
Programme Specifications

B.Tech. Programme



Programme: Automotive Engineering
Department: Automotive and Aeronautical Engineering

Faculty of Engineering & Technology
Ramaiah University of Applied Sciences University House, New BEL Road, MSR
Nagar, Bangalore– 560054 www.msruas.ac.in

PROGRAMME SPECIFICATIONS: AUTOMOTIVE ENGINEERING

Faculty	Engineering and Technology (FET)
Department	Automotive and Aeronautical Engineering
Programme	Automotive Engineering
Dean of Faculty	Prof. M. Arulanantham
Head of Department	Prof. Raja R

1	Title of the Award B.Tech. in Automotive Engineering
2	Modes of Study Full Time
3	Awarding Institution /Body Ramaiah University of Applied Sciences
4	Joint Award Not Applicable
5	Teaching Institution Faculty of Engineering and Technology, Ramaiah University of Applied Sciences
6	Date of Programme Specifications March 2019
7	Date of Programme Approval by the Academic Council of MSRUAS July 2019
8	Next Review Date: May 2023
9	Programme Approving Regulating Body and Date of Approval --
10	Programme Accredited Body and Date of Accreditation --
11	Grade Awarded by the Accreditation Body --
12	Programme Accreditation Validity --
13	Programme Benchmark N/A
14	<p>Rationale for the Programme</p> <p>Automotive engineering is one of the specialized disciplines of engineering. Designing and manufacturing of automotive components and system have been there world over for many centuries. Automotive Engineering is a specialized discipline, critical to the success of many enterprises. It plays a key role in energy, transportation, development of infrastructure and manufacturing of automotive vehicles.</p> <p>Presently, automotive engineers are contributing in research and development pertaining to environmental and bio-fuel fields. Automotive engineers are responsible for selection and processing of eco-friendly materials, fuels and processes, design and fabrication of automotive components and system to improve the quality of transportation.</p> <p>The automotive engineering programme at Faculty of Engineering and Technology at RUAS has been developed by the members of the faculty based on interactions with various universities and industries in India and abroad.</p> <p>The curriculum is outcome based and helps students to develop critical thinking abilities and imbibe relevant practical skills for a smooth transition from academics to real-lifework environment. Opportunities are provided for the students to do their internship in India or abroad depending on their preferences.</p> <p>The alumni of the faculty hold respected positions in industry and business in India and abroad. The faculty interacts with the industry and business offering engineering and consultancy, product design and development services along with training modules to practicing professionals. The faculty interacts with more than 150 companies in public and private sectors including OEMs spread across India.</p>

	<p>The above mentioned features of the programme and the faculty member's strong footing in industry and business make the programme unique. The student admitted to the programme in automotive engineering is given a strong foundation in real-life problem solving which quite are with many institutions is offering similar programme.</p>
15	<p>Programme Mission</p> <p>The purpose of the programme is creation of innovative problem solvers in multi-disciplinary settings, entrepreneurs and leaders applying the knowledge, understanding, cognitive abilities, practical skills and transferrable skills gained through systematic, flexible and rigorous learning in the chosen academic domain</p>
16	<p>Graduate Attributes</p> <ol style="list-style-type: none"> 1. Ability to apply knowledge of mathematics, science, and Engineering fundamentals to solve complex problems in engineering 2. Ability to analyse engineering problems, interpret data and arrive at meaningful conclusions involving mathematical inferences 3. Ability to design an engineering system, component, or process to meet desired needs considering public health and safety, and the cultural, societal, and environmental considerations 4. Ability to understand and solve complex engineering problems by conducting experimental investigations 5. Ability to apply appropriate tools and techniques and understand utilization of resources appropriately to complex engineering activities 6. Ability to understand the effect of engineering solutions on legal, cultural, social and public health and safety aspects 7. Ability to develop sustainable solutions and understand their effect on society and environment 8. Ability to apply ethical principles to engineering practices and professional responsibilities 9. Ability to work as a member of a team, to plan and to integrate knowledge of various engineering disciplines and to lead teams in multidisciplinary settings 10. Ability to make effective oral presentations and communicate technical ideas to a broad audience using written and oral means 11. Ability to lead and manage multi-disciplinary teams by applying engineering and management principles 12. Ability to adapt to the changes and advancements in technology and engage in independent and life-long learning
17	<p>Programme Goal</p> <p>The programme goal is to produce graduates with critical, analytical and problem solving skills, and ability to think independently, to pursue a career in Automotive Engineering.</p>
18	<p>Programme Objectives</p> <p>The Automotive Engineering degree programme will impart knowledge of automotive systems and their subsystems; enhances the understanding of underlying engineering principles that govern the behavior of automotive systems; teach analytical modeling, simulation and analysis to study the behavior of automotive systems; provide the skills to design, build and test automotive systems. It also trains students on personal development and interactive skills with a feel for society.</p> <p>The objectives of the programme are:</p> <ol style="list-style-type: none"> 1. To impart knowledge on automotive systems and their sub-systems 2. To facilitate the understanding of underlying engineering principles of automotive systems to explain their construction and working 3. To model, simulate and analyze the behavior of automotive systems to predict and Improve their performance 4. To design and develop prototypes of automotive systems to meet the specific needs

