



Programme Specifications

B.Sc.(Hons). Programme

Programme:
Mechanical Engineering

Department:
Mechanical and Manufacturing
Engineering

Faculty of Mathematical & Physical Sciences
M.S. Ramaiah University of Applied Sciences

University House, New BEL Road, MSR Nagar, Bangalore – 560 054

www.msruas.ac.in

Programme Specifications: Mechanical Engineering	
Faculty	Engineering and Technology (FET)
Department	Mechanical and Manufacturing Engineering
Programme	Mechanical Engineering
Dean of Faculty	Dr. Rajashekhara Swamy
HOD	Prof. T. N. Srikantha Dath

1. Title of the Award

B.Tech. in Mechanical Engineering

2. Modes of study

Full-Time

3. Awarding Institution / Body

M.S.Ramaiah University of Applied Sciences – Bengaluru, India

4. Joint Award

Not Applicable

5. Teaching Institution

Faculty of Engineering and Technology; Ramaiah University of Applied Sciences

M.S.Ramaiah University of Applied Sciences - Bengaluru, India

6. Date of Programme Specifications

March 2020

7. Date of Programme Approval by the Academic Council of MSRUAS

July 2020

8. Next Review Date

July 2024

9. Programme Approving Regulatory Body and Date of Approval

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10. Programme Accrediting Body and Date of Accreditation

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11. Grade Awarded by the Accreditation Body

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12. Programme Accreditation Validity

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13. Programme Benchmark

Not Applicable

14. Rationale for the Programme

Mechanical engineering is one of the oldest disciplines of engineering. Designing and manufacturing of mechanical machinery and equipment have been there world over for many centuries. Mechanical Engineering is a foundational discipline, critical to the success of many enterprises. It plays a key role in energy, transportation, development of infrastructure and manufacturing of consumer durables.

Presently, mechanical engineers are contributing in research and development pertaining to environmental and bio-medical fields. Mechanical engineers are responsible for selection and processing of eco-friendly materials and processes, design and fabrication of medical devices and prostheses to improve quality of life.

The mechanical engineering programme at Faculty of Engineering and Technology at RUAS has been developed by the members of the faculty based on their teaching experience and long standing interactions with various Universities and industries in India and abroad. 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-life work environment. Opportunities are provided for the students to do their internship in India or abroad depending on their preferences.

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. The above mentioned features of the programme and the faculty members' strong footing in industry and business make the programme unique. The student admitted to the programme in mechanical engineering is given a strong foundation in real-life problem solving which is quite rare with many institutions offering similar programme.

15. Programme Mission

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 transferable skills gained through systematic, flexible and rigorous learning in the chosen academic domain.

16. Graduate Attributes

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 multidisciplinary 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. Programme Goal

The programme goal is to produce graduates with critical, analytical and problem solving skills, and ability to think independently, to pursue a career in Mechanical Engineering.

18. Programme Objectives

The Mechanical Engineering degree programme will impart knowledge of mechanical systems and their sub systems; enhances the understanding of underlying engineering principles that govern the behavior of mechanical systems; teach analytical modeling, simulation and analysis to study the behavior of mechanical systems; provide the skills to design, build and test mechanical systems. It also trains students on personal development and interactive skills with a feel for society.

The objectives of the programme are to enable the students to:

1. To impart knowledge on mechanical systems and their sub-systems
2. To facilitate the understanding of underlying engineering principles of mechanical systems to explain their construction and working
3. To model, simulate and analyze the behavior of mechanical systems to predict and improve their performance
4. To design and develop prototypes of mechanical systems to meet the specific needs
5. To instrument and test of mechanical systems for validation
6. To train students on commercial software tools to design, model, simulate mechanical systems
7. To train students on manufacture and production of mechanical systems
8. To educate on professional ethics, economics, social sciences and interpersonal skills relevant to professional practice
9. To provide a general perspective on lifelong learning and opportunities for a career in industry, business and commerce

19. Intended Learning Outcomes of the Programme

The Intended Learning Outcomes (ILOs) are listed under four headings:

1. Knowledge and Understanding, 2. Cognitive Skills 3. Practical Skills and 4. Capability / Transferable Skills.

1. Knowledge and Understanding

After undergoing this programme, a student will be able to:

- KU1:** Identify and describe the various systems of relevance to mechanical engineering
- KU2:** Explain the underlying science and engineering principles that govern the systems/processes relevant to mechanical engineering
- KU3:** Compare and contrast newer technologies over the existing technologies
- KU4:** Collect, classify and interpret information relevant to mechanical engineering

2. Cognitive Skills

After undergoing this programme, a student will be able to:

- CS1:** Design Mechanical systems/processes based on the desired function
- CS2:** Model and simulate mechanical systems to analyze the behavior
- CS3:** Modify the existing design/processes to meet newer requirements
- CS4:** Apply science and engineering principles to evaluate performance of mechanical systems and answer "what if" questions

3. Practical Skills

After undergoing this programme, a student will be able to:

- PS1:** Manufacture/Fabricate mechanical components and assemble the system
- PS2:** Instrument a system and test for its performance
- PS3:** Operate and maintain a mechanical system for efficient and safe operations
- PS4:** Program/Control a mechanical system to deliver desired level of performance

4. Capability / Transferable Skills

After undergoing this programme, a student will be able to:

- TS1:** Manage information, develop technical reports and make presentations
- TS2:** Build, Manage and Lead a team to successfully complete a project and communicate across teams and organizations to achieve professional objectives
- TS3:** Work under various constraints to meet project targets
- TS4:** Adopt to the chosen profession by continuously upgrading his/her knowledge and understanding through Life-long Learning philosophy

20. 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	20MTB101A	Engineering Mathematics-1	3	1	0	4	100
2	20PHB102A	Engineering Physics	3	0	0	3	100
3	20CES101A	Engineering Mechanics	3	0	0	3	100
4	20ECS102A	Elements of Electronics Engineering	3	0	0	3	100
5	20MES103A	Engineering Drawing	1	0	4	3	100
6	20PHL103A	Engineering Physics Laboratory	0	0	2	1	50
7	20ECL104A	Basic Electronics Laboratory	0	0	2	1	50
8	20TSH101A	Constitution, Human Rights and Law	2	0	0	2	50
Total			15	1	8	20	650
Total number of contact hours per week			24 hours				
Number of credits can be registered			Minimum	16	Maximum	20	

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	20MTB104A	Engineering Mathematics-2	3	1	0	4	100
2	20CHB105A	Engineering Chemistry	3	0	0	3	100
3	20MES105A	Elements of Mechanical Engineering and Work shop Practice	2	0	2	3	100
4	20EES106A	Elements of Electrical Engineering	3	0	0	3	100
5	20CSS107A	Elements of Computer Science and Engineering	3	0	0	3	100
6	20CHL106A	Engineering Chemistry Laboratory	0	0	2	1	50
7	20CSL108A	Computer Programming Laboratory	0	0	2	1	50
8	20EEL109A	Basic Electrical Engineering Laboratory	0	0	2	1	50
9	20TSH102A	Professional Communication	2	0	0	2	50
Total			16	1	8	21	700
Total number of contact hours per week			25 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	20MTB101A	Engineering Mathematics-1	3	1	0	4	100
2	20CHB105A	Engineering Chemistry	3	0	0	3	100
3	20MES105A	Elements of Mechanical Engineering and Work shop Practice	2	0	2	3	100
4	20EES106A	Elements of Electrical Engineering	3	0	0	3	100
5	20CSS107A	Elements of Computer Science and Engineering	3	0	0	3	100
6	20CHL106A	Engineering Chemistry Laboratory	0	0	2	1	50
7	20CSL108A	Computer Programming Laboratory	0	0	2	1	50
8	20EEL109A	Basic Electrical Engineering Laboratory	0	0	2	1	50
9	20TSH102A	Professional Communication	2	0	0	2	50
Total			16	1	8	21	700
Total number of contact hours per week			25 hours				
Number of credits can be registered			Minimum	17	Maximum	21	

