K.E. Society's

Rajarambapu Institute of Technology, Rajaramnagar
(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Curriculum Structure and Evaluation Scheme With effective from 2019-23 [2019-23 Batch] Department of Automobile Engineering

Class: S. Y. B. Tech. Mechanical Engineering Automobile

0.00000	. Y. B. Tech. Mechanical E	ingin				lobile				Sei	mester: III	
Course				achi chem				Evaluation Scheme				
Code	Course				ts	9	The	eory (Marks) P		Pract	Practical (Marks)	
Cour		L	T	P	Credits	Scheme	Max		n. for ng (%)	Max.	Min. for passing (%)	
	Engineering Mathematics –					ISE	20					
SH2032	III	3	1	-	4	UT1	15	40	40			
	111				1	UT2 ESE	15 50	40	1			
			+	+-		ISE	20	40	-			
351001	1					UT1	15	40				
MA201	Applied Thermodynamics	3	-	-	3	UT2	15	40	40			
						ESE	50	40	- 1			
		+	+		 	ISE	20	40				
MA203	Engineering Mechanics	1 2				UTI	15	40				
WIA203	Engineering weenames	3	-		3	UT2	15		40			
						ESE	50	40	1 1			
						ISE	20					
MA205	Manufacturing Technology	3	_	_	3	UT1	15	40				
		3		-	3	UT2	15		40			
						ESE	50	40	1			
	M-4					ISE	20					
MA207	Material Science &	3	_	_	3	UT1	15	40	40			
	Metallurgy					UT2	15		40			
		+	_			ESE	50	40				
SH2172	Environmental Science	1*	-	-	1	ISE	50	4				
MA209	Wooledcan Door	-	-		-	ESE	50	4	0			
	Workshop Practice – I	-	-	2	1	ISE				100	50	
MA211	Engineering Mechanics Lab	-	~	2	1	ISE			_	100	50	
MA213	Machine Drawing Lab.	_	_	2	1	ISE			-	50	50	
						ESE			-	50	50	
MA215	Comprehensive Exam-I	-	-	-	1	ESE			-	100	50	
SH2612	Environmental Science Project	-	-	2	1	ISE			-	100	50	
	Open Elective- II Choice Based Soft Skill Program-I	-	_	2	1	ISE				100	50	
	TOTAL	16	1	10	23							

ISE = In Semester Evaluation, UT1 = Unit Test 1, UT2 = Unit Test 2, ESE = End Semester Examin

Total Contact Hours/week

: 27

Total Credits

: 23

Note*: One extra lecture to be allotted to Environment Science in the timetable.

Comprehensive Exam-I: Engineering Mathematics – III, Applied Thermodynamics, Engineering



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K.E. Society's Rajarambapu Institute of Technology, Rajaramnagar

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

Curriculum Structure and Evaluation Scheme

With effective from 2019-23 [2019-23 Batch]

Department of Automobile Engineering

Open Elective-II

Sr. No.		Course Code	
1.	Choice Based Soft	Personal Effectiveness & Body	
	Skill Program-I & II	Language	SH2593
2.		Interpersonal Skills (Work-life	
		Balance)	SH2613
3.		Leadership & Public Speaking	SH2633
4.		Innovation Tools and Methods for	
		Entrepreneurs	SH2693
5.		German Language – Basic Level	SH2733
6.		Japanese Language – Basic Level	SH2713

Note:

- 1. A student has to complete any two courses out of six choices offered under the Choice Based Soft Skills Programme. A course in each semester will be allocated without any repetition.
- 2. The students who have completed 'German Language Lab' or 'Japanese Language Lab' in F.Y. B. Tech should not give their choice for 'German Language Basic Level' and 'Japanese Language Basic Level'. Such students may give their choices for 'German Language Advanced Level' and 'Japanese Language Advanced Level' (batch sizes 40 each) in the S.Y. B. Tech Sem-IV only.
- 3. The students who will select and will complete 'German Language Basic Level' and 'Japanese Language Basic Level' in S.Y. B. Tech Sem-III will by default (mandatorily) appear for Advance Levels of said courses in Semester-IV.



