	-	-	2	1	ISE	---	---	---	100	50
ME3744	Technical Aptitude-IV	-	-	2	1	ESE	---	---	---	100	50
ME3764	Capstone project Phase I	-	-	2	1	ISE	---	---	---	100	50
-	**TOTAL**	**21**	-	**8**	**25**	-					
	TOTAL CONTACT HOURS	**29**									

ISE - In Semester Evaluation, UT1 - Unit Test I, UT2 - Unit Test II, ESE - End Semester Exam.

Total Contact Hours/week : 29
Total Credits : 25
Technical Aptitude Courses: Applied Thermal Engineering, Design of Machine Elements

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Program Elective-II

Sr.No.	Course Code	Discipline	Course
1.	**ME322**	Design	Industrial Robotics
2.	**ME3264**		Machine Tool Design
3.	**ME328**		Smart Material and Systems
4.	**ME3304**		Engineering Acoustics
5.	**ME3364**	Thermal	Energy Conservation & Management
6.	**ME3384**		Gas Turbine & Jet Propulsion
7.	**ME340**		Computational Fluid Dynamics (CFD)
8.	**ME3424**		Alternative Fuels
9.	**ME3484**	Manufacturing	Computer Integrated Manufacturing
10.	**ME3504**		Total Productive Maintenance
11.	**ME3524**		Tool Engineering
12.	**ME3544**		Industrial Organization and Management
13.	**ME364**		Supply Chain Management
14.	**ME368**		Robot Dynamics and Applications

Open Elective-II			
Sr. No.	**Course Code**	**Course Name**	**Offered By Department**
1	OE3401	Cyber security	Computer Science & Information Technology
2	OE360	Distributed Systems	Computer Science & Information Technology
3	OE342	Data Mining	Computer Science & Engineering (Artificial Intelligence and Machine Learning)
4	OE3024	Reliability Engineering	Automobile Engineering
5	OE344	Supply Chain Analytics	Mechatronics Engineering
6	OE346	Mobile Robotics	Mechatronics Engineering
7	OE348	Information Technology Foundation Program	Computer Science & Engineering
8	OE3381	Disaster Management	Civil Engineering
9	OE3084	Materials Management	Civil Engineering
10	OE358	Plumbing (Water and Sanitation)	Civil Engineering
11	OE3182	Industrial Drives	Electrical Engineering
12	OE352	Image Processing	Electronics & Telecommunication Engineering

13	OE354	Fuzzy logic and Neural Network	Electronics & Telecommunication Engineering
14	OE356	Project Management	Mechanical Engineering
15	OE3284	Supply Chain Management	Mechanical Engineering
16	OE3324	Entrepreneurship Development	Mechanical Engineering

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Class: Final Year B. Tech **Semester:** VII

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks %) Max.	Min. for passing		Practical (Marks %) Max.	Min. for passing
ME4894	Mechanical System Design	3	-	-	3	ISE	20	40	40	---	---
						MSE	30			---	---
						ESE	50	40		---	---
ME4034	Metrology and Control Engineering	3	-	-	3	ISE	20	40	40	---	---
						MSE	30			---	---
						ESE	50	40		---	---
ME4054	Industrial Engineering	2	-	-	2	ISE	20	40	40	---	---
						MSE	30			---	---
						ESE	50	40		---	---
-	Program Elective-III	3	-	-	3	ISE	20	40	40	---	---
						MSE	30			---	---
						ESE	50	40		---	---
-	Program Elective-IV	3	-	-	3	ISE	20	40	40	---	---
						MSE	30			---	---
						ESE	50	40		---	---
ME4074	Mechanical System Design Lab	-	-	2	1	ISE	---	---	---	50	50
						ESE	---	---	---	50	50
ME4094	Industrial Engineering and Quality control Lab	-	-	2	1	ISE	---	---	---	50	50
						ESE	---	---	---	50	50
ME4114	Metrology and Measurement Lab	-	-	2	1	ISE	---	---	---	100	50
ME4134	Workshop Practice III (IR4)	-	-	2	1	ISE	---	---	---	100	50
-	Program Elective-IV Lab	-	-	2	1	ISE	--	---	---	50	50
						ESE	--	---	---	50	50
ME4874	Capstone Project Phase II	-	-	6	3	ISE	--	---		50	50
						ESE	--	---		50	50
-	**TOTAL**	**14**	**-**	**16**	**22**	-					
	TOTAL CONTACT HOURS	**30**									

ISE - In Semester Evaluation, MSE- Mid Semester Exam, ESE - End Semester Exam.

