



**PERIYAR  
MANIAMMAI**  
INSTITUTE OF SCIENCE & TECHNOLOGY  
(Deemed to be University)  
Established Under Sec. 3 of UGC Act, 1956 • NAAC Accredited  
think • innovate • transform

## Criterion 1 – Curricular Aspects

<b>Key Indicator</b>	1.2	Academic Flexibility
<b>Metric</b>	1.2.2	Percentage of Programmes in which Choice Based Credit System (CBCS)/elective course system has been implemented (Data for the latest completed academic year 2023-24)

### DEPARTMENT OF CIVIL ENGINEERING

### STRUCTURE OF THE PROGRAM CLEARLY INDICATING COURSES, CREDITS/ELECTIVES

#### PROGRAMMES

1. B.Tech- Civil Engineering (Full Time)
2. B.Tech- Civil Engineering with specialization in GIS and Remote Sensing (Full Time)
3. B.Tech- Civil Engineering (Part Time)
4. Master of Technology in Environmental Engineering ( Full Time)

## DEPARTMENT OF CIVIL ENGINEERING

### STRUCTURE OF THE PROGRAM CLEARLY INDICATING COURSES, CREDITS/ELECTIVES

#### 1. A. B.Tech- Civil Engineering (Full Time)

##### REGULATIONS – 2021

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>SEMESTER I</b>							
1.	MA-I	XMA101	Calculus and Linear Algebra	3	1	0	4
2.	BE	XBE102	Electrical and Electronic Engineering Systems	3	1	0	4
3.	P	XAP103	Physics	3	1	0	4
4.	EG	XEG104	Engineering Graphics and Design	1	0	2	3
5.	SC	XGS105	Speech Communication	0	0	3	3
6.	UMAN-I	XUM106	Constitution of India	0	0	0	0
7.	BE-L	XBE107	Electrical and Electronic Engineering Systems Laboratory	0	0	1	1
8.	PL	XAP108	Applied Physics for Engineers Laboratory	0	0	1	1
<b>Total</b>				<b>10</b>	<b>3</b>	<b>7</b>	<b>20</b>
<b>SEMESTER II</b>							
1.	MA-II	XMA201	Calculus, Ordinary Differential Equations and Complex Variable	3	1	0	4
2.	PPS-T	XCP202	Programming for Problem Solving	3	0	0	3
3.	C	XAC203	Chemistry	3	1	0	4
4.	TC	XGS204	Technical Communication	2	0	0	2
5.	Works	XWP205	Workshop Practices	1	0	2	3
6.	EM	XEM206	Engineering Mechanics	3	0	0	3
7.	PPS-L	XCP207	Programming for Problem Solving Laboratory	0	0	1	1
8.	CL	XAC208	Chemistry Laboratory	0	0	1	1
<b>Total</b>				<b>15</b>	<b>2</b>	<b>4</b>	<b>21</b>

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>SEMESTER III</b>							
1.	MA-III	XMA301	Transforms and Partial Differential Equations	3	0	0	3
2.	PCC T	XCE302	Mechanics of Solids-I	2	1	0	3
3.	PCC-T	XCE303	Fluid Mechanics and Machinery	2	1	0	3
4.	PCC-T	XCE304	Building Materials and Construction	3	0	0	3
5.	PCC-T	XCE305	Surveying – I	2	1	0	3
6.	MNGT-I	XUM306	Entrepreneurship Development	2	0	0	2
7.	UMAN-II	XUM307	Universal Human Values 2: Understanding Harmony and Gender	2	1	0	3
8.	PCC-L	XCE308	Strength of Materials Laboratory	0	0	1	1
9.	PCC-L	XCE309	Fluid Mechanics and Machinery Laboratory	0	0	1	1
10.	IPT-I	XCE310	In-plant Training-I	0	0	0	1
<b>Total</b>				<b>16</b>	<b>4</b>	<b>2</b>	<b>23</b>
<b>SEMESTER IV</b>							
1.	MA-IV	XMA401	Probability and Statistics	3	0	0	3
2.	PCC T	XCE402	Mechanics of Solids-II	2	1	0	3
3.	PCC-T	XCE403	Surveying – II	2	1	0	3
4.	PCC-T	XCE404	Geotechnical Engineering - I	2	1	0	3
5.	PCC-T	XCE405	Concrete Technology	3	0	0	3
6.	MNGT-II	X**406	Economics for Engineers	3	0	0	3
7.	UMAN-III	X**407	Disaster Management	0	0	0	0
8.	PCC-L	XCE408	Computer Aided Civil Engineering Drawing	0	0	1	1
9.	PCC-L	XCE409	Surveying Laboratory	0	0	1	1
10.	PCC-L	XCE410	Geotechnical Engineering Laboratory	0	0	1	1
<b>Total</b>				<b>15</b>	<b>3</b>	<b>3</b>	<b>21</b>