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K.E. Society's

Rajarambapu Institute of Technology, Rajaramnagar (An Autonomous Institute, affiliated to Shivaji University, Kolhapur) Curriculum Structure and Evaluation Scheme With effective from 2019-23 [2019-23 Batch] Department of Automobile Engineering

Class: S. Y. B. Tech. Mechanical Engineering Automobile

	1. B. Tech. Mechanical En	T	Te	achi	ng			T1	-4: 6		mester: IV
Course			Sc	hem	e		Evaluation Scheme				
Code	Course	L	T	P	Credits	Scheme	Th	neory (Marks) Practical (Marks			tical (Marks)
		L	1				Max		n. for ng (%)	Max	Min. for passing (%)
MA202	Kinematics of Machines	3	-	-	3	UT1 UT2	20 15 15	40	40		
MA204	Fluid Mechanics & Machinery	3	-	-	3	ISE UT1 UT2 ESE	50 20 15 15 50	40 40	40		
MA206	Electric Drives and Controls	2	-	-	2	ISE UT1 UT2 ESE	20 15 15 50	40	40	 	
MA208	Mechanics of Materials	3	-	-	3	ISE UT1 UT2 ESE	20 15 15 50	40	40		
MA210	Industrial Organisation and Management	3	-	-	3	ISE UT1 UT2 ESE	20 15 15 50	40	40		
MA212	Metrology & Measurement Lab.	-	-	2	1	ISE		40	-	100	50
MA214	Fluid Mechanics & Machines Lab.	-	-	2	1	ISE ESE				50	50 50
MA216	Solid Modeling Lab	-	-	2	1	ISE			-	100	50
MA218	Workshop Practice - II	-	-	2	1	ISE				100	50
MA220	Object-Oriented Programming Lab	-	-	2	1	ISE ESE				50	50 50
MA222	Comprehensive Exam-II	-	-	-	1	ESE				100	50
	Open Elective- III Choice Based Soft Skill Program-II	-	-	2	1	ISE ESE	-	-	-/	50	50
	TOTAL	14	-	12	21						

ISE = In Semester Evaluation, UT1 = Unit Test 1, UT2 = Unit Test 2, ESE = End Semester Examination

Total Contact Hours/week

: 26

Total Credits

: 21

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

Comprehensive Exam-III

: Kinematics of Machines, Mechanics of Materials, Fluid Mechanics & Fluid

Machinery





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K.E. Society's Rajarambapu Institute of Technology, Rajaramnagar

(An Autonomous Institute, affiliated to Shivaji University, Kolhapur)
Curriculum Structure and Evaluation Scheme
With effective from 2019-23 [2019-23 Batch]
Department of Automobile Engineering

Open Elective- III

Sr. No.		Course Code		
1.	Choice Based Soft	Personal Effectiveness & Body	SH2593	
	Skill Program-I & II	Language	222070	
2.		Interpersonal Skills (Work-life	SH2613	
		Balance)	222010	
3.		Leadership & Public Speaking	SH2633	
4.		Innovation Tools and Methods for	SH2693	
		Entrepreneurs		
5.		German Language – Advanced Level	SH2643	
6.		Japanese Language – Advanced	SH2623	
		Level		

Note:

- 1. A student has to complete any two courses out of six choices offered under the Choice Based Soft Skills Programme. A course in each semester will be allocated without any repetition.
- 2. The students who have completed 'German Language Lab' or 'Japanese Language Lab' in F.Y. B.Tech should not give their choice for 'German Language Basic Level' and 'Japanese Language Basic Level'. Such students may give their choices for 'German Language Advanced Level' and 'Japanese Language Advanced Level' (batch sizes 40 each) in the S.Y. B. Tech. Sem-IV only.
- 3. The students who will select and will complete 'German Language Basic Level' and 'Japanese Language Basic Level' in S.Y. B.Tech Sem-III will by default (mandatorily) appear for Advance Levels of said courses in Semester-IV.



