



K.E. Society's
Rajarambapu Institute of Technology, Rajaramnagar
(An Empowered Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Twinning Program
Curriculum Structure and Evaluation Scheme
To be implemented for 2025-29 & 2026-30 Batch
Department of Mechanical Engineering

B.Tech. in Mechanical Engineering



Twinning Program

Curriculum Structure and Evaluation Scheme
 To be implemented for 2025-29 & 2026-30 Batch
 Department of Mechanical Engineering

Class: S. Y. B. Tech

Semester: III

Course Code	Course	Teaching Scheme						Evaluation Scheme					
		L	T	P	TW+SL	Total Hrs	Credits	Scheme	Theory (%Marks)		Practical (%Marks)		
									Max	Min. for passing	Max.	Min. for passing	
ME2094	Mathematics for Mechanical Engineers	2	-	-	36	60	2	ISE	20	40	40	---	---
								UT1	15				
								UT2	15				
								ESE	50				
ME241	Mechanics of Solids	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15				
								UT2	15				
								ESE	50				
ME237	Fluid Mechanics	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15				
								UT2	15				
								ESE	50				
ME243	Metrology and Quality control	2	-	-	36	60	2	ISE	20	40	40	---	---
								UT1	15				
								UT2	15				
								ESE	50				
ME2114	Manufacturing Processes and Machine Tool	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15				
								UT2	15				
								ESE	50				
-	Online Course-I	-	-	-	90	90	3	ISE	100	50	---	---	
ME2334	Machine Drawing Lab	-	-	2	06	30	1	ISE	---	---	50	50	
								ESE	---		50	50	
ME239	Fluid Mechanics lab	-	-	2	06	30	1	ISE	---	---	50	50	
								ESE	---		50	50	
ME245	Metrology and Quality control Lab	-	-	2	06	30	1	ISE	---	---	50	50	
								ESE	---		50	50	
ME2354	Workshop Practice-I	-	-	2	06	30	1	ISE	---	---	50	50	
-	Professional Skills Development and Foreign Languages	-	-	2	06	30	1	ISE	---	---	100	50	
TOTAL		13	-	10	354	630	21						
TOTAL CONTACT HOURS		23											

ISE: In Semester Evaluation, UT-I: Unit Test-I, UT-II: Unit Test-II, ESE: End Semester Exam, TW: Term Work, SL: Self-Learning.

Total Contact Hours/week : 23

Total Credits : 21

Students may opt for an Online course-I approved by the Departmental Program Committee (DPC).

Guidelines for Online Courses-I

1. The course must be offered through an online MOOC platform such as NPTEL, Udemy, Coursera, NASSCOM, etc.



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2. The minimum duration of the course should be 25 to 30 hours. For NPTEL courses, the duration should be at least 8 to 12 weeks.
3. If the duration of an online course is less than the prescribed duration mentioned above, the DPC will assign additional tasks to compensate for the shortfall in contact hours.
4. The evaluation shall be carried out as per the guidelines prescribed by the Departmental Program Committee (DPC).

Sr. No.	Subject Name		Course Code
1.	Professional Skills Development and Foreign Languages	Professional Leadership Skills	SH2635
2.		Interpersonal Skills	SH2615
3.		Innovation Tools and Methods for Entrepreneurs	SH2695
4.		Personal Effectiveness and Body Language	SH2595
5.		German Language – Level III	SH2735
6.		Japanese Language – Level III	SH2715

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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Curriculum Structure and Evaluation Scheme
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Class: S. Y. B. Tech

