

# **Programme Specifications**

## **B.Tech. Programme**



**Programme: Civil Engineering**

**Department: Civil Engineering**

**Faculty of Engineering & Technology**

**Ramaiah University of Applied Sciences**

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

[www.msruas.ac.in](http://www.msruas.ac.in)

<b>Programme Specifications: Civil Engineering</b>	
<b>Faculty</b>	Engineering and Technology (FET)
<b>Department</b>	Civil Engineering
<b>Programme</b>	Civil Engineering
<b>Dean of Faculty</b>	Prof. Arulanantham
<b>HOD</b>	Dr. H. M. Rajashekharaswamy

**1. Title of the Award**

B.Tech. in Civil Engineering

**2. Modes of study**

Full-Time

**3. Awarding Institution / Body**

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 - Bengaluru, India

**6. Date of Programme Specifications**

February 2018

**7. Date of Programme Approval by the Academic Council of RUAS**

May 2018

**8. Next Review Date**

May 2022

**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

Civil Engineering is primarily infrastructure development involving planning, design, construction, and operation of facilities essential to modern life, ranging from transit systems to offshore structures to space satellites. Major disciplines within Civil Engineering that are closely interrelated are Structural, Environmental, Geotechnical, Water Resources, Transportation, Construction and Urban planning.

Until recently Civil Engineering teaching was limited to planning, analysis, design and execution of different types of infrastructure like buildings, roads, bridges, dams and power plants. However, increasing technological sophistication and demand for higher living standards fuelled by economic growth and concerns about environmental impact have changed the scope of Civil Engineering curriculum. The challenges of today's Civil Engineering infrastructure are much more complex including reducing carbon emission and interdependencies between resources.

Even though there are a large number of institutions world over which are producing Civil Engineers, there is a shortage of quality Civil Engineering graduates. The FET at RUAS would like to offer Civil Engineering programme to produce imaginative, creative and innovative Civil Engineers who are effective and efficient problem solvers providing economical and sustainable infrastructural solutions.

### 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 transferrable 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 conclusion 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 Civil Engineering.

## 18. Programme Objectives

The Programme will impart knowledge of Civil structures, Geotechnical interactions, Construction Engineering and Technology, Environmental Engineering, Hydrology, Irrigation and Water Management. It enhances the understanding of underlying engineering principles that govern the behavior of Civil Engineering systems. It teaches analytical modelling, simulation and analysis to study the behavior of Civil Engineering systems. It provides the skills to design, build and test Civil Engineering systems. It also trains students on personality development and interactive skills with professionals and feel for the society.

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

1. To impart knowledge on Civil Engineering systems and their subsystems
2. To enhance the understanding of the underlying engineering principles of Civil Engineering systems
3. To model, simulate and analyze the behavior of Civil Engineering systems to predict and improve their performance
4. To design and build Civil Engineering systems to meet the specific needs
5. To impart training on instrumentation and testing of Civil Engineering systems
6. To train students on commercial software tools to design, model, simulate civil engineering systems
7. To build and test Civil Engineering systems
8. To impart training on professional ethics, history, economics, social sciences and interactive 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 Civil Engineering structures, components, instruments and construction technologies
- KU2:** Explain the underlying science and engineering principles that govern the behaviour of the components of structures relevant to Civil Engineering
- KU3:** Identify various types of loads acting on Civil Engineering structures and explain their effect
- KU4:** Explain the relevant IS building codes and standard practices applicable

### 2. Cognitive Skills

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

- CS1:** Design Civil Engineering materials, components and structures
- CS2:** Model, simulate, analyse and evaluate the behavior of Civil Engineering structures, components and data
- CS3:** Modify the existing design/processes to meet newer requirements
- CS4:** Apply science and engineering principles to evaluate performance of Civil engineering systems and answer "what if" questions

### 3. Practical Skills

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

- PS1:** Construct fabricate, plan and design, prepare drawings, perform estimation and costing of Civil Engineering systems
- PS2:** Conduct survey for existing, proposed Civil Engineering structures and conduct field tests
- PS3:** Instrument, test a Civil Engineering system, components or material and evaluate for its performance as per standards
- PS4:** Prepare reports on materials, components, tests, experiments, environmental impacts of Civil Engineering constructions, water management, flood control and irrigation