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Class: T. Y. B. Tech. Mechanical Engineering Automobile

Semester:

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		1	each	ing S	Scheme	-	1 -	E	valuation S	cheme	
Course Code	Course	L	T	P	Credits	Scheme	T	T	Marks)	Practi	cal (Marks)
				Ĺ	Cre		Max		fin. for ssing (%)	Max	Min. for passing (%)
99 (1000)1111 HEDAGO/1250	Internal Combustion					ISE	20	1			
MA301	Engines	3	1-	-	3	UT1	15	40	40		
	Linguics		1			UT2 ESE	15	40	-		
				1		ISE	20	40			
MA303	Dynamics of Machines	1 2		1	_	UT1	15	40			
MAJOS	Dynamics of Machines	3	-	-	3	UT2	15	1 .0	40		
						ESE	50	40			
						ISE	20				
MA305	Heat Transfer	3	_	-	3	UT1	15	40	40		
					_	UT2	15		40		
		+	-	-		ESE	50	40			
11120=						ISE UT1	20	40			
MA307	Automotive Systems	3	-	-	3	UT2	15 15	40	40		
						ESE	50	40			
		1				ISE	20	40			
MA309	Autotronics	3			_	UT1	15	40			
1111100	Autonomes	3	-		3	UT2	15		40		
						ESE	50	40			
						ISE	20				
	Program Elective-I	3		_	2	UT1	15	40			
	110gram Elective-1	3	-	-	3	UT2	15		40		
						ESE	50	40	l 1		
MA323	I. C. Engine Lab.	_		2	1	ISE				50	50
	1. C. Engine Lab.	-	1.5	2	1	ESE				50	50
MA325	Thermal Engineering Lab.	_	-	2	1	ISE				50	50 .
		-	_		1	ESE				50	50
MA327	Automobile Engineering		-	2	1	ISE				50	50
	Lab.					ESE				50	50
MA329	Theory of Machines Lab	-	-	2	1	ISE				100	50
MA331	Comprehensive Exam-III	-	-	-	1	ESE				100	50
		904.0				ISE	20	100000			
SH3032	Antitudo Trainino I	0.5				UT1	15	40			
SH3032	Aptitude Training I	2*	-	-	2	UT2	15		40		
						ESE	50	40			
MA333	Summer Internship (4 Weeks)	-	-	-	2	ISE				100	50
SH301	Indian Constitution	2	1		Audit	TOE	100				
- AAU VA	TOTAL			-	The Part of the Pa	ISE	100	50	(P/N)		
CE - I- C-	mester Evaluation IIT1 - Unit To	22		8	27						

ISE = In Semester Evaluation, UT1 = Unit Test 1, UT2 = Unit Test 2, ESE = End Semester Examination

Total Contact Hours/week : 30 **Total Credits**

Note*: One extra lecture to be allotted to Scholastic Aptitude-I in time Table.

Comprehensive Exam-III: Internal Combustion Engines, Heat Transfer, Dynamics of Machines



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Program Elective - I:

Sr. No.	Course Code	Discipline	Course					
1	MA311	D:	Product Design and Development					
2	MA313	Design	Tribology					
3	MA315	Donner C. M. C.	Fuels and combustion					
4	MA317	Power & Manufacturing	Welding and Joining Technologies					
5	MA319	M	Transport management					
6	MA321	Management & Service	Industrial Engineering					



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Class: T. Y. B. Tech. Mechanical Engineering Automobile