	<ol style="list-style-type: none"> 5. To instrument and test automotive systems for validation 6. To train students on commercial software tools to design, model, simulate automotive vehicle systems 7. To train students on manufacture and production of automotive systems 8. To educate on professional ethics, economics, social sciences and inter personal skills relevant to professional practice 9. To provide a general perspective on lifelong learning and opportunities for a career in industry, business and commerce
<p>19</p>	<p>Programme Intended Learning Outcomes The intended learning outcomes are listed under four headings: 1. Knowledge and Understanding, 2. Cognitive skills 3. Practical skills and 4. Capability/ Transferable skills.</p> <p>Knowledge and Understanding</p> <p>After undergoing this programme, a student will be able to:</p> <p>KU1: Identify and describe the various systems of relevance to automotive engineering</p> <p>KU2: Explain the underlying science and engineering principles that govern the systems/processes relevant to automotive engineering</p> <p>KU3: Compare and contrast newer technologies over the existing technologies</p> <p>KU4: Collect, classify and interpret information relevant to automotive engineering</p> <p>Cognitive Skills</p> <p>After undergoing this programme, a student will be able to:</p> <p>CS1: Design automotive systems/processes based on the desired function</p> <p>CS2: Model and simulate automotive systems to analyze the behavior</p> <p>CS3: Modify the existing design/processes to meet newer requirements</p> <p>CS4: Apply science and engineering principles to evaluate performance of automotive systems and answer “what if” questions</p> <p>Practical Skills</p> <p>After undergoing this programme, a student will be able to:</p> <p>PS1: Manufacture /Fabricate automotive components and assemble the system</p> <p>PS2: Instrument a system and test for its performance</p> <p>PS3: Operate and maintain automotive system for efficient and safe operations</p> <p>PS4: Program /Control an automotive system to deliver desired level of performance</p> <p>Capability Skills / Transferrable Skills</p> <p>After undergoing the programme, a student will be able to:</p> <p>TS1: Manage information, develop technical reports and make presentations</p> <p>TS2: Build, Manage and Lead a team to successfully complete a project and Communicate across teams and organizations to achieve professional objectives</p> <p>TS3: Work under various constraints to meet project targets</p> <p>TS4: Adopt to the chosen profession by continuously upgrading his/her knowledge and understanding through Life-long Learning philosophy</p>

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Programme Structure**Semester: 1, Physics Cycle**