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	20MTB104A	Engineering Mathematics-2	3	1	0	4	100
2	20PHB102A	Engineering Physics	3	0	0	3	100
3	20CES101A	Engineering Mechanics	3	0	0	3	100
4	20ECS102A	Elements of Electronics Engineering	3	0	0	3	100
5	20MES103A	Engineering Drawing	1	0	4	3	100
6	20PHL103A	Engineering Physics Laboratory	0	0	2	1	50
7	20ECL104A	Basic Electronics Laboratory	0	0	2	1	50
8	20TSH101A	Constitution, Human Rights and Law	2	0	0	2	50
Total			15	1	8	20	650
Total number of contact hours per week			24 hours				
Number of credits can be registered			Minimum	16	Maximum	20	

SEMESTER 3

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	20MTB201A	Engineering Mathematics - 3	2	2	0	4	100
2	20MEC202A	Materials Science	3	0	0	3	100
3	20MEC203A	Engineering Thermodynamics	3	1	0	4	100
4	20MEC204A	Fluid Mechanics	3	0	0	3	100
5	20MEC205A	Manufacturing Processes	3	0	0	3	100
6	20MEL206A	Machine Drawing	0	0	4	2	100
7	20MEL207A	Mechanical Dissection	0	0	2	1	50
8	20MEL208A	Foundry and Forging Laboratory	0	0	2	1	50
9	20CEM210A	Environmental Studies	2	0	0	0	Audit
Total			16	03	08	21	700
Total number of contact hours per week			27 hours				
Number of credits can be registered			Minimum	16	Maximum	21	

SEMESTER 4

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	20MTB211A	Engineering Mathematics - 4	2	2	0	4	100
2	20MEC212A	Fluid Machines	3	1	0	4	100
3	20MEC213A	Mechanisms and Kinematics of Machines and Laboratory	3	0	2	4	100
4	20MEC214A	Strength of Materials	3	1	0	4	100
5	20MEC215A	Conventional Machining Processes	4	0	0	4	100
6	20MEL216A	Fluid Mechanics and Machines Laboratory	0	0	2	1	50
7	20MEL217A	Materials Science and Strength of Materials Laboratory	0	0	2	1	50
8	20MEL218A	Machine Shop Practice	0	0	2	1	50
Total			15	04	08	23	650
Total number of contact hours per week			27 hours				
Number of credits can be registered			Minimum	18	Maximum	23	

SEMESTER 5

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	20MEC301A	Applied Thermodynamics	3	1	0	4	100
2	20MEC302A	Dynamics of Machinery	3	1	0	4	100
3	20MEC303A	Design of Machine Elements - 1	3	1	0	4	100
4	20MEC304A	Automation in Manufacturing	3	0	0	3	100
5	20MEC305A	Mechanical Measurements and Metrology and Laboratory	3	0	2	4	100
6	20MEL306A	Applied Thermodynamics Laboratory	0	0	2	1	50
7	20MEL307A	Dynamics and Simulation Laboratory	0	0	2	1	50
8	20MEL308A	CAM Laboratory	0	0	2	1	50
Total			15	03	08	22	650
Total number of contact hours per week			26 hours				
Number of credits can be registered			Minimum	17	Maximum	22	

SEMESTER 6

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	20MEC309A	Heat and Mass Transfer	3	1	0	4	100
2	20MEC310A	Finite Element Methods and CAE Laboratory	3	0	2	4	100
3	20MEC311A	Design of Machine Elements - 2	3	0	0	3	100
4	20MEC312A	Control Systems Engineering and Laboratory	3	0	2	4	100
5	20MEC313A	Industrial Engineering and Management	3	0	0	3	100
6	20MEH301A	Engineering Economics and Cost Estimation for Mechanical Engineers	3	0	0	3	100
7	20MEC314A	Seminar	0	0	2	1	50
8	20MEL315A	Heat and Mass Transfer Laboratory	0	0	2	1	50
Total			18	01	08	23	700
Total number of contact hours per week			27 hours				
Number of credits can be registered			Minimum	18	Maximum	23	