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>SEMESTER V</b>							
1.	PCC T	XCE501	Structural Analysis	2	1	0	3
2.	PCC-T	XCE502	Transportation Engineering	3	0	0	3
3.	PCC-T	XCE503	Environmental Engineering	3	0	0	3
4.	PCC-T	XCE504	Geotechnical Engineering - II	2	1	0	3
5.	<b>PEC-I</b>	<b>XCEE**</b>	<b>Professional Elective -I</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
6.	<b>OE I</b>	<b>XOE**</b>	<b>Open Elective Courses-I</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
7.	PCC-L	XCE507	Environmental Engineering Laboratory	0	0	1	1
8.	PCC-L	XCE508	Concrete & Highway Laboratory	0	0	1	1
9.	IPT-II	XCE509	In-plant Training – II	0	0	0	1
<b>Total</b>				<b>16</b>	<b>2</b>	<b>2</b>	<b>21</b>
<b>SEMESTER VI</b>							
1.	PCC -T	XCE601	Design of RCC Structures	3	1	0	4
2.	PCC- T	XCE602	Design of Steel Structures	2	1	0	3
3.	PCC-T	XCE603	Construction Engineering and Management	3	0	0	3
4.	<b>PEC-II</b>	<b>XCEE**</b>	<b>Professional Elective -II</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
5.	<b>OE II</b>	<b>XOE**</b>	<b>Open Elective Courses-II</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
6.	ELS	X**606	English Language Skills	1	0	2	3
7.	UMAN-IV	X**607	Cyber Security	0	0	0	0
8.	PCC-L	XCE608	Construction Management Laboratory	0	0	1	1
9.	PCC-L	XCE609	Survey Camp	0	0	1	1
<b>Total</b>				<b>15</b>	<b>2</b>	<b>4</b>	<b>21</b>

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>SEMESTER VII</b>							
1.	PCC-T	XCE701	Finite Element Method	3	0	0	3
2.	PEC-III	XCEE**	Professional Elective III	3	0	0	3
3.	OE III	OE	Open Elective Courses-III	3	0	0	3
4.	UMAN-V	MC	Environmental studies	0	0	0	0
5.	PCC-L	XCE705	Computer Aided Design & Drafting	0	0	1	1
6.	PCC-L	XCE706	Estimation, Costing and Valuation	0	0	2	2
7.	Proj I	XCE707	Project Work (Phase-I)	0	0	3	3
8.	IPT III	XCE708	In-plant Training – III	0	0	0	3
<b>Total</b>				<b>9</b>	<b>0</b>	<b>6</b>	<b>18</b>
<b>SEMESTER VIII</b>							
1.	PEC-IV	XCEE**	Professional Elective -IV	3	0	0	3
2.	OE IV	OE	Open Elective Courses-IV	3	0	0	3
3.	OE V	OE	Open Elective Courses-V	3	0	0	3
4.	PROJ II	XCE804	Project Work (Phase-II)	0	0	9	9
<b>Total</b>				<b>9</b>	<b>0</b>	<b>9</b>	<b>18</b>

**Total Credit - 163**

**Note**

**L – Lecture, T – Tutorial, P – Practical, C – Credit**

**PROFESSIONAL ELECTIVE COURSE - CIVIL ENGINEERING****[PEC-CE]**

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>Professional Elective Course I</b>							
1.	PEC	XCEE01	Smart Structures and Materials	3	0	0	3
2.	PEC	XCEE02	GIS for Civil Engineering	3	0	0	3
3.	PEC	XCEE03	Water Quality Engineering	3	0	0	3
4.	PEC	XCEE04	Pavement Design	3	0	0	3
5.	PEC	XCEE05	Construction Equipment and Automation	3	0	0	3
6	PEC	XCEE06	Airport Planning and Design	3	0	0	3
7	PEC	XCEE07	Port and Harbour Engineering	3	0	0	3

