K.E. Society's
Rajarambapu Institute of Technology, Rajaramnagar
(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Curriculum Structure and Evaluation Scheme
To be implemented for 2022-26
Department of Mechatronics Engineering
Rev: MC Course structure/RIT/03/2022-26

B. Tech. in Mechatronics Engineering with Multidisciplinary Minor

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

K.E. Rajarambapu Institute of Technology Rajaramnagar Autonomous 415414

K.E. Society's

Rajarambapu Institute of Technology, Rajaramnagar

(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)

Curriculum Structure and Evaluation Scheme

To be implemented for 2022-26

Department of Mechatronics Engineering

Rev: MC Course structure/RIT/03/2022-26

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
MC2011	Engineering Mathematics for Mechatronics Engineering	3	-	-	3	ISE	20	40	----	----
						UT1	15		----	----
						UT2	15		----	---
						ESE	50	40	----	----
MC2031	Analog and Digital Electronics	3	-	-	3	ISE	20	40	----	----
						UT1	15		----	----
						UT2	15		----	----
						ESE	50	40	----	----
MC2051	Industrial Fluid Power	3	-	-	3	ISE	20	40	----	----
						UT1	15		----	----
						UT2	15		----	----
						ESE	50	40	----	----
MC2071	Engineering Mechanics	2	-	-	2	ISE	20	40	----	----
						UT1	15		----	----
						UT2	15		----	----
						ESE	50	40	----	----
	Multi-Disciplinary Minor-I	3	-	-	3	ISE	20	40	----	----
						UT1	15		----	----
						UT2	15		----	----
						ESE	50	40	----	----
SH2174	Environmental Science	1	-	2	2	ISE	50	40		
						ESE	50	40		
MC2511	Analog and Digital Electronics Lab	-	-	2	1	ISE	----	----	50	50
						ESE	----	----	50	50
MC2531	Industrial Fluid Power Lab	-	-	2	1	ISE	----	----	50	50
						ESE	----	----	50	50
MC2551	Workshop Practice –I (Electrical Machines Lab)	-	-	2	1	ISE	----	----	100	50
MC2571	Machine Drawing and CAD Modeling Lab	-	-	2	1	ISE	---	----	100	50
MC2591	Engineering Mechanics Lab			2	1	ISE	---	----	100	50
MC2611	Technical Aptitude-I	-	-	2	1	ESE	----	----	100	50
	Professional Skills Development and Foreign Languages-I	-	-	2	1	ISE	----	---	100	50
	TOTAL	15	-	16	23					
	TOTAL CONTACT HOURS	31								

ISE = In Semester Evaluation, UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam.

Total Contact Hours/week : 31

Total Credits : 23

Technical Aptitude Courses : Engineering Mathematics for Mechatronics Engineering, Analog and Digital Electronics, Industrial Fluid Power, Engineering Mechanics.

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

Rajarambapu Institute of Technology Rajaramnagar Autonomous 415414 K.E.S.

Professional Skills Development and Foreign Languages-

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-Level III	SH2734
6.		Japanese Language-Level III	SH2714

Note:

1. A student must 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).

Rajarambapu Institute of Technology • Mechatronics Dept. 415 414 • Rajaramnagar

Rajarambapu Institute of Technology • Rajaramnagar Autonomous 415414

K.E. Society's
Rajarambapu Institute of Technology, Rajaramnagar
(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Curriculum Structure and Evaluation Scheme
To be implemented for 2022-26
Department of Mechatronics Engineering
Rev: MC Course structure/RIT/03/2022-26

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
MC2021	Strength of Materials	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
MC2041	Microcontrollers and Embedded Systems	2*	-	-	2	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
MC2061	Kinematics & Dynamics of Machines	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			--	---
						UT2	15			---	---
						ESE	50	40		---	---
MC2081	Manufacturing Technologies	3	=	=	3	ISE	20	40	40	---	---
						UT1	15			--	---
						UT2	15			---	---
						ESE	50	40		---	---
	Multi-Disciplinary Minor-II	3	-	-	3	ISE	20	40		---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
	Modern Indian Language	2	-	-	2	ISE	100	50	---	---	
MC2501	Microcontrollers and Embedded Systems Lab	-	-	2	1	ISE	---	---		50	50
						ESE	---	---		50	50
MC2521	Python Programming Lab	-	-	2	1	ISE	---	---		100	50
MC2541	Workshop Practice – II	-	-	2	1	ISE	---	----		100	50
MC2561	Technical Aptitude-II	-	-	2	1	ESE	---	----		100	50
	Professional Skills Development and Foreign Language	-	-	2	1	ISE	--	---		100	50
	TOTAL	**16*+1**	**-**	**10**	**21**						
	TOTAL CONTACT HOURS	**27**									