Semester: IV

Course Code	Course	Teaching Scheme						Evaluation Scheme					
		L	T	P	TW+SL	Total Hrs	Credits	Scheme	Theory (%Marks)		Practical (%Marks)		
									Max	Min. for passing	Max	Min. for passing	
ME236	Kinematics of Machines	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15				
								UT2	15				
								ESE	50	40			
ME248	Design of Machine Elements	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15				
								UT2	15				
								ESE	50	40			
ME250	Engineering Thermodynamics	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15				
								UT2	15				
								ESE	50	40			
ME2144	Material Science and Metallurgy	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15				
								UT2	15				
								ESE	50	40			
ME2381	Object Oriented Programming using C++	2	-	-	36	60	2	ISE	20	40	40	---	---
								UT1	15				
								UT2	15				
								ESE	50	40			
-	Online Course-II	-	-	-	90	90	3	ISE	100	50		---	---
SH2175	Environmental Science	1	-	2	24	60	2	ISE	50	40	40	---	---
								ESE	50	40			
ME2224	CAD Modelling Lab	-	-	2	06	30	1	ISE	---	---	---	50	50
								ESE				50	50
ME2401	Object Oriented Programming using C++ Lab	-	-	2	06	30	1	ISE	---	---	---	50	50
								ESE				50	50
ME2244	Material Science and Metallurgy Lab	-	-	2	06	30	1	ISE	---	---	---	50	50
								ESE				50	50
ME246	Workshop Practice-II	-	-	2	06	30	1	ISE	---	---	---	50	50
								ESE				50	50
ME244	MOOCS-I**	-	-	-	30	30	1	ISE	---	---	---	100	50
-	Professional Skills Development and Foreign Languages	-	-	2	06	30	1	ISE	---	---	---	100	50
	TOTAL	15	-	12	426	750	25						
	TOTAL CONTACT HOURS	27											

ISE: In Semester Evaluation, UT-I: Unit Test-I, UT-II: Unit Test-II, ESE: End Semester Exam, TW: Term Work, SL: Self-Learning.

Total Contact Hours/week : 27

Total Credits : 25





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

Note:** MOOCS-I course certification marks will be carried out for the credits.

Students may opt for an Online course-II approved by the Departmental Program Committee (DPC).

Guidelines for Online Courses-II

1. The course must be offered through an online MOOC platform such as NPTEL, Udemy, Coursera, NASSCOM, etc.
2. The minimum duration of the course should be 25-30 hours. For NPTEL courses, the duration should be at least 8 to 12 weeks.
3. If the duration of an online course is less than the prescribed duration mentioned above, the DPC will assign additional tasks to compensate for the shortfall in contact hours.
4. The evaluation shall be carried out as per the guidelines prescribed by the Departmental Program Committee (DPC).

Sr. No.	Subject Name		Course Code
1.	Professional Skills Development and Foreign Languages	Professional Leadership Skills	SH2635
2.		Interpersonal Skills	SH2615
3.		Innovation Tools and Methods for Entrepreneurs	SH2695
4.		Personal Effectiveness and Body Language	SH2595
5.		German Language – Level IV	SH2645
6.		Japanese Language – Level IV	SH2625



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Class: T. Y. B. Tech

Semester: V

Course Code	Course	Teaching Scheme						Evaluation Scheme					
		L	T	P	TW+ SL	Total Hrs	Credits	Scheme	Theory (%Marks)		Practical (%Marks)		
									Max	Min. for Passing	Max	Min. for passing	
ME385	Dynamics of Machines	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15			---	---
								UT2	15			---	---
								ESE	50			40	---
ME3114	Heat and Mass Transfer	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15			---	---
								UT2	15			---	---
								ESE	50			40	---
-	Program Elective -I	2	-	-	36	60	2	ISE	20	40	40	---	---
								UT1	15			---	---
								UT2	15			---	---
								ESE	50			40	---
-	Open Elective-I	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15			---	---
								UT2	15			---	---
								ESE	50			40	---
-	Online Course-III	-	-	-	90	90	3	ISE	100	50	---	---	
-	Online Course-IV	-	-	-	60	60	2	ISE	100	50	---	---	
SH3036	Scholastic Aptitude-I	2*	-	-			Audit	ISE	100	50 (P/NP)	---	--	--
ME383	Kinematics and Dynamics of Machines Lab	-	-	2	06	30	1	ISE	---	---	---	50	50
								ESE				50	50
ME3255	Software Training Lab-I	-	-	2	06	30	1	ISE	---	---	---	50	50
								ESE				50	50
ME3214	Heat and Mass Transfer Lab	-	-	2	06	30	1	ISE	---	---	---	50	50
								ESE				50	50
ME381	Mini Project	-	-	6	18	90	3	ISE	---	---	---	50	50
								ESE				50	50
ME3836	Industrial Training	-	-	-	30	30	1	ISE	---	----	---	100	50
ME371	MOOCS-II**	-	-	-	30	30	1	ISE	---	---	---	100	50
	TOTAL	11	-	12	444	720	24						
	TOTAL CONTACT HOURS	23											

ISE: In Semester Evaluation, UT-I: Unit Test-I, UT-II: Unit Test-II, ESE: End Semester Exam, P = Pass, NP = Not Pass, TW: Term Work, SL: Self-Learning.