**Professional Elective Course II**

1.	PEC	XCEE08	Earthquake Engineering	3	0	0	3
2.	PEC	XCEE09	Bridge Engineering	3	0	0	3
3.	PEC	XCEE10	Advanced Structural Analysis	3	0	0	3
4.	PEC	XCEE11	Basics of Computational Hydraulics	3	0	0	3
5.	PEC	XCEE12	Water Resources Engineering	3	0	0	3
6	PEC	XCEE13	Environmental Geotechnology	3	0	0	3
7	PEC	XCEE14	Geotechnical Design	3	0	0	3

**Professional Elective Course III**

1.	PEC	XCEE15	Environmental Fluid Mechanics	3	0	0	3
2.	PEC	XCEE16	Environmental Impact Assessment	3	0	0	3
3.	PEC	XCEE17	Design of Hydraulic Structures	3	0	0	3
4.	PEC	XCEE18	Surface Hydrology	3	0	0	3
5.	PEC	XCEE19	Repairs and Rehabilitation of Structures	3	0	0	3
6	PEC	XCEE20	Urban Hydrology and Hydraulics	3	0	0	3
7	PEC	XCEE21	Building Construction Practice	3	0	0	3

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>Professional Elective Course IV</b>							
1.	PEC	XCEE22	Tall Structures				
2.	PEC	XCEE23	Environmental Law and Policy	3	0	0	3
3.	PEC	XCEE24	Groundwater Engineering	3	0	0	3
4.	PEC	XCEE25	Solid and Hazardous Waste Management	3	0	0	3
5.	PEC	XCEE26	Pre-stressed and Prefabricated Structures	3	0	0	3
6	PEC	XCEE27	Contracts Management	3	0	0	3
7	PEC	XCEE28	Air and Noise Pollution and Control	3	0	0	3
<b>Open Elective Courses</b>							
1.	OEC	XCEOE1	Remote Sensing & GIS	3	0	0	3
2.	OEC	XCEOE2	Building Services	3	0	0	3
3.	OEC	XCEOE3	Non Destructive Testing	3	0	0	3
4.	OEC	XCEOE4	Metro Systems and Engineering	3	0	0	3

## 2. A. B.Tech- Civil Engineering with specialization in GIS and Remote Sensing (Full Time)

S.No	Description	Course Code	Course Name	Credits				Hours			
				L	T	P	TO	L	T	P	TO
<b>SEMESTER I</b>											
1.	MA-I	XMA101	Calculus and Linear Algebra	3	1	0	4	3	1	0	4
2.	BE	XBE102	Electrical and Electronic Engineering Systems	3	1	0	4	3	1	0	4
3.	P	XAP103	Applied Physics for Engineers	3	1	0	4	3	1	0	4
4.	EG	XEG104	Engineering Graphics and Design	1	0	2	3	1	0	4	5
5.	SC	XGS105	Speech Communication	0	0	3	3	3	0	0	3
6.	UMAN-I	XUM106	Constitution of India	0	0	0	0	3	0	0	3
7.	BE-L	XBE107	Electrical and Electronic Engineering Systems Laboratory	0	0	1	1	0	0	2	2
8.	PL	XAP108	Applied Physics for Engineers Laboratory	0	0	1	1	0	0	2	2
			<b>Total</b>				<b>20</b>				<b>27</b>
<b>SEMESTER II</b>											
1.	MA-II	XMA201	Calculus, Ordinary Differential Equations and Complex Variable	3	1	0	4	3	1	0	4
2.	PPS-T	XCP202	Programming for Problem Solving	3	0	0	3	3	0	0	3
3.	C	XAC203	Applied Chemistry for Engineers	3	1	0	4	3	1	0	4
4.	TC	XGS204	Technical Communication	2	0	0	2	2	0	0	2
5.	Works	XWP205	Workshop Practices	1	0	2	3	1	0	4	5
6.	EM	XEM206	Engineering Mechanics	3	0	0	3	3	0	0	3
7.	PPS-L	XCP207	Programming for Problem Solving Laboratory	0	0	1	1	0	0	2	2
8.	CL	XAC208	Applied Chemistry for Engineers Laboratory	0	0	1	1	0	0	2	2
			<b>Total</b>				<b>21</b>				<b>25</b>