ISE = In Semester Evaluation, UT-I = Unit Test-I, UT-II = Unit Test-II, ESE = End Semester Exam.

Total Contact Hours/week : **27**
Total Credits : **21**
Technical Aptitude Courses : Strength of Material, Microcontrollers and Embedded Systems, Kinematics & Dynamics of Machines, Manufacturing Technologies

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.

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

K.E.S. Rajarambapu Institute of Technology Rajaramnagar Autonomous 415414

Professional Skills Development and Foreign Languages-

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 –Level IV	**SH2644**
6.		Japanese Language – Level IV	**SH2624**

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

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

Rajarambapu Institute of Technology Rajaramnagar Autonomous 415414

K.E. Society's
Rajarambapu Institute of Technology, Rajaramnagar
(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Curriculum Structure and Evaluation Scheme
To be implemented for 2022-26
Department of Mechatronics Engineering
Rev: MC Course structure/RIT/03/2022-26

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

Course Code	Course	Teaching Scheme				Evaluation Scheme					
		L	T	P	Credits	Scheme	Theory (Marks %) Max.	Min. for Passing		Practical (Marks %) Max.	Min. for passing
MC3011	Industrial Automation	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
MC3031	Sensors and Instrumentation	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
	Program Elective Course-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		---	---
	Multi-Disciplinary Minor-III	3	-	-	3	ISE	20	40	40	---	---
						UT1	15			---	---
						UT2	15			---	---
						ESE	50	40		---	---
	Multi-Disciplinary 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		---	---
MC3511	Industrial Automation Lab	-	-	2	1	ISE	---	---	---	50	50
						ESE	---	---	---	50	50
I '3531	Sensors and Instrumentation Lab	-	-	2	1	ISE	---	---	---	50	50
						ESE	---	---	---	50	50
MC3551	Control Engineering Lab	-	-	2	1	ISE	---	---	---	50	50
						ESE				50	50
MC3571	Technical Aptitude-III	-	-	2	1	ESE	---	---		100	50
MC3591	Summer Internship	-	-	-	2	ISE	---	---	---	100	50
	TOTAL	**18**	**-**	**8**	**24**						
	TOTAL CONTACT HOURS	**26**									

ISE = In Semester Evaluation, UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam.

Total Contact Hours/week : **27**
Total Credits : **24**
Technical Aptitude Courses : Industrial Automation, Sensors and Instrumentation.

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

Rajarambapu Institute of Technology Rajaramnagar Autonomous 415414 K.E.S.

Program Elective-I

Sr. No	Course Code	Course Name	Domain
1.	MC3051	Control Engineering	Automation
2.	MC307	Data Base Management System	Intelligent Systems
3.	MC3091	Condition Monitoring	Design & Manufacturing
4.	MC3111	Battery And Fuel Cell Technology	Advanced Mobility System
5.	MC3131	Industrial Organization and Management	Design & Manufacturing
6.	MC3151	Material Handling Systems	Design & Manufacturing

Open Elective –I

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 & 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	CS3104	Network Administration	Computer Science & Engineering
11	OE3064	Environmental Impact Assessment	Civil Engineering
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

Rajarambapu Institute of Technology • Rajaramnagar • Mechatronics Dept. 415 414

K.E.S. Rajarambapu Institute of Technology * Rajaramnagar Autonomous 415414

K.E. Society's
Rajarambapu Institute of Technology, Rajaramnagar
(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Curriculum Structure and Evaluation Scheme
To be implemented for 2022-26
Department of Mechatronics Engineering
Rev: MC Course structure/RIT/03/2022-26