SEMESTER 7

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	20MEE41XA	Professional Core Elective - 1	4	0	0	4	100
2	20MEE42XA	Professional Core Elective - 2	4	0	0	4	100
3	20OEE41XA	Open Elective - 1	3	0	0	3	100
4	20MEP401A 20MEI401A	I] Project Work - 1 II] Internship (Choose one)	0	0	8	4	100
Total			11	0	8	15	500
Total number of contact hours per week			19 hours				
Number of credits can be registered			Minimum	11	Maximum	15	

SEMESTER 8

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	20MEE43XA	Professional Core Elective - 3	4	0	0	4	100
2	20OEE43XA	Open Elective - 2	3	0	0	3	100
3	20MEP402A	Project Work - 2	0	0	16	8	100
Total			7	0	16	15	300
Total number of contact hours per week			23 hours				
Number of credits can be registered			Minimum	11	Maximum	15	

Professional Core Elective Courses:

Semester	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
7	20MEE411A	Advanced Mechanics of Materials	4	0	0	4	100
7	20MEE412A	Advanced Manufacturing Technologies	4	0	0	4	100
7	20MEE413A	Fluid Power Systems	4	0	0	4	100
7	20MEE414A	Operations Research	4	0	0	4	100
7	20MEE415A	Robotic Systems and Automation	4	0	0	4	100
7	20MTE401A	Probability and Statistics	4	0	0	4	100
7	20MTE411A	Advanced Mathematics	4	0	0	4	100
7	20MEE421A	Noise Vibration and Harshness	4	0	0	4	100
7	20MEE422A	Advanced Materials and Processes	4	0	0	4	100
7	20MEE423A	Computational Fluid Dynamics	4	0	0	4	100
7	20MEE424A	Supply Chain Management	4	0	0	4	100
7	20MEE425A	Robot Kinematics and Dynamics	4	0	0	4	100
7	20CSE421A	Data Science Foundation	4	0	0	4	100
7	20MTE421A	Optimization Technique -1	4	0	0	4	100
8	20MEE431A	Fatigue and Fracture Mechanics	4	0	0	4	100
8	20MEE432A	Quality By Design	4	0	0	4	100
8	20MEE433A	Power Plant Engineering	4	0	0	4	100
8	20MEE435A	Robot Programming and Control	4	0	0	4	100
8	20CSE441A	Data Analytics	4	0	0	4	100
8	20MTE431A/ 20MTE441A	Advanced Numerical Methods / Optimization Techniques -2	4	0	0	4	100

Sem	Professional Core Elective	Group-1 (Design)		Group- 2 (Manufacturing)	
		Course Code	Course Name	Course Code	Course Name
7	1	20MEE411A	Advanced Mechanics of Materials	20MEE412A	Advanced Manufacturing Technologies
7	2	20MEE421A	Noise Vibration and Harshness	20MEE422A	Advanced Materials and Process
8	3	20MEE431A	Fatigue and Fracture Mechanics	20MEE432A	Quality by Design

Sem	Professional Core Elective	Group-3 (Thermal)		Group- 4 (Industrial Engineering)	
		Course Code	Course Name	Course Code	Course Name
7	1	20MEE413A	Fluid Power Systems	20MEE414A	Operations Research
7	2	20MEE423A	Computational Fluid Dynamics	20MEE424A	Supply Chain Management
8	3	20MEE433A	Power Plant Engineering	20MEE432A	Quality by Design

Sem	Professional Core Elective	Group-5 (Robotics)		Group- 6 (Data Sciences and Analytics)	
		Course Code	Course Name	Course Code	Course Name
7	1	20MEE415A	Robotic Systems and Automation	20MTE401A	Probability and Statistics
7	2	20MEE425A	Robot Kinematics and Dynamics	20CSE421A	Data Sciences Foundation
8	3	20MEE435A	Robot Programming and Control	20CSE441A	Data Analytics

Sem	Professional Core Elective	Group-7 (Applied Mathematics)	
		Course Code	Course Name
7	1	20MTE411A	Advanced Mathematics
7	2	20MTE421A	Optimisation Techniques -1
8	3	20MTE431A / 20MTE441A	Advanced Numerical Methods/ Optimisation Techniques -2

Note:

Totally student needs to select any two professional core elective courses during 7th and 8th Semester