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks	
1	19MHB101A	Engineering Mathematics-1	2	2	0	4	100	
2	19PHB102A	Engineering Physics	4	0	0	4	100	
3	19MES103A	Elements of Mechanical Engineering and Work shop practise	2	0	2	3	100	
4	19EES104A ¹	Basics of Electrical and Electronics Engineering ¹	3	0	0	3	100	
	19ECS105A ²	Elements of Electronics Engineering ²						
5	19MES106A	Engineering Drawing	1	0	4	3	100	
6	19PHL107A	Engineering Physics Laboratory	0	0	2	1	50	
7	19EEL108A ¹	Basic Electrical Engineering Laboratory ¹	0	0	2	1	50	
	19ECL109A ²	Basic Electronics Laboratory ²						
8	19TSH110A	Constitution, Human Rights and Law	2	0	0	2	50	
Total			14	2	10	21	650	
Total number of contact hours per week			26 hours					
Number of credits can be registered			Minimum	17	Maximum	21		

Semester: 1 Chemistry Cycle

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks	
1	19MHB110A	Engineering Mathematics - 1	2	2	0	4	100	
2	19CHB111A	Engineering Chemistry	3	0	0	3	100	
3	19CES112A ¹	Engineering Mechanics ¹	3	0	0	3	100	
	19ECS105A ²	Elements of Electronics Engineering ²						
4	19CSS114A	Elements of Computer Science and Engineering	2	2	0	4	100	
5	19CSL115A	Computer Programming Laboratory	0	0	2	1	50	
6	19CHL116A	Engineering Chemistry Laboratory	0	0	2	1	50	
7	19EEL108A ¹	Basic Electrical Engineering Laboratory ¹	0	0	2	1	50	
	19ECL109A ²	Basic Electronics Laboratory ²						
8	19TSH120A	Professional Communication	2	0	0	2	50	
Total			12	4	6	19	600	
Total number of contact hours per week			22 hours					
Number of credits can be registered			Minimum	15	Maximum	19		

Semester : 2, Physics Cycle

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks	
1	19MHB110A	Engineering Mathematics-2	2	2	0	4	100	
2	19PHB102A	Engineering Physics	4	0	0	4	100	
3	19MES103A	Elements of Mechanical Engineering and Work shop practise	2	0	2	3	100	
4	19EES104A ¹	Basics of Electrical and Electronics Engineering ¹	3	0	0	3	100	
	19EES113A ²	Elements of Electrical Engineering ²						
5	19MES106A	Engineering Drawing	1	0	4	3	100	
6	19PHL107A	Engineering Physics Laboratory	0	0	2	1	50	
7	19ECL109A ¹	Basic Electronics Laboratory ¹	0	0	2	1	50	
	19EEL108A ²	Basic Electrical Engineering Laboratory ²						
8	19TSH110A	Constitution, Human Rights and Law	2	0	0	2	50	
Total			14	2	10	21	650	
Total number of contact hours per week			26 hours					
Number of credits can be registered			Minimum	17	Maximum	21		

Semester: 2, Chemistry Cycle

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks	
1	19MHB110A	Engineering Mathematics - 2	2	2	0	4	100	
2	19CHB111A	Engineering Chemistry	3	0	0	3	100	
3	19CES112A ¹	Engineering Mechanics ¹	3	0	0	3	100	
	19EES113A ²	Elements of Electrical Engineering ²						
4	19CSS114A	Elements of Computer Science and Engineering	2	2	0	4	100	
5	19CSL115A	Computer Programming Laboratory	0	0	2	1	50	
6	19CHL116A	Engineering Chemistry Laboratory	0	0	2	1	50	
7	19ECL109A ¹	Basic Electronics Laboratory ¹	0	0	2	1	50	
	19EEL108A ²	Basic Electrical Engineering Laboratory ²						
8	19TSH120A	Professional Communication	2	0	0	2	50	
Total			12	4	6	19	600	
Total number of contact hours per week			22 hours					
Number of credits can be registered			Minimum	15	Maximum	19		