Total Contact Hours/week : 23

Total Credits : 24

Note*: Students should complete 5 days (30 Hours) of Scholastic Aptitude training program organized by the Institute.

Note:** MOOC-II course certification marks will be carried out for the credits



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Students may opt for an Online course-III & IV approved by the Departmental Program Committee (DPC).

Guidelines for Online Courses-III & IV

1. The course must be offered through an online MOOC platform such as NPTEL, Udemy, Coursera, NASSCOM, etc.
2. The minimum duration of the course should be 25-30 hours. For NPTEL courses, the duration should be at least 8 to 12 weeks.
3. If the duration of an online course is less than the prescribed duration mentioned above, the DPC will assign additional tasks to compensate for the shortfall in contact hours.
4. The evaluation shall be carried out as per the guidelines prescribed by the Departmental Program Committee (DPC).

Sr. No.	Software courses
1.	NX CAD & CAM
2.	CATIA
3.	Python Programming
4.	Software Development using C++
5.	MATLAB

Program Elective-I

Sr. No	Course Code	Domain	Course
1.	ME389	Design	Design Thinking
2.	ME333		Engineering Optimization
3.	ME3314		Mechanics of Composite Material
4.	ME335		Automotive drive system
5.	ME393	Thermal	Fuel Cell Technology
6.	ME343		Alternative sources of energy
7.	ME345		Hybrid and Electric Vehicles
8.	ME3514	Manufacturing	World Class Manufacturing
9.	ME337		Tool Engineering
10.	ME3534		Non-Traditional Machining Process
11.	ME3594		Production and Operations Management
12.	ME397	Mechatronics	Sensor Technology and Applications



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Open Elective I			
Sr. No.	Course Code	Open Elective Subject Name	Offered by the department
1	OE3411	Energy Audit and Management	Electrical Engineering
2	OE3431	Data Science	Computer Science & Engineering (Artificial Intelligence and Machine Learning)
3	OE3105	Network Administration	Computer Science and Engineering
4	OE3065	Environmental Impact Assessment	Civil Engineering
5	OE3382	Disaster Management	Civil Engineering
6	OE3651	Distributed Systems	Computer Science and Information Technology
7	OE3611	Object Oriented Modeling and Design	Computer Science and Information Technology
8	OE3471	New Product Design & Development	Mechanical Engineering
9	OE3491	Non-Conventional Energy Sources	Mechanical Engineering
10	OE3045	Renewable Energy Sources	Robotics & Automation
11	OE3631	Robotics Engineering & Applications	Robotics & Automation
12	OE3531	Factory Automation	Mechatronics Engineering
13	OE3551	Cyber Physical System	Mechatronics Engineering
14	OE3571	Internet of Things	Electronics & Telecommunication Engineering
15	OE3591	Drone Technology	Electronics & Telecommunication Engineering
16	OE3511	Hydrogen Fuel Cell Technology	Mechanical Engineering
17	OE3411	Energy Audit and Management	Electrical Engineering
18	OE3431	Data Science	Computer Science & Engineering (Artificial Intelligence and Machine Learning)



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Curriculum Structure and Evaluation Scheme
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Class: T. Y. B. Tech