S.No	Description	Course Code	Course Name	Credits				Hours			
				L	T	P	TO	L	T	P	TO
<b>SEMESTER III</b>											
1.	MA-III	XMA301	Transforms and Partial Differential Equations	3	0	0	3	3	0	0	3
2.	PCC T	XCE302	Mechanics of Solids-I	2	1	0	3	2	2	0	4
3.	PCC-T	XCE303	Fluid Mechanics and Machinery	2	1	0	3	2	2	0	4
4.	PCC-T	XCE304	Building Materials and Construction	3	0	0	3	3	0	0	3
5.	PCC-T	XCE305	Surveying – I	2	1	0	3	2	2	0	4
6.	MNGT-I	XUM306	Entrepreneurship Development	2	0	0	2	2	0	0	2
7.	UMAN-II	XUM307	Universal Human Values 2: Understanding Harmony and Gender	2	1	0	3	2	1	0	3
8.	PCC-L	XCE308	Strength of Materials Laboratory	0	0	1	1	0	0	2	2
9.	PCC-L	XCE309	Fluid Mechanics and Machinery Laboratory	0	0	1	1	0	0	2	2
10.	IPT-I	XCE310	In-plant Training-I	-	-	-	1	-	-	-	-
11.	SPE	XCE HR1	Photogrammetry	3	0	0	3	3	0	0	3
			<b>Total</b>				<b>26</b>				<b>30</b>
<b>SEMESTER IV</b>											
1.	MA-IV	XMA401	Probability distributions and statistical methods	3	0	0	3	3	0	0	3
2.	PCC T	XCE402	Mechanics of Solids-II	2	1	0	3	2	2	0	4
3.	PCC-T	XCE403	Surveying – II	2	1	0	3	2	2	0	4
4.	PCC-T	XCE404	Geotechnical Engineering - I	2	1	0	3	2	2	0	4
5.	PCC-T	XCE405	Concrete Technology	3	0	0	3	3	0	0	3
6.	MNGT-II	XUM406	Economics for Engineers	3	0	0	3	3	0	0	3
7.	UMAN-III	XUM407	Disaster Management	0	0	0	0	3	0	0	3
8.	PCC-L	XCE408	Computer Aided Civil Engineering Drawing	0	0	1	1	0	0	2	2
9.	PCC-L	XCE409	Surveying Laboratory	0	0	1	1	0	0	2	2
10.	PCC-L	XCE410	Geotechnical Engineering Laboratory	0	0	1	1	0	0	2	2
11.	SPE	XCE HR2	Image processing	3	0	1	4	3	0	1	5
			<b>Total</b>				<b>25</b>				<b>35</b>