Total Contact Hours/week : 30
Total Credits : 22

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Program Elective-III

Sr.No.	Course Code	Discipline	Course
1.	**ME4154**	Design	Condition Monitoring
2.	**ME423**		Computer Aided Design and Analysis
3.	**ME4194**		Autotronics & Vehicle Intelligence
4.	**ME421**		Engineering Failure Analysis
5.	**ME4234**	Thermal	Cryogenics
6.	**ME425**		Design of Heat Exchanger
7.	**ME427**		Battery Thermal Management system
8.	**ME429**	Manufacturing	Foundry Technology
9.	**ME431**		Enterprise Resource Planning (ERP) and Product Life Cycle Management (PLM)
10.	**ME433**		Sustainable Manufacturing
11.	**ME435**		Digital Manufacturing

Program Elective-IV

Sr.No.	Course Code	Discipline	Course
1.	**ME4394**	Design	Mechanical Vibration
2.	**ME4414**		Experimental Stress Analysis
3.	**ME4434**		Engineering Tribology
4.	**ME447**	Thermal	Heating Ventilation and Air Conditioning (HVAC)
5.	**ME4494**		I C Engines
6.	**ME4514**		Refrigeration and Air conditioning
7.	**ME4534**		Automotive Engineering
8.	**ME4554**	Manufacturing	Industrial Hydraulics and Pneumatics
9.	**ME4574**		Mechatronics system Design
10.	**ME459**		Additive Manufacturing
11.	**ME461**		Mechatronics and IoT

Program Elective-IV Lab

Sr. No	Course Code	Discipline	Course
1.	**ME4634**	Design	Mechanical Vibration Lab.
2.	**ME4654**		Experimental Stress Analysis Lab.
3.	**ME467**		Engineering Tribology Lab.
4.	**ME471**	Thermal	Heating Ventilation and Air Conditioning (HVAC) Lab.
5.	**ME4734**		I C Engines Lab
6.	**ME4754**		Refrigeration and Air conditioning Lab
7.	**ME4774**		Automotive Engineering Lab
8.	**ME479**	Manufacturing	Industrial Hydraulics and Pneumatics Lab.
9.	**ME4814**		Mechatronics system Design Lab
10.	**ME483**		Additive Manufacturing Lab
11.	**ME485**		Mechatronics and IoT Lab

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Choice based Internship Model
Model I: Industry Internship (II)

Class: Final Year B. Tech **Semester:** VIII

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks %)			Practical (Marks %)	
							Max.	Min. for passing		Max.	Min. for passing
OE4382	Finance for Engineers (Online Course)	2	-	-	2	ISE	25	40	40	---	---
						ESE	75	40		---	---
OE4362	Engineering Management & Economics (Online Course)	2	-	-	2	ISE	25	40	40	---	---
						ESE	75	40		---	---
IP4024	Industry Internship & Project	-	-	-	12	ISE	---	---		50	50
						ESE	---	---		50	50
-	**TOTAL**	**4**	**-**	**-**	**16**	---	---	---		---	---

ISE - In Semester Evaluation, ESE - End Semester Exam.

Total Contact Hours/week : --
Total Credits : 16

Note:
1] Weekly Contact hours are not mentioned as student is expected to be in industry regularly for 20 weeks. However, student needs to report to Institute mentors as and when required.

2] For online course, lecture videos of each unit will be made available through college platform to the students. For each unit there will be separate assignment. Students need to submit all assignments within specified time.