Semester: VI

Course Code	Course	Teaching Scheme						Evaluation Scheme					
		L	T	P	TW+ SL	Total Hrs	Credits	Scheme	Theory (%Marks)		Practical (%Marks)		
									Max	Min. for passing	Max	Min. for passing	
ME3105	Finite Element Method	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15			---	---
								UT2	15			---	---
								ESE	50			---	---
ME378	Machine Design	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15			---	---
								UT2	15			---	---
								ESE	50			---	---
ME3124	Applied Thermal Engineering	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15			---	---
								UT2	15			---	---
								ESE	50			---	---
ME316	Research Methodology	2	-	-	36	60	2	ISE	20	40	40	---	---
								UT1	15			---	---
								UT2	15			---	---
								ESE	50			---	---
-	Program Elective-II	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15			---	---
								UT2	15			---	---
								ESE	50			---	---
-	Open Elective-II	3	-	-	54	90	3	ISE	20	40	40	---	---
								UT1	15			---	---
								UT2	15			---	---
								ESE	50			---	---
-	Online Course-V	-	-	-	90	90	3	ISE	100	50		---	---
SH3066	Scholastic Aptitude-II	2*					Audit	ISE	100	50 (P/NP)	--	--	--
ME3645	CAE Lab	-	-	2	06	30	1	ISE	---	---		50	50
								ESE	---	---		50	50
ME390	Applied Thermal Engineering Lab	-	-	2	06	30	1	ISE	---	---		50	50
								ESE	---	---		50	50
ME332	Minor Project	-	-	12	36	180	6	ISE	---	---		50	50
								ESE	---	---		50	50
	TOTAL	17	-	16	444	840	28						
	TOTAL CONTACT HOURS	33											

ISE: In Semester Evaluation, UT-I: Unit Test-I, UT-II: Unit Test-II, ESE: End Semester Exam, P = Pass, NP = Not Pass, TW: Term Work, SL: Self-Learning.

Total Contact Hours/week : 33

Total Credits : 28

Note*: Students should complete 5 days (30 Hours) of Scholastic Aptitude training program organized by the Institute.

Students may opt for an Online course-V approved by the Departmental Program Committee (DPC).



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Guidelines for Online Courses-I

1. The course must be offered through an online MOOC platform such as NPTEL, Udemy, Coursera, NASSCOM, etc.
2. The minimum duration of the course should be 25-30 hours. For NPTEL courses, the duration should be at least 8 to 12 weeks.
3. If the duration of an online course is less than the prescribed duration mentioned above, the DPC will assign additional tasks to compensate for the shortfall in contact hours.
4. The evaluation shall be carried out as per the guidelines prescribed by the Departmental Program Committee (DPC).

Program Elective – II

Sr. No.	Course Code	Discipline	Course
1.	ME384	Design	Product Design & Development tools
2.	ME328		Smart Material and Systems
3.	ME3304		Engineering Acoustics
4.	ME312		Automotive Chassis System
5.	ME382		Process Equipments and Engineering
6.	ME3364	Thermal	Energy Conservation & Management
7.	ME3384		Gas Turbine & Jet Propulsion
8.	ME340		Computational Fluid Dynamics (CFD)
9.	ME3424		Alternative Fuels
10.	ME318	Manufacturing	Operations Research
11.	ME324		Surface Engineering
12.	ME326		Micromachining
13.	ME330		Green Manufacturing
14.	ME3484		Computer Integrated Manufacturing
15.	ME3544	Management	Industrial Organization and Management
16.	ME386	Mechatronics	Automation in Manufacturing

Open Elective II

Sr. No.	Course Code	Open Elective Subject Name	Offered by the department
1	OE3721	Industrial Safety	Electrical Engineering
2	OE3421	Data Mining	Computer Science & Engineering (Artificial Intelligence and Machine Learning)

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Open Elective II			
Sr. No.	Course Code	Open Elective Subject Name	Offered by the department
3	OE3681	AI for Agriculture	Computer Science & Engineering (Artificial Intelligence and Machine Learning)
4	OE3481	Information Technology Foundation Program	Computer Science and Engineering
5	OE3661	AI for Cybersecurity	Computer Science and Engineering
6	OE3085	Materials Management	Civil Engineering
7	OE3501	Operations Research	Civil Engineering
8	OE3581	Plumbing (Water and Sanitation)	Civil Engineering
9	OE3402	Cyber Security	Computer Science and Information Technology
10	OE3641	AI for Manufacturing	Computer Science and Information Technology
11	OE3285	Supply Chain Management	Mechanical Engineering
12	OE3325	Entrepreneurship Development	Mechanical Engineering
13	OE3025	Reliability Engineering	Robotics & Automation
14	OE3621	Flexible Manufacturing System	Robotics & Automation
15	OE3521	Image Processing	Electronics & Telecommunication Engineering
16	OE3541	Fuzzy Logic & Neural Network	Electronics & Telecommunication Engineering
17	OE3701	AI for Sustainability	Electronics & Telecommunication Engineering
18	OE3441	Supply Chain Analytics	Mechatronics Engineering
19	OE3461	Mobile Robotics	Mechatronics Engineering
20	OE3561	Project Management	Mechanical Engineering