S.No	Description	Course Code	Course Name	Credits				Hours			
				L	T	P	TO	L	T	P	TO
<b>SEMESTER V</b>											
1.	PCC T	XCE501	Structural Analysis	2	1	0	3	2	2	0	4
2.	PCC-T	XCE502	Transportation Engineering	3	0	0	3	3	0	0	3
3.	PCC-T	XCE503	Environmental Engineering	3	0	0	3	3	0	0	3
4.	PCC-T	XCE504	Geotechnical Engineering - II	2	1	0	3	2	2	0	4
5.	<b>PEC-I</b>	<b>XCEE**</b>	<b>Professional Elective -I</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
6.	<b>OE I</b>	<b>XOE**</b>	<b>Open Elective Courses-I</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
7.	PCC-L	XCE507	Environmental Engineering Laboratory	0	0	1	1	0	0	2	2
8.	PCC-L	XCE508	Concrete & Highway Laboratory	0	0	1	1	0	0	2	2
9.	IPT-II	XCE509	In-plant Training – II	-	-	-	1	-	-	-	-
10	SPE	XCE HR3	Remote sensing	3	0	1	4	3	0	1	5
			<b>Total</b>				<b>25</b>				<b>29</b>
<b>SEMESTER VI</b>											
1.	PCC -T	XCE601	Design of RCC Structures	3	1	0	4	3	2	0	5
2.	PCC- T	XCE602	Design of Steel Structures	2	1	0	3	2	2	0	4
3.	PCC-T	XCE603	Construction Engineering and Management	3	0	0	3	3	0	0	3
4.	<b>PEC-II</b>	<b>XCEE**</b>	<b>Professional Elective -II</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
5.	<b>OE II</b>	<b>XOE**</b>	<b>Open Elective Courses-II</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
6.	ELS	XGS606	Professional Skills	1	0	2	3	1	0	4	5
7.	UMAN-IV	XUM607	Cyber Security	0	0	0	0	3	0	0	3
8.	PCC-L	XCE608	Construction Management Laboratory	0	0	1	1	0	0	2	2
9.	PCC-L	XCE609	Survey Camp	0	0	1	1	0	0	2	2
10	SPE	XCE HR4	Geographic information system	3	0	1	4	3	0	1	5
			<b>Total</b>				<b>25</b>				<b>35</b>

S.No	Description	Course Code	Course Name	Credits				Hours			
				L	T	P	TO	L	T	P	TO
<b>SEMESTER VII</b>											
1.	PCC-T	XCE701	Finite Element Method	3	0	0	3	3	0	0	3
2.	PEC-III	XCEE**	Professional Elective III	3	0	0	3	3	0	0	3
3.	OE III	OE	Open Elective Courses-III	3	0	0	3	3	0	0	3
4.	UMAN-V	XUM704	Environmental studies	0	0	0	0	3	0	0	3
5.	PCC-L	XCE705	Computer Aided Design & Drafting	0	0	1	1	0	0	2	2
6.	PCC-L	XCE706	Estimation, Costing and Valuation	0	0	2	2	0	0	4	4
7.	Proj I	XCE707	Project Work (Phase-I)	0	0	3	3	0	0	6	6
8.	IPT III	XCE708	In-plant Training – III	-	-	-	3	-	-	-	-
9.	SPE	XCE HR5	Mini Project	0	0	5	5	0	0	10	10
			<b>Total</b>				<b>23</b>				<b>34</b>
<b>SEMESTER VIII</b>											
1.	PEC-IV	XCEE**	Professional Elective -IV	3	0	0	3	3	0	0	3
2.	OE IV	OE	Open Elective Courses-IV	3	0	0	3	3	0	0	3
3.	OE V	OE	Open Elective Courses-V	3	0	0	3	3	0	0	3
4.	PROJ II	XCE804	Project Work (Phase-II)	0	0	9	9	0	0	18	18
			<b>Total</b>				<b>18</b>				<b>27</b>
<b>Total Credits : 183</b>											

**PROFESSIONAL ELECTIVE COURSE - CIVIL ENGINEERING****[PEC-CE]**

Category	Course Code	Course Name	Hours per week			C
			L	T	P	
<b>Professional Elective Course I</b>						
PEC	XCEE01	Smart Structures and Materials	3	0	0	3
PEC	XCEE02	GIS for Civil Engineering	3	0	0	3
PEC	XCEE03	Water Quality Engineering	3	0	0	3
PEC	XCEE04	Pavement Design	3	0	0	3
PEC	XCEE05	Construction Equipment and Automation	3	0	0	3
PEC	XCEE06	Airport Planning and Design	3	0	0	3
PEC	XCEE07	Port and Harbour Engineering	3	0	0	3

**Professional Elective Course II**

Category	Course Code	Course Name	Hours per week			C
			L	T	P	
PEC	XCEE08	Earthquake Engineering	3	0	0	3
PEC	XCEE09	Bridge Engineering	3	0	0	3
PEC	XCEE10	Advanced Structural Analysis	3	0	0	3
PEC	XCEE11	Basics of Computational Hydraulics	3	0	0	3
PEC	XCEE12	Water Resources Engineering	3	0	0	3
PEC	XCEE13	Environmental Geotechnology	3	0	0	3
PEC	XCEE14	Geotechnical Design	3	0	0	3