Semester: 3

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials	Practical	Total Credits	Max. Marks
				(h/W/S)	(h/W/S)		
1	19MHB201A	Engineering Mathematics - 3	2	2	0	4	100
2	19AUC202A	Materials Science for Engineers	3	0	0	3	100
3	19AUC203A	Elements of Automotive Systems	3	0	0	3	100
4	19AUC204A	Strength of Materials	3	0	0	3	100
5	19AUC205A	Fluid Mechanics and Machines	3	1	0	4	100
6	19AUL206A	Automotive Systems Laboratory	0	0	2	1	50
7	19AUL207A	Materials and Testing Laboratory	0	0	2	1	50
8	19AUL208A	Fluid Mechanics and Machines Laboratory	0	0	2	1	50
9	19CEM210A	Environmental Science (Audit Course)	2	0	0	0	Audit
Total			16	3	6	20	650
Total number of contact hours per week			25 Hours				
Number of Credits can be registered			Minimum	16	Maximum		20

Semester: 4

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials	Practical	Total Credits	Max. Marks
				(h/W/S)	(h/W/S)		
1	19MHB211A	Engineering Mathematics - 4	2	2	0	4	100
2	19AUC212A	Thermodynamics for Engineers	4	0	0	4	100
3	19AUC213A	Manufacturing Processes for Automotive Systems	3	0	0	3	100
4	19AUC214A	Theory of Machines	3	1	0	4	100
5	19AUC215A	3D Modeling and Machine Drawing	1	0	4	3	100
6	19AUL216A	Manufacturing Processes Laboratory	0	0	2	1	50
7	19AUL217A	Kinematics and Dynamics Simulation Laboratory	0	0	2	1	50
Total			13	3	8	20	600
Total number of contact hours per week			24 Hours				
Number of Credits can be registered			Minimum	16	Maximum	20	

Semester 5

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials	Practical	Total Credits	Max. Marks
				(h/W/S)	(h/W/S)		
1	19AUC301A	Applied Thermodynamics and I.C. Engines	3	1	0	4	100
2	19AUC302A	Automotive Transmission	3	0	0	3	100
3	19AUC303A	Automotive Electrical and Electronics Systems	3	0	0	3	100
4	19AUC304A	Design of Automotive Components	3	1	0	4	100
5	19AUC305A	Control System Engineering	4	0	0	4	100
6	19AUL306A	Fuel Testing and Power Train Laboratory	0	0	2	1	50
7	19AUL307A	Control Systems Laboratory	0	0	2	1	50
Total			16	2	4	20	600
Total number of contact hours per week			22 Hours				
Number of Credits can be registered			Minimum	16	Maximum	20	

Semester-6

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials	Practical	Total Credits	Max. Marks
				(h/W/S)	(h/W/S)		
1	19AUC311A	Vehicle Body Engineering and Safety Systems	4	0	0	4	100
2	19AUC312A	Finite Element Analysis	3	1	0	4	100
3	19AUC313A	Automotive Noise, Vibration and Harshness	4	0	0	4	100
4	19AUC314A	Vehicle Dynamics and Handling	3	1	0	4	100
5	19AUC315A	Engineering Economics and Cost Estimation for Automotive Engineers	3	0	0	3	100
6	19AUL316A	CAE and NVH Laboratory	0	0	2	1	50
7	19AUL317A	Vehicle Aerodynamics and Styling Laboratory	0	0	2	1	50
Total			16	2	4	21	600
Total number of contact hours per week			22 Hours				
Number of Credits can be registered			Minimum	17	Maximum	21	

Semester-7

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials	Practical	Total Credits	Max. Marks
				(h/W/S)	(h/W/S)		
1	19AUE41XA	Professional Core Elective -1	4	0	0	4	100
2	19AUE42XA	Professional Core Elective -2	4	0	0	4	100
3	19AUE43XA	Professional Core Elective -3	4	0	0	4	100
4	19AUO40XA	Open Elective-1	3	0	0	3	100
5	19AUP401A	Seminar	0	0	2	1	50
6	19AUP402A	Project -I	0		12	6	100
	19AUP403A	II) Internship (Any one)					
Total			15	0	14	22	550
Total number of contact hours per week			29 Hours				
Number of Credits can be registered			Minimum	18	Maximum	22	

Note: Internship can be in any Industry, Business, University or Research organization in India or abroad