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Open Elective II			
Sr. No.	Course Code	Open Elective Subject Name	Offered by the department
21	OE3243	Marketing for Engineers	MBA

CAE Lab (ME3645)

Sr. No.	Software courses
1.	ABAQUES
2.	HYPERMESH
3.	ANSYS
4.	Computational Fluid Dynamics (CFD)



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Class: Final Year B. Tech

Semester: VII

Course Code	Course	Teaching Scheme						Evaluation Scheme					
		L	T	P	TW+SL	Total Hrs	Credits	Scheme	Theory (%Marks)		Practical (%Marks)		
									Max.	Min. for passing	Max.	Min. for passing	
ME437	Industry and mobile textile	2	-	-	36	60	2	ISE	20	40	40	---	---
								MSE	30			---	---
								ESE	50			---	---
ME439	Fluid and Turbo machinery	3	-	-	54	90	3	ISE	20	40	40	---	---
								MSE	30			---	---
								ESE	50			---	---
ME4055	Industrial Engineering	3	-	-	54	90	3	ISE	20	40	40	---	---
								MSE	30			---	---
								ESE	50			---	---
-	Program Elective-III	3	-	-	54	90	3	ISE	20	40	40	---	---
								MSE	30			---	---
								ESE	50			---	---
-	Program Elective-IV	3	-	-	54	90	3	ISE	20	40	40	---	---
								MSE	30			---	---
								ESE	50			---	---
-	Program Elective-IV Lab	-	-	2	06	30	1	ISE	--	---	----	50	50
								ESE	--	---	----	50	50
								ME4075	Mechanical System Design Lab	-	-	4	12
ME441	Fluid and Turbo machinery Lab	-	-	2	06	30	1	ESE	--	---	----	50	50
								ISE	--	---	----	50	50
ME4095	Industrial Engineering Lab	-	-	2	06	30	1	ISE	--	---	----	100	50
ME4134	Workshop Practice III (IR4)	-	-	2	06	30	1	ISE	--	---	----	50	50
	TOTAL	14	-	12	288	600	20						
	TOTAL CONTACT HOURS	26											

ISE: In Semester Evaluation, MSE: Mid Semester Examination, ESE = End Semester Exam, TW: Term Work, SL: Self-Learning.

Total Contact Hours/week : 26

Total Credits : 20

****Note:** A 4-hour session will be allotted in the timetable for Capstone Project Phase-II on the second, fourth, and fifth Saturdays.

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Program Elective-III

Sr. No.	Course Code	Discipline	Course
1.	ME443	Design	Advanced Finite Element Methods
2.	ME4154		Condition Monitoring
3.	ME4231		CAD customization
4.	ME4194		Autotronics & Vehicle Intelligence
5.	ME445		Engineering Failure Analysis
6.	ME447		Vehicle Dynamics
7.	ME4234	Thermal	Cryogenics
8.	ME425		Design of Heat Exchanger
9.	ME427		Battery Thermal Management system
10.	ME449	Manufacturing	Digital Manufacturing
11.	ME413		Control Engineering
12.	ME415		Advanced Welding Technology
13.	ME455		Enterprise and resources planning
14.	ME4931	Mechatronics	Industrial Robotics

Program Elective-IV Theory

Sr.No.	Course Code	Discipline	Course
1.	ME4394	Design	Mechanical Vibration
2.	ME4414		Experimental Stress Analysis
3.	ME4434		Engineering Tribology
4.	ME495		Noise & Vibration Control in Technical Textile
5.	ME457		Machine Learning for Mechanical Engineering
6.	ME421		Data Analytics
7.	ME4494	Thermal	I C Engines
8.	ME4514		Refrigeration and Air conditioning
9.	ME4534		Automotive Engineering
10.	ME4554	Manufacturing	Industrial Hydraulics and Pneumatics
11.	ME459		Additive Manufacturing
12.	ME461		Mechatronics and IoT
13.	ME497	Mechatronics	Mechatronics system Design