**Professional Elective Course III**

Category	Course Code	Course Name	Hours per week			C
			L	T	P	
PEC	XCEE15	Environmental Fluid Mechanics	3	0	0	3
PEC	XCEE16	Environmental Impact Assessment	3	0	0	3
PEC	XCEE17	Design of Hydraulic Structures	3	0	0	3
PEC	XCEE18	Surface Hydrology	3	0	0	3
PEC	XCEE19	Repairs and Rehabilitation of Structures	3	0	0	3
PEC	XCEE20	Urban Hydrology and Hydraulics	3	0	0	3
PEC	XCEE21	Building Construction Practice	3	0	0	3

**Professional Elective Course IV**

Category	Course Code	Course Name	Hours per week			C
			L	T	P	
PEC	XCEE22	Tall Structures	3	0	0	3
PEC	XCEE23	Environmental Law and Policy	3	0	0	3
PEC	XCEE24	Groundwater Engineering	3	0	0	3
PEC	XCEE25	Solid and Hazardous Waste Management	3	0	0	3
PEC	XCEE26	Pre-stressed and Prefabricated Structures	3	0	0	3
PEC	XCEE27	Contracts Management	3	0	0	3
PEC	XCEE28	Air and Noise Pollution and Control	3	0	0	3

**OPEN ELECTIVE COURSES**

Category	Course Code	Course Name	Hours per week			C
			L	T	P	
OEC	XCEOE1	Remote Sensing & GIS	3	0	0	3
OEC	XCEOE2	Building Services	3	0	0	3
OEC	XCEOE3	Non Destructive Testing	3	0	0	3
OEC	XCEOE4	Metro Systems and Engineering	3	0	0	3
OEC	XCEOE5	Sustainable Engineering	3	0	0	3

**Note : L – Lecture, T – Tutorial, P – Practical, C – Credit**

## 1. C. Bachelor of Technology in Civil Engineering (Part Time)

### REGULATION – 2021

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>SEMESTER I</b>							
1.	MA-I	PCE101	Probability and statistics	3	0	0	3
2.	PCC T	PCE102	Mechanics of Solids-I	2	1	0	3
3.	PCC-T	PCE103	Fluid Mechanics and Machinery	2	1	0	3
4.	PCC-L	PCE104	Strength of Materials Lab	0	0	2	2
5.	PCC-L	PCE105	Fluid Mechanics and Machinery Lab	0	0	2	2
<b>Total</b>				<b>7</b>	<b>2</b>	<b>4</b>	<b>13</b>
<b>SEMESTER II</b>							
1.	PCC T	PCE201	Mechanics of Solids-II	2	1	0	3
2.	PCC-T	PCE202	Geotechnical Engineering - I	2	1	0	3
3.	PCC-T	PCE203	Concrete Technology	3	0	0	3
4.	UMAN-I	P**204	Disaster Management	0	0	0	0
5.	PCC-L	PCE205	Geotechnical Engineering Lab	0	0	2	2
<b>Total</b>				<b>7</b>	<b>2</b>	<b>2</b>	<b>11</b>
<b>SEMESTER III</b>							
1.	PCC T	PCE301	Structural Analysis	3	1	0	4
2.	PCC-T	PCE302	Transportation Engineering	3	0	0	3
3.	PCC-T	PCE303	Environmental Engineering	3	0	0	3
4.	PCC-L	PCE304	Environmental Engineering Lab	0	0	2	2
5.	PCC-L	PCE305	Concrete & Highway Lab	0	0	2	2
<b>Total</b>				<b>9</b>	<b>1</b>	<b>4</b>	<b>14</b>
<b>SEMESTER IV</b>							
1.	PCC -T	PCE401	Design of RCC Structures	3	1	0	4
2.	PCC-T	PCE402	Geotechnical Engineering - II	2	1	0	3
3.	PCC-T	PCE403	Construction Engineering and Management	3	0	0	3
4.	<b>PEC-I</b>	<b>PCEE**</b>	<b>Professional Elective -I</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>
5.	PCC-L	PCE405	Construction Management Lab	0	0	2	2
<b>Total</b>				<b>11</b>	<b>2</b>	<b>2</b>	<b>15</b>