Weightage: 25% weightage for unit wise assignments + 75% weightage for final exam. Final exam will be held at college campus.

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Model II: Research Internship (RI)

Class: Final Year B. Tech **Semester:** VIII

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks %)			Practical (Marks %)	
							Max.	Min. for passing		Max.	Min. for passing
OE4382	Finance for Engineers (Online Course)	2	-	-	2	ISE	25	40	40	---	---
						ESE	75	40		---	---
OE4362	Engineering Management & Economics (Online Course)	2	-	-	2	ISE	25	40	40	---	---
						ESE	75	40		---	---
RE4044	Research Internship	-	-	-	12	ISE	---	---		50	50
						ESE	---	---		50	50
-	**TOTAL**	**4**	-	-	**16**	---	---	---		---	---

ISE - In Semester Evaluation, ESE - End Semester Exam.

Total Contact Hours/week : -
Total Credits : 16

Note:

1] Weekly Contact hours are not mentioned as student is expected to be in outside research organization regularly for 20 weeks. However, student needs to report to Institute mentors as and when required.

2] For online course, lecture videos of each unit will be made available through college platform to the students. For each unit there will be separate assignment. Students need to submit all assignments within specified time.

3] Students who opt for research internship need to undergo a minimum of one month of research internship in outside research organizations or laboratories.

Weightage: 25% weightage for unit wise assignments + 75% weightage for final exam. Final exam will be held at college campus.

Model III: Entrepreneurial Internship (EI)

Class: Final Year B. Tech **Semester:** VIII

Course Code	Course	Teaching Scheme			Credits	Evaluation Scheme					
		L	T	P		Scheme	Theory (Marks %)			Practical (Marks %)	
							Max	Min. for passing		Max	Min. for passing
ED4104	Project Management (Online Course)	2	-	-	2	ISE	25	40	40	-	-
						ESE	75	40		-	-
ED4044	Commercial Aspects of the Project (Online Course)	2	-	-	2	ISE	25	40	40	-	-
						ESE	75	40		-	-
ED4064	Entrepreneurship Development Program (EDP)	-	-	-	1	ISE	-	-	-	100	50
ED4084	Entrepreneurial Internship	-	-	-	1	ISE	-	-	-	50	50
						ESE				50	50
-	TOTAL	4	-	-	15	-	-	-	-	-	-

ISE - In Semester Evaluation, ESE - End Semester Exam.

Total Contact Hours/week : -
Total Credits : 16

Note:

1] Weekly Contact hours are not mentioned as student is expected to be in outside research organization regularly for 20 weeks. However, student needs to report to Institute mentors as and when required.

2] For online course, lecture videos of each unit will be made available through college platform to the students. For each unit there will be separate assignment. Students need to submit all assignments within specified time.

3] Students who opt for an Entrepreneurial Internship need to undergo a one month internship at an outside reputed organization or a firm.

Weightage: 25% weightage for unit wise assignments + 75% weightage for final exam. Final exam will be held at college campus.

4] A one week Entrepreneurship Development Program (EDP) will be conducted after completion of 7th semester and before start of 8th semester.

Multidisciplinary Minor

Note:

- Student should choose any one specialization given by the department and complete all the five courses under the specialization
- Following are the baskets of multidisciplinary minor courses

• Multidisciplinary Minor Baskets					
MDM Basket Name	**Sr. No.**	**Course Code**	**Course Name**	**Semester**	**Offered by Department**
Automobile Engineering	1	ATMD201	Automobile Systems	III	Automotive Technology
	2	ATMD202	I. C. Engines	IV	
	3	ATMD301	Automotive Safety & Ergonomics	V	
	4	ATMD303	Automotive Engineering Lab.	V	
	5	ATMD302	Electric Vehicles	VI	
Construction Engineering	1	CEMD201	Building Construction and Planning	III	Civil Engineering
	2	CEMD202	Building Estimation and Valuation	IV	
	3	CEMD301	Infrastructure Engineering	V	
	4	CEMD303	Smart Cities and Sustainable Development	V	
	5	CEMD302	Environmental Engineering	VI	
Software Programming	1	CSMD201	Introduction to Data Structures	III	Computer Science & Engineering
	2	CSMD202	Problem solving using JAVA	IV	
	3	CSMD301	Fundamentals of Database Systems	V	
	4	CSMD303	Object-oriented Programming in	V	