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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.	ME499		Noise & Vibration Control in Technical Textile Lab
5.	ME469		Machine Learning for Mechanical Engineering Lab
6.	ME463		Data Analytics Lab
7.	ME4734	Thermal	I C Engines Lab
8.	ME4754		Refrigeration and Air conditioning Lab
9.	ME4774		Automotive Engineering Lab
10.	ME479	Manufacturing	Industrial Hydraulics and Pneumatics Lab
11.	ME483		Additive Manufacturing Lab
12.	ME485		Mechatronics and IoT Lab
13.	ME487	Mechatronics	Mechatronics system Design 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	TW+ SL	Total Hrs	Credits	Scheme	Theory (%Marks)			Practical (%Marks)	
									Max.	Min. for passing		Max.	Min. for passing
OE4383	Finance for Engineers (Online Course)	2	-	-	60	60	2	ISE	25	40	40	---	---
								ESE	75	40		---	---
OE4363	Engineering Management & Economics (Online Course)	2	-	-	60	60	2	ISE	25	40	40	---	---
								ESE	75	40		---	---
IP4025	Industry Internship & Project	-	-	-	360	360	12	ISE	---	----		50	50
								ESE	---	---		50	50
	TOTAL	-	-	-	480	480	16						

ISE: In Semester Evaluation, ESE: End Semester Exam, TW: Term Work, SL: Self-Learning.

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.



Twinning Program

Curriculum Structure and Evaluation Scheme
 To be implemented for 2025-29 & 2026-30 Batch

Department of Mechanical Engineering

Model II: Research Internship (RI)

Class: Final Year B. Tech

Semester: VIII

Course Code	Course	Teaching Scheme						Evaluation Scheme					
		L	T	P	TW+SL	Total Hrs	Credits	Scheme	Theory (%Marks)			Practical (%Marks)	
									Max.	Min. for passing		Max.	Min. for passing
OE4383	Finance for Engineers (Online Course)	2	-	-	60	60	2	ISE	25	40	40	---	---
								ESE	75	40	---	---	
OE4363	Engineering Management & Economics (Online Course)	2	-	-	60	60	2	ISE	25	40	40	---	---
								ESE	75	40	---	---	
RE4045	Research Internship	-	-	-	360	360	12	ISE	---	---		50	50
								ESE	---	---		50	50
	TOTAL	-	-	-	480	480	16						

ISE: In Semester Evaluation, ESE: End Semester Exam, TW: Term Work, SL: Self-Learning.

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 a 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.

Twinning Program

Curriculum Structure and Evaluation Scheme
To be implemented for 2025-29 & 2026-30 Batch
Department of Mechanical Engineering

Model III: Entrepreneurial Internship (EI)

Class: Final Year B. Tech

Semester: VIII

Course Code	Course	Teaching Scheme						Evaluation Scheme					
		L	T	P	TW+ SL	Total Hrs	Credits	Scheme	Theory (%Marks)			Practical (%Marks)	
									Max	Min. for passing		Max	Min. for passing
ED4105	Project Management (Online Course)	2	-	-	60	60	2	ISE	25	40	40	-	-
								ESE	75	40		-	-
ED4045	Commercial Aspects of the Project (Online Course)	2	-	-	60	60	2	ISE	25	40	40	-	-
								ESE	75	40		-	-
ED4065	Entrepreneurship Development Program (EDP)	-	-	-	30	30	1	ISE	--	--	--	100	50
ED4085	Entrepreneurial Internship	-	-	-	330	330	11	ISE	---	--	--	50	50
								ESE				50	
	Total	-	-	-	480	480	16						

ISE: In Semester Evaluation, ESE: End Semester Exam, TW: Term Work, SL: Self-Learning.

Total Contact Hours/week :-

Total Credits : 16

Note:

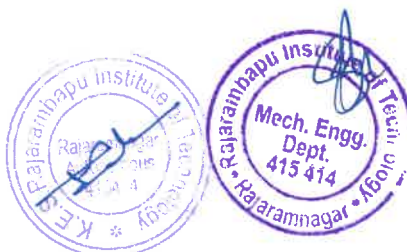
1] Weekly Contact hours are not mentioned as student is expected to be in outside research organization regularly for 20 weeks. However, student needs to report to Institute mentors as and when required.