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>SEMESTER V</b>							
1.	PCC- T	PCE501	Design of Steel Structures	3	1	0	4
2.	PEC-II	PCEE**	Professional Elective II	3	0	0	3
3.	UMAN-V	MC	Environmental studies	0	0	0	0
4.	PCC-L	PCE504	Computer Aided Design & Drafting	0	0	2	2
5.	PCC-L	PCE505	Estimation, Costing and valuation	0	0	2	2
<b>Total</b>				<b>6</b>	<b>1</b>	<b>4</b>	<b>11</b>
<b>SEMESTER VI</b>							
1.	PCC-T	PCE601	Finite Element Method	3	0	0	4
2.	PEC-III	PCEE**	Professional Elective –III	3	0	0	3
3.	PROJ II	PCE603	Project Work (Phase-I)	0	0	3	3
<b>Total</b>				<b>6</b>	<b>0</b>	<b>3</b>	<b>10</b>
<b>SEMESTER VII</b>							
1.	PEC-IV	PCEE**	Professional Elective –IV	3	0	0	3
2.	PROJ II	PCE702	Project Work (Phase-II)	0	0	9	9
<b>Total</b>				<b>3</b>	<b>0</b>	<b>9</b>	<b>12</b>

**Total Credit - 86**

**Note**

**L – Lecture, T – Tutorial, P – Practical, C – Credit**

**PROFESSIONAL ELECTIVE COURSE - CIVIL ENGINEERING****[PEC-CE]**

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>Professional Elective Course I</b>							
1.	PEC	PCEE01	Smart Structures and Materials	3	0	0	3
2.	PEC	PCEE02	GIS for Civil Engineering	3	0	0	3
3.	PEC	PCEE03	Water Quality Engineering	3	0	0	3
4.	PEC	PCEE04	Pavement Design	3	0	0	3
5.	PEC	PCEE05	Construction Equipment and Automation	3	0	0	3
6.	PEC	PCEE06	Airport Planning and Design	3	0	0	3
7.	PEC	PCEE07	Port and Harbour Engineering	3	0	0	3
<b>Professional Elective Course II</b>							
1.	PEC	PCEE08	Earthquake Engineering	3	0	0	3
2.	PEC	PCEE09	Bridge Engineering	3	0	0	3
3.	PEC	PCEE10	Advanced Structural Analysis	3	0	0	3
4.	PEC	PCEE11	Basics of Computational Hydraulics	3	0	0	3
5.	PEC	PCEE12	Water Resources Engineering	3	0	0	3
6.	PEC	PCEE13	Environmental Geotechnolgy	3	0	0	3
7.	PEC	PCEE14	Geotechnical Design	3	0	0	3
<b>Professional Elective Course III</b>							
1.	PEC	PCEE15	Environmental Fluid Mechanics	3	0	0	3
2.	PEC	PCEE16	Environmental Impact Assessment	3	0	0	3
3.	PEC	PCEE17	Design of Hydraulic Structures	3	0	0	3
4.	PEC	PCEE18	Surface Hydrology	3	0	0	3
5.	PEC	PCEE19	Repairs and Rehabilitation of Structures	3	0	0	3
6.	PEC	PCEE20	Urban Hydrology and Hydraulics	3	0	0	3
7.	PEC	PCEE21	Building Construction Practice	3	0	0	3



S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>Professional Elective Course IV</b>							
1.	PEC	PCEE22	Tall Structures				
2.	PEC	PCEE23	Environmental Law and Policy	3	0	0	3
3.	PEC	PCEE24	Groundwater Engineering	3	0	0	3
4.	PEC	PCEE25	Solid and Hazardous Waste Management	3	0	0	3
5.	PEC	PCEE26	Pre-stressed and Prefabricated Structures	3	0	0	3
6	PEC	PCEE27	Contracts Management	3	0	0	3
7	PEC	PCEE28	Air and Noise Pollution and Control	3	0	0	3