			Python		
	5	CSMD302	Artificial Intelligence	VI	
Electrical Power System	1	EEMD201	Electrical Power Generation	III	Electrical Engineering
	2	EEMD202	Power System	IV	
	3	EEMD301	Electrical Machines	V	
	4	EEMD303	Electrical Technology	V	
	5	EEMD302	Smart Grid	VI	
Electronics System Design	1	ECMD201	Electronics Devices and Applications	III	Electronics &Telecommunication Engineering
	2	ECMD202	Electronics Communication Systems	IV	
	3	ECMD301	Advanced Communication Systems	V	
	4	ECMD303	Electronic Product Design	V	
	5	ECMD302	Industrial Electronics	VI	
Software Development	1	CIMD201	Data Structures	III	Computer Science & Information Technology
	2	CIMD202	Computer Algorithms	IV	
	3	CIMD301	Introduction to DBMS	V	
	4	CIMD303	OOP using Java	V	
	5	CIMD302	Software Engineering	VI	
Elements of Mechanical Engineering	1	MEMD201	Materials and Applications	III	Mechanical Engineering
	2	MEMD202	Design and Drawing of Machine Components	IV	
	3	MEMD301	Manufacturing and Assembly Process	V	
	4	MEMD303	Refrigeration and Air Conditioning	V	
	5	MEMD302	Power Plant Engineering	VI	
Mechatronics Engineering	1	MCMD201	Fundamentals of Mechatronics	III	Mechatronics Engineering

	2	MCMD202	Industrial Fluid Power	IV	
	3	MCMD301	Sensor and Instrumentation	V	
	4	MCMD303	Industrial Automation	V	
	5	MCMD302	Industrial Robotics	VI	
Artificial Intelligence	1	AIMD201	Object Oriented Programming	III	Computer Science & Engineering (AI-ML)
	2	AIMD202	Data Structures and Algorithms	IV	
	3	AIMD301	Machine Learning	V	
	4	AIMD303	Business Intelligence	V	
	5	AIMD302	Principles of Artificial Intelligence	VI	

B.Tech. in Mechanical Engineering with Double Minor (Multidisciplinary and Specialization Minor)

B.Tech. in Mechanical Engineering with Double Minor degree

1. It is required to complete SIX courses (each of 3 credits) from ONLINE platform to earn total of 18 credits under Double Minor (DM) certification.
2. Student must complete and earn the credits for all the six courses starting from Second Year First semester (3rd semester) to Final Year Second Semester (8th semester).
3. Basket of the DM courses and respective semester is mentioned in the following table.

Sr. No.	Semester	Course	Code
1	IV	DM – I	MEDM4XXX
2	V	DM – II	MEDM5XXX
3	V	DM – III	MEDM5XXX
4	VI	DM – IV	MEDM6XXX
5	VII	DM – V	MEDM7XXX
6	VIII	DM – VI	MEDM8XXX

4. To select course platform, first preference must be given to NPTEL.
5. Other than NPTEL, courses from COURSERA and UDEMY platforms are allowed to register only in following cases,
    a. If timeline of NPTEL course is not in line with timeline of academic calendar.
    b. The suitable succeeding course in line with previous course is not available on NPTEL.
    c. If any other unavoidable circumstances occurs.
6. Platform and course selection must be as per recommendation of BOS of the department.
7. Student will get the credits of respective DM course in following conditions,
    a. In case of course selected from NPTEL platform, student have to complete the timely assignments, PASS the exam and secure the certificate.
    b. In case of course selected from COURSERA or UDEMY, student have to secure the certificate and appear for VIVA(oral) exam.
8. While selecting online course, following points must be taken care of,
    a. Selected course must be of basic or fundamental level.
    b. Contents of the course should not be covered in any of the course offered in regular curriculum or not listed in any elective (open or program elective) or in Multidisciplinary Minor (MDM)
    c. Duration of each online course must be of EIGHT weeks for NPTEL and 30+ hours for UDEMY, COURSERA courses.