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

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
MC3021	Machine Design	3	-	-	3	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
MC3041	Power Electronics and Drives	3	-	-	3	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
MC3061	Research Methodology	2	-	-	2	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
	Program Elective-II	3	-	-	3	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
	Open Elective-II	3	-	-	3	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
	Multi-Disciplinary Minor-V	3	-	-	3	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
SH3064	Scholastic Aptitude II	2	-	-	2	ISE	20	40	---	---
						UT1	15		---	---
						UT2	15		---	---
						ESE	50	40	---	---
MC3501	Workshop Practice – III	-	-	2	1	ISE	---	----	100	50
MC3521	Power Electronics and Drive Lab	-	-	2	1	ISE	---	---	50	50
						ESE	---	---	50	50
MC3541	Data Preprocessing & Visualization Lab	-	-	2	1	ISE	--- ---	--- ---	100	100
MC3561	Technical Aptitude- IV	-	-	2	1	ESE	---	---	100	50
MC3581	Capstone project -Phase I	-	-	2	1	ISE	----	----	100	50
	TOTAL	**19**	**-**	**10**	**24**					
	TOTAL CONTACT HOURS	**29**								

ISE = In Semester Evaluation, UT-I = Unit Test-I, UT-II = Unit Test-II, ESE = End Semester Exam.

Total Contact Hours/week : **29**
Total Credits : **24**
Technical Aptitude Courses: Machine Design, Power Electronics and Drives

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

K.E.S. Rajarambapu Institute of Technology Rajaramnagar Autonomous 415414

Program Elective - II

Sr. No.	Course Code	Course	Domain
1.	MC3081	Finite Element Methods	Design & Manufacturing
2.	MC310	Thermal Management of Mechatronic System	Design & Manufacturing
3.	MC312	Additive Manufacturing	Design & Manufacturing
4.	MC3141	Digital Signal Processing	Automation
5.	MC316	Industry 4.0 Technologies and IIOT	Design & Manufacturing & Intelligent Systems
6.	MC3181	Wireless Sensor Network	Automation
7.	MC3201	Microelectromechanical Systems	Automation
8.	MC322	Process Control	Design & Manufacturing

Open Elective –II

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 & 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	OE3284	Supply Chain Management	Mechanical Engineering
15	OE3324	Entrepreneurship Development	Mechanical Engineering
16	OE356	Project Management	Mechanical Engineering

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

Course Code	Course	Teaching Scheme				Evaluation Scheme					
							Theory (Marks %)			Practical (Marks)	
		L	T	P	Credits	Scheme	Max.	Min. for passing		Max.	Min. for passing (%)
MC4011	Design of Mechatronics System	2	-	-	2	ISE	20	40	40	---	---
						MSE	30			---	---
						ESE	50	40		---	---
MC403	Machine Learning	3	-	-	3	ISE	20	40	40	---	---
						MSE	30			---	---
						ESE	50	40		---	---
MC4051	Industrial Robotics	3	-	-	3	ISE	20	40	40	---	---
						MSE	30			---	---
						ESE	50	40		---	---
	Program Elective Course-III	3	-	-	3	ISE	20	40	40	---	---
						MSE	30			---	---
						ESE	50	40		---	---
	Program Elective Course-IV	3	-	-	3	ISE	20	40	40	---	---
						MSE	30			---	---
						ESE	50	40		---	---
MC4511	Industrial Robotics Lab	-	-	2	1	ISE	--	---	---	50	50
						ESE	--	---	---	50	50
MC4531	Circuit Simulation and PCB Design Lab	-	-	2	1	ISE	--	---	---	50	50
						ESE	--	---	---	50	50
	Program Elective-IV Lab	-	-	2	1	ISE	--	---	---	50	50
						ESE	--	---	---	50	50
MC4711	Capstone Project-Phase II	-	-	6	3	ISE	--	---		50	50
						ESE	--	---		50	50
	TOTAL	14	-	12	20						
	TOTAL CONTACT HOURS	26									

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

Total Contact Hours/week : 26
Total Credits : 20

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

S. Rajarambapu Institute of Technology Rajaramnagar Autonomous

Program Elective-III

Sr. No.	Course Code	Course Name	Domain
1.	MC4071	Building Automation	Automation
2.	MC409	Basics of Cloud Computing	Intelligent Systems
3.	MC4111	Machine Tool Design	Design & Manufacturing
4.	MC4131	Fuzzy Logic & Neural Networks	Intelligent Systems
5.	MC4151	Hybrid and Electric Vehicle	Advanced Mobility System
6.	MC4171	Industrial Engineering	Design & Manufacturing
7.	MC421	Emerging Smart Materials for Mechatronics Applications	Design & Manufacturing