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 Time Table

22. Teaching and Learning Methods

The module delivery comprises of a combination of few or all of the following:

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 Events

23. Assessment and Grading

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

2. For the courses having 100% theory

Total Marks: 100

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 Outcomes	Continuous Assessment , 50% Marks			Semester End Examination, 50% Marks
		CE-1, x%	CE-2, Y%	CE-3, Z %	
1	ILO -1				
2	ILO -2				
3	ILO -3				
4	ILO -4				
5	ILO -5				

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 % overall in each theory course

3. For Laboratory/Practical Courses

Total Marks: 50

Component -1(CE): Conduction of Laboratory Exercises and Submission of Report: 50% weight

Component -2:(SEE): Semester End Laboratory 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 the commencement of the semester.

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

ILO No.	Intended Learning Outcomes	Continuous Assessment , 50% Marks				Semester End Examination, 50% Marks
		Conduction of Lab %	Lab Record Submission %	Viva %	Lab est (%)	
1	ILO -1					
2	ILO -2					
3	ILO -3					
4	ILO -4					

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 :

Total Marks: 100

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 the commencement of the semester.

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

ILO No.	Intended Learning Outcomes	Continuous Assessment , 50% Marks			Semester End Examination, 50% Weightage 50 Marks
		CE-1, x%	CE-2, Y%	CE-3, Lab Z %	
1	ILO -1				
2	ILO -2				
3	ILO -3				
4	ILO -4				
5	ILO -5				

CE – can be from any combination of the following:

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

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 % overall in each theory course

5. The marks distribution for each course is given in the programme structure-section 20
6. Other flexibilities (exceptions) as per the programme regulations.

24. Attendance

A minimum of 80% attendance compulsory to appear for semester end examinations. Any condoning is as per the programme regulations.

25. Award of Class

As per the Academic Regulations for B.Tech. Programme

26. Student Support for Learning

Students are given the following support:

1. Course notes
2. Reference books in the library
3. Magazines and Journals
4. Internet facility
5. Computing facility
6. Laboratory facility
7. Workshop facility
8. Staff support
9. Lounges for discussions
10. Any other support that enhances their learning

27. Quality Control Measures

Following are the Quality Control Measures:

1. Review of course notes
2. Review of question papers and assignment questions
3. Student Feedback
4. Moderation of assessed work
5. Opportunities for the students to see their assessed work
6. Review by external examiners and external examiners reports
7. Staff Student Consultative Committee meetings
8. Student exit feedback
9. Subject Assessment Board (SAB)
10. Programme Assessment Board (PAB)

28. Curriculum Map

Course Code						Intended Learning Outcomes											
						Knowledge and Understanding				Cognitive (Thinking) Skills (Critical, Analytical, Problem Solving)				Practical skills			
20TS	20MT/PH/CH/ME/EC/EE/CS/CE	20ME	20OE	20ME/MT*/	20CEM	KU1	KU2	KU3	KU4	CS1	CS2	CS3	CS4	PS1	PS2	PS3	PS4
a	b	c	d	e	f												
H101A	B101A	C202A	X4XX-A	E411A	210A	ce	bce	ce	ce	ce	ce	ce	ce				
H102A	B102A	C203A	X4XX-B	E412A		ce	bce	ce	ce	ce	ce	ce	ce				
	S101A	C204A		E413A		ce	ce	ce	ce	bce	bce	bce	bce				
	S102A	C205A		E414A		bc	bc	bc	bc	ce	ce	ce	ce	c	c	c	c
	S103A	L206A		E415A						bc	bc	bc	bc				
	L103A	L207A		E401A		e	e	e	e	e	e	e	e	bc	bc	bc	bc
	L104A	L208A		E421A		e	e	e	e	e	e	e	e	bc	bc	bc	bc
	B104A	C212A		E422A		ce	bce	ce	ce	ce	ce	ce	ce				
	B105A	C213A		E423A		bce	bce	bce	bce	ce	ce	ce	ce	c	c	c	c
	S105A	C214A		E424A		bc	bc	bc	bc	bce	bce	bce	bce	b	b	b	b
	S106A	C215A		E425A		ce	bce	ce	ce	ce	ce	ce	ce	c	c	c	c
	S107A	L216A		CSE421A		e	be	e	e					c	c	c	c
	L106A	L217A		E431A		e	e	e	e	e	e	e	e	bc	bc	bc	bc
	L108A	L218A		E432A		e	e	e	e	e	e	e	e	bc	bc	bc	bc
	L109A	C301A		E433A		ce	ce	ce	ce	ce	ce	ce	ce	b	b	b	b
	B201A	C302A		E435A		ce	bce	ce	ce	ce	ce	ce	ce				
	B211A	C303A		CSE441A		c	bc	c	c	ce	ce	ce	ce				
		C304A		E411A		c	ec	c	c	c	ce	c	ce				
		C305A		E421A		c	ec	c	c	c	ce	c	ce	c	c	c	c
		L306A		E431A			e				e		e	c	c	c	c
		L307A		E441A			e				e		e	c	c	c	c
		L308A												c	c	c	c
		C309A				c	c	c	c	c	c	c	c				
		C310A				c	c	c	c	c	c	c	c	c	c	c	c
		C311A				c	c	c	c	c	c	c	c				
		C312A				c	c	c	c	c	c	c	c	c	c	c	c
		C313A				c	c	c	c	c	c	c	c				
		H301A				c	c	c	c	c	c	c	c				
		C314A															
		L315A												c	c	c	c
		P401A/ I401A															
		P402A															