### 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****Physics Cycle:****SEMESTER 1**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18BSC101A	Engineering Mathematics - 1	3	2	0	4	100
2	18BSC102A	Engineering Physics	3	2	0	4	100
3	18ESC101A	Elements of Mechanical Engineering	3	0	0	3	100
4	18ESC102A	Elements of Electronics Engineering	3	2	0	4	100
5	18ESC103A	Engineering Drawing	1	0	4	3	100
6	18BSL103A	Engineering Physics Laboratory	0	0	2	1	50
7	18ESL104A	Basic Workshop Practice	0	0	2	1	50
8	18ESL105A	Basic Electronics Laboratory	0	0	2	1	50
9	18HST101A	Elements of Social Sciences	2	0	0	2	50
<b>Total</b>			<b>15</b>	<b>6</b>	<b>10</b>	<b>23</b>	<b>700</b>
<b>Total number of contact hours per week</b>			<b>31 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>18</b>	<b>Maximum</b>	<b>23</b>	

**SEMESTER 2**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18BSC104A	Engineering Mathematics - 2	3	2	0	4	100
2	18BSC105A	Engineering Chemistry	3	0	0	3	100
3	18ESC106A	Engineering Mechanics and Construction Materials	3	2	0	4	100
4	18ESC107A	Elements of Electrical Engineering	3	2	0	4	100
5	18ESC108A	Elements of Computer Science and Engineering	3	2	0	4	100
6	18ESL109A	Computer Programming Laboratory	0	0	2	1	50
7	18BSL106A	Engineering Chemistry Laboratory	0	0	2	1	50
8	18ESL110A	Basic Electrical Engineering Laboratory	0	0	2	1	50
9	18HST102A	Professional Communication	2	0	0	2	50
<b>Total</b>			<b>17</b>	<b>8</b>	<b>6</b>	<b>24</b>	<b>700</b>
<b>Total number of contact hours per week</b>			<b>31 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>19</b>	<b>Maximum</b>	<b>24</b>	

**Chemistry Cycle:  
SEMESTER 1**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18BSC101A	Engineering Mathematics - 1	3	2	0	4	100
2	18BSC105A	Engineering Chemistry	3	0	0	3	100
3	18ESC106A	Engineering Mechanics and Construction Materials	3	2	0	4	100
4	18ESC107A	Elements of Electrical Engineering	3	2	0	4	100
5	18ESC108A	Elements of Computer Science and Engineering	3	2	0	4	100
6	18ESL109A	Computer Programming Laboratory	0	0	2	1	50
7	18BSL106A	Engineering Chemistry Laboratory	0	0	2	1	50
8	18ESL110A	Basic Electrical Engineering Laboratory	0	0	2	1	50
9	18HST102A	Professional Communication	2	0	0	2	50
<b>Total</b>			<b>17</b>	<b>8</b>	<b>6</b>	<b>24</b>	<b>700</b>
<b>Total number of contact hours per week</b>			<b>31 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>19</b>	<b>Maximum</b>	<b>24</b>	

**SEMESTER 2**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18BSC104A	Engineering Mathematics - 2	3	2	0	4	100
2	18BSC102A	Engineering Physics	3	2	0	4	100
3	18ESC101A	Elements of Mechanical Engineering	3	0	0	3	100
4	18ESC102A	Elements of Electronics Engineering	3	2	0	4	100
5	18ESC103A	Engineering Drawing	1	0	4	3	100
6	18BSL103A	Engineering Physics Laboratory	0	0	2	1	50
7	18ESL104A	Basic Workshop Practice	0	0	2	1	50
8	18ESL105A	Basic Electronics Laboratory	0	0	2	1	50
9	18HST101A	Elements of Social Sciences	2	0	0	2	50
<b>Total</b>			<b>15</b>	<b>6</b>	<b>10</b>	<b>23</b>	<b>700</b>
<b>Total number of contact hours per week</b>			<b>31 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>18</b>	<b>Maximum</b>	<b>23</b>	



**SEMESTER 3**

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18BSC207A	Engineering Mathematics - 3	3	2	0	4	100
2	18CEC201A	Mechanics of Solids	3	2	0	4	100
3	18CEC202A	Mechanics of Fluids	3	2	0	4	100
4	18CEC203A	Surveying - 1	3	0	0	3	100
5	18CEC204A	Engineering Geology and Properties of Soils	3	0	0	3	100
6	18CEC217A	Building Materials, Concrete and Construction Technology	2	2	0	3	100
7	18CEL206A	Material Testing Laboratory	0	0	2	1	50
8	18CEL207A	Survey Practice - 1	0	0	2	1	50
9	18CEL208A	Applied Engineering Geology Laboratory	0	0	2	1	50
10	18CEN201A	Environmental Studies	2	0	0	2	50
<b>Total</b>			<b>19</b>	<b>08</b>	<b>06</b>	<b>26</b>	<b>800</b>
<b>Total number of contact hours per week</b>			<b>33 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>21</b>	<b>Maximum</b>	<b>26</b>	