Program Elective-IV

Sr. No.	Course Code	Course	Domain
1.	MC4231	Computer Network and Cyber Security	Intelligent System
2.	MC433	Unmanned Aerial Vehicles	Advance Mobility System
3.	MC4271	VLSI Design	Automation

Program Elective-IV Lab

Sr. No.	Course Code	Course	Domain
1.	MC4551	Computer Network and Cyber Security Lab	Intelligent System
2.	MC4571	VLSI Design Lab	Intelligent System
3.	MC467	Unmanned Aerial Vehicles Lab	Advance Mobility System

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	-	-	-	**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, students need to report to Institute mentors as and when required.
2] For online courses, lecture videos of each unit will be made available through college platforms to the students. For each unit there will be separate assignments. Students need to submit all assignments within a specified time.
Weightage: 25% weightage for unit wise assignments + 75% weightage for final exam. Final exams will be held at college campus.

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	-	-	-	**16**						

ISE = In Semester Evaluation, UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam.

Total Contact Hours/week : -
Total Credits : 16

Note:
1] Weekly Contact hours are not mentioned as students are expected to be in outside research organization regularly for 20 weeks. However, students need to report to Institute mentors as and when required.
2] For the online course, lecture videos of each unit will be made available through the college platform to the students. For each unit there will be separate assignments. Students need to submit all assignments within a specified time.

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

K.E. Society's
Rajarambapu Institute of Technology, Rajaramnagar
(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Curriculum Structure and Evaluation Scheme
To be implemented for 2022-26
Department of Mechatronics Engineering
Rev: MC Course structure/RIT/03/2022-26

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	-	-	-	11	ISE	--	--	--	50	50
						ESE				50	
		-	-	-	16						

ISE = In Semester Evaluation, UT-I = Unit Test-I, UT-II = Unit Test-II ESE = End Semester Exam.

Total Contact Hours/week : 04
Total Credits : 16

Note:

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

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

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

3] A one week Entrepreneurship Development Program (EDP) will be conducted after completion of the 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.

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

K.E.S. Rajarambapu Institute of Technology Rajaramnagar Autonomous 415414

Multidisciplinary Minor

- Student should choose any one specialization given by the department and complete all the five courses under the specialization to earn 170 Credits.
- 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 Python	V	

	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 Lab	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	Advance Communication Techniques	V	
	4	ECMD303	Electronics 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 Processes	V	
	4	MEMD303	Refrigeration and Air Conditioning	V	

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

K.E.S. Rajarambapu Institute of Technology Rajaramnagar Autonomous 415414

	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 AI	VI	

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

K.E.S. Rajarambapu Institute of Technology Rajaramnagar Autonomous 415414

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

B.Tech. in Mechatronics 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	MCDM3XXX
2	IV	DM – II	MCDM4XXX
3	V	DM – III	MCDM5XXX
4	VI	DM – IV	MCDM 6XXX
5	VII	DM – V	MCDM 7XXX
6	VIII	DM – VI	MCDM 8XXX

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 occur.

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.

Rajarambapu Institute of Technology Mechatronics Dept. 415 414 Rajaramnagar

Rajarambapu Institute of Technology Rajaramnagar Autonomous 415414

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

B.Tech. in Mechatronics 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	MCH3XXX
2	IV	Honor - II	MCH4XXX
3	V	Honor - III	MCH5XXX
4	VI	Honor - IV	MCH6XXX
5	VII	Honor - V	MCH7XXX
6	VIII	Honor - VI	MCH8XXX

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 occur.

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 Mechatronics 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 Mechatronics Engineering Honors with Research and Multidisciplinary Minor degree Student need to earn total 188 Credits which consist of 170 credits of regular Multidisciplinary Minor courses and 18 credits of Research courses.

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

Course Code	Course	Teaching Scheme				Evaluation Scheme						
							Theory (Marks %)			Practical (Marks %)		
		L	T	P	Credits	Scheme	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 Evaluation

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

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 Evaluation