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.

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

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

4] Students who opt for an entrepreneurial internship need to undergo a one-month internship at an outside reputed organization or firm.



Twinning Program

Curriculum Structure and Evaluation Scheme
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 Department of Mechanical Engineering

Multidisciplinary Minor

- Under the Multidisciplinary Minor (MDM), each department shall propose a basket of online courses for Online Course-I to V. The proposed courses shall be reviewed and approved by the respective Departmental Program Committee (DPC).
- The respective DPC shall ensure the availability of an appropriate basket of courses under each Online Course category. These approved course baskets shall be floated to the concerned departmental students.
- Students shall opt for the course of their choice based on the availability of courses on the designated online learning platform with the approval of DPC.
- The basket of MDM courses offered by the Department of Mechanical Engineering, along with the respective semesters in which they are offered, is presented in the following table.

Sr. No.	Semester	Course	Code
1	III	Online Course I	MEMD207
2	IV	Online Course II	MEMD208
3	V	Online Course III	MEMD313
4	V	Online Course IV	MEMD315
5	VI	Online Course V	MEMD308



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	III	DM – I	EEDM3XXX
2	IV	DM – II	EEDM4XXX
3	V	DM – III	EEDM5XXX
4	VI	DM – IV	EEDM6XXX
5	VII	DM – V	EEDM7XXX
6	VIII	DM – VI	EEDM8XXX

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

Twinning Program

Curriculum Structure and Evaluation Scheme
To be implemented for 2025-29 & 2026-30 Batch
Department of Mechanical Engineering

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	III	Honor - I	EEH3XXX
2	IV	Honor - II	EEH4XXX
3	V	Honor - III	EEH5XXX
4	VI	Honor - IV	EEH6XXX
5	VII	Honor - V	EEH7XXX
6	VIII	Honor - VI	EEH8XXX

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.





K.E. Society's
Rajarambapu Institute of Technology, Rajaramnagar
(An Empowered Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Twinning Program
Curriculum Structure and Evaluation Scheme
To be implemented for 2025-29 & 2026-30 Batch
Department of Mechanical Engineering

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



Twinning Program

Curriculum Structure and Evaluation Scheme
 To be implemented for 2025-29 & 2026-30 Batch
 Department of Mechanical Engineering

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 192 Credits which consist 174 credits of regular Multidisciplinary Minor courses and 18 credits of Research courses.

Class: Final Year B. Tech

Semester: VII

		Teaching Scheme						Evaluation Scheme					
Course Code	Course	L	T	P	TW+SL	Total Hrs	Credits	Scheme	Theory (Marks %)			Practical (Marks %)	
									Max.	Min. for passing		Max.	Min. for passing
REH4011	Intellectual Property Rights	-	-	-	60	60	2	ISE	50	40	40	---	---
								ESE	50	40		---	---
REH4031	Research project (Synopsis) phase - I	-	-	-	60	60	2	ISE	--	--	--	50	50
								ESE	--	--		50	50
REH4051	Research Specific core course - I (Online NPTEL course)	-	-	-	90	90	3	ISE	50	40	40	--	--
								ESE	50	40		--	--
	TOTAL	-	-	-	210	210	7						

ISE: In Semester Evaluation, ESE: End Semester Exam, TW: Term work, SL: Self Learning.

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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Twinning Program

Curriculum Structure and Evaluation Scheme
 To be implemented for 2025-29 & 2026-30 Batch
 Department of Mechanical Engineering

Class: Final Year B. Tech

Semester: VIII

Course Code	Course	Teaching Scheme						Evaluation Scheme					
		L	T	P	TW+ SL	Total Hrs	Credits	Scheme	Theory (Marks %)			Practical (Marks %)	
									Max.	Min. for passing		Max.	Min. for passing
REH4021	Research project phase - II	-	-	-	330	330	11	ISE	--	--	--	50	50
								ESE	--	--	50		
	TOTAL	-	-	-	330	330	11						

ISE: In Semester Evaluation, ESE: End Semester Exam, TW: Term work, SL: Self Learning.