**SEMESTER 4**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18BSC208A	Engineering Mathematics - 4	3	2	0	4	100
2	18CEC209A	Transportation Engineering - 1	2	2	0	3	100
3	18CEC210A	Building Planning and Computer Aided Drafting	1	0	4	3	100
4	18CEC211A	Structural Analysis - 1	3	2	0	4	100
5	18CEC212A	Surveying - 2	3	0	0	3	100
6	18CEC213A	Hydraulics and Hydraulic Machines	2	2	0	3	100
7	18CEL214A	Survey Practice - 2	0	0	2	1	50
8	18CEL215A	Hydraulics and Hydraulic Machines Laboratory	0	0	2	1	50
9	18CEL218A	Concrete and Highway Materials Laboratory	0	0	2	1	50
10	18HST201A	Constitution, Human Rights and Law	2	0	0	2	50
<b>Total</b>			<b>16</b>	<b>08</b>	<b>10</b>	<b>25</b>	<b>800</b>
<b>Total number of contact hours per week</b>			<b>34 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>20</b>	<b>Maximum</b>	<b>25</b>	

**SEMESTER 5**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18CEC301A	Design of RCC Elements	3	2	0	4	100
2	18CEC302A	Structural Analysis - 2	3	2	0	4	100
3	18CEC303A	Geotechnical Engineering - 1	2	2	0	3	100
4	18CEC304A	Hydrology and Irrigation Engineering	2	2	0	3	100
5	18CEC305A	Transportation Engineering - 2	2	2	0	3	100
6	18CEC317A	Design & Drawing of Transportation & Irrigation Structures	2	0	2	3	100
7	18CEC318A	Design and Drawing of RCC Structures	1	0	2	2	50
8	18CEL307A	Geotechnical Engineering Laboratory	0	0	2	1	50
9	18CEL309A	Extensive Survey Viva Voce	0	0	2	1	50
10	18CEC319A	Engineering Economics	2	0	0	2	50
<b>Total</b>			<b>17</b>	<b>10</b>	<b>08</b>	<b>26</b>	<b>800</b>
<b>Total number of contact hours per week</b>			<b>35 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>21</b>	<b>Maximum</b>	<b>26</b>	

**SEMESTER 6**

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18CEC310A	Geotechnical Engineering - 2	2	2	0	3	100
2	18CEC311A	Design of Steel Structures	2	2	0	3	100
3	18CEC312A	Estimation and Costing	2	2	0	3	100
4	18CEC320A	DSM & Finite Element Analysis	3	2	0	4	100
5	18CEC306A	Environmental Engineering	2	2	0	3	100
6	18CEC321A	Prestressed Concrete Technology	3	0	0	3	100
7	18CEC322A	Design & Drawing of Geotechnical & Environmental Structures	2	0	2	3	100
8	18CEC323A	Design and Drawing of Steel Structures	2	0	2	3	100
9	18CEL308A	Environmental Engineering Laboratory	0	0	2	1	50
10	18CEL324A	CAE Laboratory	0	0	2	1	50
<b>Total</b>			<b>18</b>	<b>10</b>	<b>08</b>	<b>27</b>	<b>900</b>
<b>Total number of contact hours per week</b>			<b>36 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>22</b>	<b>Maximum</b>	<b>27</b>	

**SEMESTER 7**

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18CEE41XA	Professional Core Elective - 1	4	0	0	4	100
2	18CEE42XA	Professional Core Elective - 2	4	0	0	4	100
3	18OEE41XA	Open Elective - 1	3	0	0	3	100
4	18OEE42XA	Open Elective - 2	3	0	0	3	100
5	18CEPI41A 18CEPI42A	I] Project Work – 1 II] Internship (Choose one)	0	0	16	8	100
6	18CEC406A	Seminar	0	0	2	1	50
<b>Total</b>			<b>14</b>	<b>00</b>	<b>18</b>	<b>23</b>	<b>550</b>
<b>Total number of contact hours per week</b>			<b>32 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>18</b>	<b>Maximum</b>	<b>23</b>	