Semester-8

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials	Practical	Total Credits	Max. Marks
				(h/W/S)	(h/W/S)		
1	19AUE43XA	Professional Core Elective -4	4	0	0	4	100
4	19AUO41XA	Open Elective -2	3	0	0	3	100
6	19AUP404A	Project Work -2	0	0	20	10	100
Total			7	0	20	17	300
Total number of contact hours per week			27 Hours				
Number of Credits can be registered			Minimum	13	Maximum	17	

Professional Core Electives (PCE):						
Name of the Specialisation	7th Semester			8th Semester		
	PCE - 1		PCE - 2		PCE - 3	
	Code	Course Title	Code	Course Title	Code	Course Title
Advanced Vehicles	19AUE411A	Electric Mobility and Energy Storage	19AUE421A	Sensors and Controls for Automotive Applications	19AUE431A	Intelligent Vehicle Technology
Fuels and Combustion	19AUE412A	Automotive Fuels and Combustion	19AUE422A	Automotive Pollution and Control	19AUE432A	Alternate Fuels for IC Engines
Automotive Systems	19AUE413A	Light and Novel Materials	19AUE423A	Automotive Product Design	19AUE433A	Design of Automotive Systems
Data Sciences and Analytics	19MH E401A	Probability and Statistics	19CSE421A	Data Sciences Foundation	19CSE431A	Data Sciences Algorithms and applications

Note:
Totally student needs to select Three professional core elective courses during 7th Semester and each one course from PCE-1, PECE-2 and PCE-3. One course in 8th Semester from PCE-3 Group must be selected.

8th Semester		
PCE - 4		
GORUP	CODE	
Advanced Vehicles	19AUE441A	Autonomous Car and Advanced Transportation Systems
Fuels and Combustion	19AUE442A	Simulation of IC Engine process
Automotive Systems	19AUE443A	Fatigue and Fracture Mechanics
Data Sciences and Analytics	19CSE444A	Data Analytics

Note: The student needs to select one professional core elective courses during 8th Semester from PCE-4

Open Electives:
A number of electives from faculty of engineering, management and commerce, art and design, hospitality management and catering technology, pharmacy, dental sciences as mentioned in university website. Students can choose the open electives on their own choice.

21	Course Delivery As per the Time Table
22	Teaching and Learning Methods <ol style="list-style-type: none"> 1. Face to Face Lectures using Audio-Visuals 2. Workshops, Group Discussions, Debates, Presentations 3. Demonstrations 4. Guest Lectures 5. Laboratory work /Field work / Workshop 6. Industry Visit 7. Seminars 8. Group Exercises 9. Project Work 10. Project Exhibitions 11. Technical Festivals

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Assessment and Grading

1. Every course will be assessed for a weight of 100%

2. For the courses having 100% theory

There are two components-Component-1 and Component-2

Component-1 (CE) carries a weight of 50% and Component -2 (SEE) carries a weight of 50%

Component-1 (CE): 50% weight

The course leader will indicate the mode of assessment in consultation and approval of the respective HoD and the faculty Dean, before commencement of the semester.

The template for weightage of CE and SEE in percentages for each theory course is indicated in Table below.

ILO No.	Intended Learning Outcome	CE (Weightage: 50 %)				SEE (Weightage: 50 %)
		Assessment Type	Comp-1a	Comp-1b	Comp-1c	SEE
		Comp Weightage (%)	xx	xx	xx	50
1	ILO-1					
2	ILO-2					
3	ILO-3					
4	ILO-4					
5	ILO-5					
6	ILO-6					

CE – can be from any combination of the following:

Assignments, term Tests, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, others, if any.

Component - 2 (SEE): 50% weight

A 3 hour duration Semester End Examination will be conducted for a maximum of 100 marks and will be reduced to 50% weight.

A student is required to score a minimum of 40% marks in Semester end examination and 40% marks overall in each theory course.

3. For Laboratory/ Practical courses

Total Marks : 50

Component 1(CE) : Laboratory Report: 50% Weight

Component 2(SEE) Semester End Examination: 50% Weight

A 3 hour duration Semester End Examination will be conducted for a maximum of 50 marks.