CAUSSI	1. 1. B. Tech. Mechanic	Jai L					utomot	one			S	emester: VI	
				eacl che			Evaluation Scheme						
Course	Course					SO	9	Theory (Marks)			Practical (Marks)		
Code		L]	וו	P	Credits	Scheme	Max		n. for ng (%)	Max	Min. for passing (%)	
	D : CM 1:			T			ISE	20					
MA302	Design of Machine	3	_	-	.	3	UT1	15	40	40			
	Elements					5	UT2	15		40			
		+	+	+	+		ESE	50	40				
	Electric and Hybrid			1			ISE UT1	20					
MA304	Electric Vehicles	2	-	-	1	2	UT2	15 15	40	40			
	License venicles			1	1		ESE	50	40				
			+	+	+		ISE	20	40				
MA306	Automotive Safety and						UT1	15	40				
WIASUO	Ergonomics	3	-	-		3	UT2	15	40	40			
							ESE	50	40	l			
					T		ISE	20					
	Program Elective-II	3				3	UT1	15	40	40			
	110gram Elective-II	'	1	-		, [UT2	15		40			
							ESE	50	40				
							ISE	20				(7.7.2)	
	Open Elective-IV	3	-	-		3	UT1	15	40	40			
							UT2	15] 40 [
4					+		ESE	50	40				
							ISE UT1	20	40				
SH302	Biology for Engineers	3	-	-		3	UT2	15 15	40	40			
					18		ESE	50	40				
251000	Automotive Diagnostic			No.	1		ISE		40		50		
MA320	Lab.	-	-	2		1	ESE				50	50	
MA322	Advance Modeling Lab			1	t	1	ISE				50	50	
		-	_	2		1	ESE				50	50	
MA324	Comprehensive exam-IV	-	-	-	Γ	1	ESE				100	50	
MA326	Capstone Project phase-I	-	-	2		2	ISE				100	50	
				100			ISE	20		BOX IS			
SH3052	Aptitude training- II	2*	_	-		2	UT1	15	40	10			
	-First warming II	-				_	UT2	15		40			
Bullion States	TOTAL	10					ESE	50	40	8 8		41 (12)	
	TOTAL	19	_	6		24	2 EGE						

ISE = In Semester Evaluation, UT1 = Unit Test 1, UT2 = Unit Test 2, ESE = End Semester Examination

Total Contact Hours/week

: 25

Total Credits

: 24

Note*: One extra lecture to be allotted to Scholastic Aptitude-II and Psychology for Engineers in

Comprehensive exam Courses: Design of Machine Elements, Electric and Hybrid Electric Vehicles, A Safety and Ergonomics



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Program Elective - II:

Sr. No.	Course Code	Discipline	Course			
1	MA308	Design	Automotive Emission and Control Technologies			
2	MA310	Design	Sensor and Actuators			
3	MA312	Power &	Advanced Manufacturing Processes			
4	MA314	Manufacturing	Advanced Materials			
5	MA316	M	Total Quality Management			
6	MA318	Management & Service	Supply Chain Management			

Open Elective-IV

Sr. No.	Branch	Course Code	Open Elective-IV Courses
1	Automobile	OE3023	Reliability Engineering
2	Automobile	OE3043	Renewable Energy Sources
3	Civil	OE3063	Environmental Impact Assessment
4	Civil	OE3083	Material Management.
5	Computer	OE3103	Network Administration
6	Computer	OE3123	Information Technology Foundation Program
7	E&TC	OE3143	Mechatronics
8	Electrical	OE3163	Engineering Materials
9	Electrical	OE3181	Industrial Drives
10	CS&IT	OE3201	Machine Learning for Engineering and Science Applications
_ 11	CS&IT	OE3221	Cyber Forensics
12	MBA	OE3243	Marketing for Engineers
14	Mechanical	OE3263	Aircraft Systems
15	Mechanical	OE3283	Supply Chain Management
16	Mechanical	OE3303	New Product Design and Development
17	Mechanical	OE3323	Entrepreneurship Development
18	Mechanical	OE3341	Research Methodology



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Class: Final Year B. Tech. Mechanical Engineering Automobile