**SEMESTER 8**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	18CEE43XA	Professional Core Elective - 3	4	0	0	4	100
2	18CEE44XA	Professional Core Elective - 4	4	0	0	4	100
3	18OEE43XA	Open Elective - 3	3	0	0	3	100
4	18OEE44XA	Open Elective - 4	3	0	0	3	100
5	18CECP43A	Project Work - 2	0	0	24	12	100
<b>Total</b>			<b>10</b>	<b>00</b>	<b>24</b>	<b>26</b>	<b>500</b>
<b>Total number of contact hours per week</b>			<b>34 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>21</b>	<b>Maximum</b>	<b>26</b>	

**Professional Core Elective Courses:**

Group	VII Sem			
	Course code	PCE-1 Course Title	Course code	PCE-2 Course Title
Group 1	18CEE411A	Traffic Engineering	18CEE421A	Pavement Materials, Equipment and Construction
Group 2	18CEE412A	Theory of Elasticity	18CEE422A	Structural Dynamics and Earthquake Resistant Design of Structures
Group 3	18CEE413A	Remote Sensing and GIS for Water Resources Engineering	18CEE423A	Stochastic Hydrology
Group 4	18CEE414A	Advanced Concrete Technology	18CEE424A	Modern Construction Materials, Equipment and Technology
Group 5	18CEE415A	Solid Waste Management	18CEE425A	Industrial Wastewater Treatment
Group 6	18CEE416A	Ground Improvement Techniques	18CEE426A	Advanced Foundation Engineering
<b>Common Group</b>	18BSE401A	<b>Probability and Statistics</b>	18CSE421A	<b>Data Sciences Foundation</b>

Group	VIII Sem			
	Course code	PCE-3 Course Name	Course code	PCE-4 Course Name
Group 1	18CEE431A	Urban Transportation and Planning	18CEE441A	Pavement Design
Group 2	18CEE432A	Advanced Structural Mechanics	18CEE442A	Advanced Design of Reinforced Concrete Structures
Group 3	18CEE433A	Water Resources System	18CEE443A	Water Shed Management
Group 4	18CEE434A	Green Construction and Alternate Building Materials	18CEE444A	Construction Planning and Contract Management
Group 5	18CEE435A	Air Pollution and Control	18CEE445A	Environmental Impact Assessment
Group 6	18CEE436A	Reinforced Soil Structures	18CEE446A	Soil Dynamics and Machine Foundations
<b>Common Group</b>	18CSE431A	<b>Data Sciences Algorithms and Applications</b>	18CSE441A	<b>Data Analytics</b>

**21. Programme 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. There are two components-Component-1 and Component-2
3. Component-1 carries a weight of 50% and Component -2 carries a weight of 50%
4. Component -1 (CE) is subdivided into Term Tests and Assignments, tests carry 25% weight and assignment carry 25% weight.
5. Component -2 (SEE) is subdivided into Written Examination and Practical Examination carrying either 25% and 25% or 20% and 30% weight as applicable to specific course.
6. Laboratory Examination will have two components
  - I. Component -1(CE): Conduction of Laboratory Exercises and Submission of Report: 50% weight
  - II. Component -2: SEE (Semester End Laboratory Examination): 50% weight
7. A minimum of overall 40% is required for a pass with 40% in each of the Components
8. The marks distribution for each course is given in the programme structure-section 20
9. Other flexibilities(exceptions) as per the programme regulations