The course leader will indicate the mode of assessment in consultation and approval of the respective HoD and the faculty Dean, before commencement of the semester.

The template for weightage of CE and SEE in percentages for each course is indicated in Table below.

ILO No.	Intended Learning Outcome	CE (Weightage: 50 %)					SEE (Weightage: 50 %):
		Assessment Type	Conduction of Lab Exercises)	(Viva)	(Lab Record Submission)	(Lab Test)	SEE
		Comp Weightage (%)	xx	xx	xx	xx	50
1	ILO-1						
2	ILO-2						

A student is required to score a minimum of 40% marks in Semester end examination and 40% marks overall in each laboratory course.

4. **For courses with a combination of theory and laboratory**

There are two components-Component-1 and Component-2

Component-1 (CE) carries a weight of 50% and Component -2 (SEE) carries a weight of 50%.

Component-1 (CE): 50% weight

The course leader will indicate the mode of assessment in consultation and approval of the respective HoD and the faculty Dean, before commencement of the semester.

The template for weightage of CE and SEE in percentages for each course is indicated in Table below.

ILO No.	Intended Learning Outcome	CE (Weightage: 50 %)				SEE (Weightage: 50 %)
		Assessment Type	Comp-1a	Comp-1b	Comp-1c Lab	SEE
		Comp Weightage (%)	xx	xx	xx	50
1	ILO-1					
2	ILO-2					
3	ILO-3					
4	ILO-4					
5	ILO-5					
6	ILO-6					

CE – can be from any combination of the following:

Assignments, term Tests, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, others,

A 3 hour duration Semester End Examination will be conducted for a maximum of 100 marks and will be reduced to 50 marks.

A student is required to score a minimum of 40% marks in Semester end examination and 40% marks overall in each theory course.

Other flexibilities (exceptions) as per the programme regulations.

24	Attendance A minimum of 80% attendance is compulsory in each course to appear for respective course semester end examinations.
25	Award of Degree As per the Academic Regulations of B.Tech. Programme
26	Student Support for Learning <ol style="list-style-type: none">1. Course Notes2. Reference Books in the Library3. Magazines and Journals4. Internet Facility5. Computing Facility6. Laboratory Facility7. Workshop Facility8. Staff Support9. Lounges for Discussions10. Any other support that enhances their learning
27	Quality Control Measures <ol style="list-style-type: none">1. Review of Course Notes2. Review of Question Papers and Assignment Questions3. Student Feedback4. Moderation of Assessed Work5. Opportunities for students to see their assessed work6. Review and Audit by external examiners7. Staff Student Consultative Committee meetings8. Student exit feedback

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Curriculum Map

Course code					Intended Learning Outcomes											
					Knowledge and Understanding				Cognitive(Thinking) Skills(Critical, Analytical, Problem Solving)				Practical skills			
19HST	19BSC/L	19ESC/L	19AU C/L/E	18OEE	KU1	KU2	KU3	KU4	CS1	CS2	CS3	CS4	PS1	PS2	PS3	PS4
a	b	c	d	e												
101A	C101A	C101A	C201A	41XA*	bcd	cd	cd	cd	d	d	d					
102A	C102A	C102A	C202A	42XA*	bcd	cd	cd	cd								
210A	L103A	C103A	C203A		bcd	cd	cd	cd	d	d	d		bc			
	C104A	L105A	C204A		bcd	cd	d	d			d		c			
	C105A	C106A	L205A		bcd	cd	cd	cd	c	c	c		cd	d	d	
	L106A	C108A	L206A		bcd	bc	cd	cd	b	b		b	d			
	207A	L109A	L207A		bcd	cd	cd	cd	bc	bc				d		
	208A		C208A		bcd	cd	cd	cd	d	d	d		bc			
			C209A		d	d	d	d	d		d	d				
			C210A		d	d	d	d	d		d	d				
			C211A		d	d	d	d	d	d	d	d				
			L212A		d	d	d				d	d	d			
			L213A		d				d	d	d	d	d	d	d	
			C301A		d	d	d	d	d	d	d	d				
			C302A		d	d	d	d	d	d	d	d				
			C303A		d	d	d	d	d		d	d				
			C304A		d	d	d	d	d	d	d	d				
			C305A		d	d	d	d	d	d	d	d				
			L306A		d	d	d					d			d	d
			L307A		d	d	d	d		d	d			d	d	d
			C308A		d	d	d	d	d	d	d	d				
			C309A			d	d	d		d	d	d				
			C310A			d	d	d		d	d	d				
			C311A		d	d	d	d	d	d	d	d				
			C312A		d	d	d	d	d	d	d	d				
			L313A		d	d	d	d		d	d			d	d	
			L314A		d							d		d	d	
			E4XXA*		d	d	d	d	d	d	d	d				
			401A		d	d	d	d			d	d				
			PI4XA*		d	d	d	d	d	d	d	d	d	d	d	d
			PI43A		d	d	d	d	d	d	d	d	d	d	d	d
4	17	20	113	6	Total 160 credits											