Samestar VII

Class. Final Teal B. Tech. Mechanical E					Teaching Automobile					Semester: VII	
C				hem		Evaluation Scheme					
Course	Course				2	٠	The	ory (Ma	arks)	Pract	ical (Marks)
Code		L	Т	P	Credits	Scheme	Max.		n. for ng (%)	Max.	Min. for passing (%)
	AttiG					ISE	20				
MA401	Automotive System	3	-	_	3	UT1	15	40	40		
	Design			558		UT2	15		40		
		-	-		-	ESE	50	40			
						ISE	20	1			
MA403	Vehicle Dynamics	3	-	-	3	UT1	15	40	40		
						UT2	15				
22.10		+	+-		-	ESE	50	40			
						ISE	20		40		
	Program Elective-III	3	-		2	UT1	15	40			
		د ا		-	3	UT2	15				
						ESE	50	40			
						ISE	20		40		
	Program Elective-IV	3				UT1	15	40			
	110gram Elective-1v			-	3	UT2	15				
						ESE	50				
		30.43				ISE	20		e de la composition della comp		
	Program Elective-V	1				UT1	15	40			
		3	-	-	3	UT2	15		40		
						ESE	50	40			
	Vehicle Performance					ISE				50	50
MA441	Evaluation & Emission Testing Laboratory	-	-	2	1	ESE			-	50	50
24442	CAE Software					ISE				50	50
MA443	Proficiency	-	-	2	1	ESE					
	•		+			ISE				50	50
	Program Elective-IV Lab	-	-	2	1	ESE				50	50
				1	1					50	50
MA457	Capstone Project Phase-II	-	-	4	4	ISE				100	50
	TOTAL	15	0	10	22	ESE				100	50
	LOIMU	13	U	10	22						

ISE = In Semester Evaluation, UT1 = Unit Test 1, UT2 = Unit Test 2, ESE = End Semester Examination

Total Contact Hours/week

: 25 : 22

Total Credits



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Program Elective - III:

Sr. No.	Course Code	Discipline	Course
_ 1	MA405	D	Finite Element Analysis
2	MA407	Design	Design of Composite Materials
3	MA409	D	Tool Engineering
4	MA411	Power & Manufacturing	Rapid Prototyping
5	MA413	14	Quantitative Techniques
6	MA415	Management & Service	Engineering Economics

Program Elective - IV:

Sr. No.	Course Code	Discipline	Course
1	MA417	D .	Hydraulic & Pneumatics
2	MA419	Design	Engine Design
3	MA421	D	Refrigeration & Air Conditioning
4	MA423	Power & Manufacturing	Robotics and Automation
5	MA425	24	Automotive Business Management
6	MA427	Management & Service	Motor Vehicle Insurance Practices

Program Elective - V:

Sr. No.	Course Code	Discipline	Course
1	MA429	Design	Product Life Cycle Management
2	MA431	Design	Computational Fluid Dynamics
3	MA433	Downer & March	Automotive Aerodynamics
4	MA435	Power & Manufacturing	Fuel Cell Technology
5	MA437	M	Production & Operation Management
6	MA439	Management & Service	Project Management

Program Elective – IV Lab.:

Sr. No.	Course Code	Discipline	Course	
1	MA445	Desire	Hydraulic & Pneumatics Lab	
2	MA447	Design	Engine Design Lab	
3	MA449	Dames C. M. C.	Refrigeration & Air Conditioning Lab	
4	MA451	Power & Manufacturing	Robotics and Automation Lab	
5	MA453	M	Automotive Business Management Lab	
6	MA455	Management & Service	Motor Vehicle Insurance Practices Lab	

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K.E. Society's Rajarambapu Institute of Technology, Rajaramnagar

(An Autonomous Institute, affiliated to Shivaji University, Kolhapur) Curriculum Structure and Evaluation Scheme With effective from 2019-23 [2019-23 Batch] Department of Automobile Engineering

Track I: Industry Internship & Projects (IIP)