B.Tech. in Mechanical Engineering with Honor and Multidisciplinary Minor

B.Tech. in Mechanical Engineering with Honor and Multidisciplinary Minor degree

1. It is required to complete SIX courses (each of 3 credits) from ONLINE platform to earn total of 18 credits under Honor certification.
2. Student must complete and earn the credits for all the six courses starting from Second Year First semester (3rd semester) to Final Year Second Semester (8th semester).
3. Basket of the Honor courses and respective semester is mentioned in the following table.

Sr. No.	Semester	Course	Code
1	IV	Honor - I	MEH4XXX
2	V	Honor - II	MEH5XXX
3	V	Honor - III	MEH5XXX
4	VI	Honor - IV	MEH6XXX
5	VII	Honor - V	MEH7XXX
6	VIII	Honor - VI	MEH8XXX

4. To select course platform, first preference must be given to NPTEL.
5. Other than NPTEL, courses from COURSERA and UDEMY platforms are allowed to register only in following cases,
    a. If timeline of NPTEL course is not in line with timeline of academic calendar.
    b. The suitable succeeding course in line with previous course is not available on NPTEL.
    c. If any other unavoidable circumstances occurs.
6. Platform and course selection must be as per recommendation of BOS.
7. Student will get the credits of respective Honor course in following conditions,
    a. In case of course selected from NPTEL platform, student have to complete the timely assignments, PASS the exam and secure the certificate.
    b. In case of course selected from COURSERA or UDEMY, student have to secure the certificate and appear for VIVA(oral) exam.
8. While selecting online course, following points must be taken care of,
    a. Selected course must be of advanced level and not basic or fundamental level.
    b. Contents of the course should not be covered in any of the course offered in regular curriculum or not listed in any elective (open or program elective)
    c. Duration of each online course must be of EIGHT weeks for NPTEL and 30+ hours for COURSERA, UDEMY courses.

B.Tech. in Mechanical Engineering-Honors with Research and Multidisciplinary Minor

Honors with Research and Multidisciplinary Minor

The student will work on Research Project or Dissertation for 18 Credits in the Fourth Year in respective discipline. The distribution of 18 Credits for Research project in Sem-VII and Sem-VIII is given below. To get B.Tech. in Mechanical Engineering-Honors with Research and Multidisciplinary Minor degree Student need to earn total 206 Credits which consist 170 credits of regular Multidisciplinary Minor courses, 18 Credits of Honor courses and 18 credits of Research courses

Class: Final Year B. Tech **Semester:** VII

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks %)			Practical (Marks %)	
							Max.	Min. for passing		Max.	Min. for passing
REH401	Intellectual Property Rights (IPR)	-	-	-	2	ISE	50	40	40	---	---
						ESE	50	40		---	---
REH403	Research project (Synopsis) phase - I	-	-	-	2	ISE	---	---		50	50
						ESE	---	---		50	50
REH405	Research Specific core course - I (Online NPTEL course)	-	-		3	ISE	50	40	40	---	---
						ESE	50	40		---	---
-	**TOTAL**	-	-	-	7	-	-	-		-	-

ISE - In Semester Evaluation, ESE - End Semester Exam.

Note: For Evaluation of Online NPTEL course ISE Marks will be marks obtained by students in the assignments given by NPTEL, students who will secure NPTEL certification will be only eligible for ESE of the same course which will be conducted at institute.

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Class: Final Year B. Tech **Semester:** VIII

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks %)			Practical (Marks %)	
							Max.	Min. for passing		Max.	Min. for passing
REH402	Research project phase - II	-	-	-	11	ISE	---	---	---	50	50
						ESE	---	---		50	
-	TOTAL	-	-	-	11		-	-		-	-

ISE = In Semester Evaluation, ESE = End Semester Exam.