*Depends on elective Course chosen

29	Capability / Transferable Skills Map														
	Course Code					Skills									
	19TSH/ CEM	19BSC /L	19ESC /L	19AU C / L/ E	19 OEE	GK	SL	WC	OC	P	B	IM	PM	L	AO
a	b	c	d	e											
	101A	C101A	C101A	C201A	41XA	bcde	abcde	bcde	a	a	a	abcde	abcde	a	a
	102A	C102A	C102A	C202A	42XA	abcde	abcde	abcde	a	a	a	abcde	abcde	a	a
	210A	L103A	C103A	C203A	43XA	abcde	abcde	abcde	a	a	a	abcde	abcde	b	a
		C104A	L105A	C204A	44XA	bcde	bcde	bcde	c			bcde	bcde	c	
		C105A	C106A	L205A		bcd	bcd	bcd	c			bcd	bcd	d	
		L106A	C108A	L206A		bcd	bcd	bcd	bd			bcd	bcd	d	
		207A	L109A	L207A		bcd	bcd	bcd	d			bcd	bcd	d	
		208A		C208A		bd	bd	bd				bd	bd		
				C209A		d	d	d				d	d		
				C210A		d	d	d				d	cd		
				C211A		d	d	d				d	d		
				L212A		d	d	d	d			d	d		
				L213A		d	d	d	d			d	d		
				C301A		d	d	d				d	d		
				C302A		d	d	d				d	d		
				C303A		d	d	d				d	d		
				C304A		d	d	d				d	d		
				C305A		d	d	d				d	d		
				L306A		d	d	d	d			d	d		
				L307A		d	d	d	d			d	d		
				C308A		d	d	d				d	d		
				C309A		d	d	d				d	d		
				C310A		d	d	d				d	d		
				C311A		d	d	d				d	d		
				C312A		d	d	d				d	d		
				L313A		d	d	d	d			d	d		
				L314A		d	d	d	d			d	d		
				E4XXA*		d	d	d	d			d	d		
				401A		d	d	d	d	d	d	d	d		
				PI4XA*		d	d	d	d	d	d	d	d	d	
				PI43A		d	d	d	d	d	d	d	d	d	

GK: Group Work, SL: Self Learning, WC: Written Communication, OC: Oral Communication, P: Presentation, B: Behavioral, IM: Information Management, PM: Personal Management, L: Leadership, AO: Any Other

30 **Co-curricular Activities**
Students are encouraged to take part in co-curricular activities like seminars, conferences, symposia, paper writing, attending industry exhibitions, project competitions and related activities for enhancing their knowledge and networking.

31 **Cultural and Literary Activities**
Annual cultural festivals are held to show case the creative talents in students. They are involved in planning and organizing the activities.

32 **Sports and Athletics**
Students are encouraged to take part in sports and athletic events regularly. Annual sports meet will be held to demonstrate sportsmanship and competitive spirit.