*Depends on elective Course chosen

29. Capability / Transferable Skills Map

Course Code						Skills								
20TS	20MT /PH/C H/ME /EC/E E/CS	20ME	20OE	20ME /MT*	20CE M									
a	b	c	d	e	f	GK	SL	WC	OC	P	B	IM	PM	L
H101A	B101A	C202A	X4XX-A	E411A	210A	af	af	abef	af	af	af	af	af	af
H102A	B102A	C203A	X4XX-B	E412A		a	a	abe	a	a	a	a	a	a
	S101A	C204A		E413A				be						
	S102A	C205A		E414A				be						
	S103A	L206A		E415A		c	c	ce	c			c	c	
	L103A	L207A		E401A		bc	bc	bce	bc			bc	bc	
	L104A	L208A		E421A		bc	bc	bce	bc			bc	bc	
	B104A	C212A		E422A				bce						
	B105A	C213A		E423A				bce						
	S105A	C214A		E424A				bce						
	S106A	C215A		E425A				bce						
	S107A	L216A		CSE421A		c	c	bce	c			c	c	
	L106A	L217A		E431A		bc	bc	bce	bc			bc	bc	
	L108A	L218A		E432A		bc	bc	bce	bc			bc	bc	
	L109A	C301A		E433A		b	b	bce	b			b	b	
	B201A	C302A		E435A				ce						
	B211A	C303A		CSE441A				ce						
		C304A		E411A			e	c					e	
		C305A		E421A			e	c					e	
		L306A		E431A		c	ce	c	c			c	ce	
		L307A		E441A		c	ce	c	c			c	ce	
		L308A				c	c	c	c			c	c	
		C309A						c						
		C310A						c						
		C311A						c						
		C312A						c						
		C313A						c						
		H301A						c						
		C314A					c	c	c	c		c	c	
		L315A				c	c	c	c			c	c	
		P401A /I401A				c	c	c	c	c	c	c	c	c
		P402A				c	c	c	c	c	c	c	c	c

GK: Group Work; SL: Self Learning; WC: Written Communication; OC: Oral Communication P: Presentation; B: Behavioural; IM: Information Management; PM: Personal Management L: Leadership

30. Co-curricular Activities

Students are encouraged to take part in co-curricular activities like seminars, conferences, symposium, paper writing, attending industry exhibitions, project competitions and related activities to enhance their knowledge and network.

31. Cultural and Literary Activities

To remind and ignite the creative endeavours annual cultural festivals held and the students are made to plan and organize the activities.

32. Sports and Athletics

Students are encouraged to develop a habit of taking part in outdoor and indoor games on regular basis.