Class: Final Year B. Tech Semester: VI

Course			Teaching Scheme			Evaluation Scheme					
Code	Course	L	T	_ n	dit	em	The	ory (Ma	arks)	Practical (Marks	
		L		P	Credit	Schem	Max.	100000000000000000000000000000000000000	n. for ng (%)	Max.	Min. for passing (%)
OE4381	Finance for Engineers (Online Course)	2	-	-	2	ISE	25	40	40		
	(ESE	75	40			
OE4361	Engineering Management & Economics	2	-	- -	- 2	ISE	25	40	40		
	(Online Course)					ESE	75	40			
IP4023	Internship & Project	-	-	-	8	ISE				50	50
	TOTAL	4			12	ESE			-]	50	50
	101111	14	_	-	12						

ISE = In Semester Evaluation, ESE = End Semester Exam

Total Contact Hours/week

: 04 : 12

Total Credits

Note:

- 1] Weekly Contact hours are not mentioned for the IP4023 course, because a student is expec to be in the industry regularly for 20 weeks. However, a student needs to report to Instit mentors as and when required.
- 2] For online courses, lecture videos of each unit will be made available through the colle platform to the students. For each unit, there will be a separate assignment. Students need submit all assignments within the specified time.

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



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Track II: Undergraduate Research Experience (URE)

Class: Final Year B. Tech

Semester: VIII

Course Code	Course		Teaching Scheme				Evaluation Scheme					
		L	Т	P	Credit	ma	Theory (Marks)		Practical (Marks)			
						Schem	Max.	1	n. for ng (%)	Max.	Min. for passing (%)	
OE4381	Finance for Engineers (Online Course)	-	-	-	2	ISE	25	40	40			
						ESE	75	40				
OE4361	Engineering Management &	1	-	-	2	ISE	25	40	40			
	Economics (Online Course)					ESE	75	40				
RE4043	Research Project	-	_	8	8	ISE				50	50	
	TOTAL					ESE				50	50	
	TOTAL	-	-	8	12							

ISE = In S

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Note:

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Course $\begin{array}{ c c c c c c c c c c c c c c c c c c c$
Finance for Engineers L T P S Max. Min. for passing (%) Max. Min. for passing (%) Finance for Engineers A Min. for passing (%) Max. Min. for passing (%) Max. Min. for passing (%)
Finance for Engineers ISE 25 40
Finance for Engineers 25 40
(Online Course) 2 1SE 25 40 40
Engineering Management & ISE 25 40 Economics 2 FSE 40
ISE
ESE 50 50
TOTAL 8 12
courses, lecture videos of each unit will be made available through the college the students. For each unit, there will be a separate assignment. Students need to ssignments within the specified time. 25% weightage for unit wise assignments + 75% weightage for final exam. The will be held at the college campus.



Track III: Entrepreneurship Development (ED)

Class: Final Year B. Tech

Semester: VIII

Course Code	Course	Teaching Scheme			its	Evaluation Scheme					
		L	Т	P	Credits	e e	Theory (Marks)			Practical (Marks)	
						Sche	Max	Min. for passing (%)		Max	Min. for passing (%)
ED4103	Project Management	2*	-	-	2	ISE	20	40	40		
						UT-1	15				
						UT-2	15				
						ESE	50				
ED4043	Commercial Aspects of the Project	2*	-	-	2	ISE	20	40	40		
						UT-1	15				
						UT-2	15				
						ESE	50	40			
ED4063	Entrepreneurship Development Program (EDP)	-	-	-	1	ISE				100	50
ED4083	Entrepreneurship Development		_	7	7	ISE				50	50
100000000000000000000000000000000000000	Project					ESE				50	
Total			-	7	12						

ISE = In Semester Evaluation, ESE = End Semester Examination

Total Contact Hours/week : 11

Total Credits

: 12

* One extra lecture to be allotted to Project Management and Commercial Aspects of the Project course in the timetable.



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