**24. Attendance**

A minimum of 85% 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,				Practical skills			
18HST	18BSC	18ESC	18CEC	18OEE	18MCC	KU1	KU2	KU3	KU4	CS1	CS2	CS3	CS4	PS1	PS2	PS3	PS4
a	b	c	d	e	f												
101A	101A	101A	201A	41XA	101B	cd	cd	cd	cd	d	d	d					
102A	102B	102A	202A	42XA	102A	cd	cd	cd	cd			d	d				
201A	103B	103A	203A	43XA	201B	d	d	d	d	d	d	d	d		b	d	d
301A	104A	104A	204A	44XA		d	d			d				c			
	105B	105A	206A			bd	bd	bd	bd				d	d	c	d	d
	106B	106A	207A			cd	cd	c	c		d	d		d			b
	207A	107A	208A			cd	cd	cd	cd	d	d	d	d		cd	d	d
	208A	108A	209A			d	d	cd	cd	d	d	d	d				
		109A	210A			d	d	d	d				d				c
		110A	211A			d	d	d	d	d	d	d	d		c		
		201A	212A			d	cd		c				d		d		
		202A	213A			d	d	d		d		d	d	d			d
			214A			d	d						d		d	d	d
			215A			d	d						d			d	d
			217A			d	d	d	d	d		d	d				
			218A			d			d	d	d		d	d		d	d
			301A			d	d	d	d	d	d	d	d				
			302A			d	d	d	d	d	d	d	d				
			303A			d	d	d	d	d	d	d	d				
			304A			d	d	d	d	d		d					
			305A			d	d	d	d				d				
			306A			d	d			d	d	d	d	d			
			307A			d	d	d	d		d	d	d			d	d
			308A			d	d						d			d	d
			309A			d	d	d	d	d	d	d	d	d	d	d	d
			310A			d	d	d		d	d		d				
			311A			d	d	d	d	d	d	d	d	d			
			312A			d	d		d				d	d			d
			317A			d	d	d	d	d	d	d	d	d	d		d
			318A			d	d	d	d	d	d	d	d	d	d		
			319A										d	d			
			320A			d	d	d	d		d	d	d			d	
			321A			d	d	d	d	d	d	d	d	d	d		
			322A			d	d	d	d	d	d	d	d	d	d		d
			323A			d	d	d	d	d	d	d	d	d	d		d
			324A			d	d	d	d	d	d	d	d				d
			406A			d	d	d	d	d	d	d	d	d	d	d	d
			CEE41XA*														
			CEE42XA*														
			CEE43XA*														
			CEE44XA*														
			P41A/42A			d	d	d	d	d	d	d	d	d	d	d	d
			P43A			d	d	d	d	d	d	d	d	d	d	d	d
<b>10</b>	<b>26</b>	<b>30</b>	<b>118</b>	<b>16</b>	<b>06</b>	<b>Total 206 credits</b>											

\*Depends on elective Course chosen

**29. Capability / Transferable Skills Map**

Course						Skills									
18HST	18BSC	18ESC	18CEC	18OEE	18MCC	GK	SL	WC	OC	P	B	IM	PM	L	AO
a	b	c	d	e	f										
101A	101A	101A	201A	41XA	101B	abcdef	abcdef	abcdef	f	f	af	abcdef	abcdef	f	a
102A	102B	102A	202A	42XA	102A	abcdef	abcdef	abcdef	abcdef	a	a	abcdef	abcdef	af	af
201A	103B	103A	203A	43XA	201B	abcdef	abcdef	abcdef	b		af	abcdef	abcdef		a
301A	104A	104A	204A	44XA		abcde	abcde	abcde	c		a	abcde	abcde		a
	105B	105A	206A			bcd	bcd	bcd	cd			bcd	bcd		
	106B	106A	207A			bcd	bcd	bcd	bd			bcd	bcd		
	207A	107A	208A			bcd	bcd	bcd	d			bcd	bcd		
	208A	108A	209A			bcd	bcd	bcd	c			bcd	bcd		
		109A	210A			cd	cd	cd	c			cd	cd		
		110A	211A			cd	cd	cd	c			cd	cd		
		201A	212A			cd	cd	cd	d			cd	cd		
		202A	213A			cd	cd	cd	cd			cd	cd		
			214A			d	d	d	d			d	d		
			215A			d	d	d	d			d	d		
			217A			d	d	d		d		d	d		
			218A			d	d	d	d	d	d	d	d		
			301A			d	d	d		d		d	d		
			302A			d	d	d		d		d	d		
			303A			d	d	d		d		d	d		
			304A			d	d	d		d		d	d		
			305A			d	d	d		d		d	d		
			306A			d	d	d		d		d	d		
			307A			d	d	d	d	d	d	d	d		
			308A			d	d	d	d	d	d	d	d		
			309A			d	d	d	d	d	d	d	d	d	d
			310A			d	d	d		d		d	d		
			311A			d	d	d		d		d	d		
			312A			d	d	d		d		d	d		
			317A			d	d	d		d		d	d		
			318A			d	d	d		d		d	d		
			319A			d	d	d		d		d	d		
			320A			d	d	d		d		d	d		
			321A			d	d	d		d		d	d		
			322A			d	d	d		d		d	d		
			323A			d	d	d		d		d	d		
			324A			d	d	d	d	d	d	d	d		
			406A			d	d	d	d	d	d	d	d	d	d
			CEE41XA			d	d	d		d		d	d		
			CEE42XA			d	d	d		d		d	d		
			CEE43XA			d	d	d		d		d	d		
			CEE44XA			d	d	d		d		d	d		
			P41A/42A			d	d	d	d	d	d	d	d	d	d
			P43A			d	d	d	d	d	d	d	d	d	d

*GK: Group Work; SL: Self Learning; WC: Written Communication; OC: Oral Communication P: Presentation; B: Behavioural; 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, 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.