## 2.A. Master of Technology in Environmental Engineering ( Full Time)

### REGULATIONS – 2022

Category	Sub. Code	Name of the Course	Hours per week			C	H
			L	T	P		
<b>SEMESTER I</b>							
PCC	YEN101	Environmental Chemistry	3	0	0	3	3
PCC	YEN102	Environmental Microbiology	3	0	0	3	3
PCC	YEN103	Principles and Design of Physico-Chemical Treatment Systems	3	1	0	4	4
PEC	YEN104*	Elective - I	3	0	0	3	3
PEC	YEN105*	Elective – II	3	0	0	3	3
PCC-L	YEN106	Environmental Quality Measurements Laboratory	0	0	4	2	4
AICTE Mandatory Course	YRM107	Research Methodology and IPR	2	0	0	2	2
AICTE-Audit	YEGOE1	English for Research Paper Writing	2	0	0	0	2
PCC-L	YEN109	Microbiology Laboratory	0	0	4	2	4
		<b>TOTAL</b>	<b>19</b>	<b>1</b>	<b>8</b>	<b>22</b>	<b>28</b>
<b>SEMESTER II</b>							
PCC	YEN201	Transport of Water and Waste water	3	0	0	3	3
PCC	YEN202	Biological Treatment of Wastewater	3	0	0	3	3
PCC	YEN203	Environmental Impact Assessment	3	0	0	3	3
PEC	YEN204*	Elective – III	3	0	0	3	3
PEC	YEN205*	Elective – IV	3	0	0	3	3
PCC-L	YEN206	Environmental Engineering Processes Laboratory	0	0	4	2	4
PCC-L	YEN207	Mini Project	0	0	4	2	4
AICTE-Audit	YPSOE1	Constitution of India	2	0	0	0	2
		<b>TOTAL</b>	<b>17</b>	<b>0</b>	<b>8</b>	<b>19</b>	<b>25</b>

Category	Sub. Code	Name of the Course	Hours per week			C	H
			L	T	P		
<b>SEMESTER III</b>							
PEC	YEN301*	Elective -V	3	0	0	3	3
PCC-L	YEN302	Dissertation Phase – I	0	0	20	10	20
OEC		Open Elective	3	0	0	3	3
		<b>TOTAL</b>	<b>06</b>	<b>0</b>	<b>20</b>	<b>16</b>	<b>26</b>
<b>SEMESTER IV</b>							
PCC-L	YEN401	Dissertation Phase – II	0	0	32	16	32
		<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>16</b>	<b>32</b>

### TOTAL CREDITS - 73

PCC – Professional Core Course ; PEC- Professional Elective Course ; OEC – Open Elective Course;  
PCC-L – Professional Core Course - Lab

**Note:**

1. HOD concerned has to provide options for selecting the relevant MOOC courses or any elective paper which are offered.
2. The credit distribution is followed as per the guidelines given by AICTE/UGC.

### PROFESSIONAL ELECTIVE COURSES

Sub. Code	Name of the Course	Hours per week			C
		L	T	P	
<b>Elective I</b>					
YEN104A	Energy and Environment	3	0	0	3
YEN104B	Environmental Economics	3	0	0	3
YEN104C	Air Pollution and Control	3	0	0	3
<b>Elective II</b>					
YEN105A	Instrumental Methods and Analysis of Environmental Pollutants	3	0	0	3
YEN105B	Theory and Practice of Industrial Wastewater Treatment	3	0	0	3
YEN105C	Noise Pollution and Control Engineering	3	0	0	3
<b>Elective III</b>					
YEN204A	Environmental Biotechnology	3	0	0	3
YEN204B	Environmental Geotechnology	3	0	0	3
YEN204C	Solid and Hazardous Waste Management	3	0	0	3

Sub. Code	Name of the Course	Hours per week			C
		L	T	P	

<b>Elective IV</b>					
YEN205A	Operation and Maintenance of Water and Wastewater Treatment Systems	3	0	0	3
YEN205B	Ground Water Contamination and Transport Modeling	3	0	0	3
YEN205C	Simulation and Modeling in Environmental Systems	3	0	0	3
<b>Elective V</b>					
YEN301A	Remote sensing and GIS for Environmental Applications	3	0	0	3
YEN301B	Sustainable Engineering	3	0	0	3
YEN301C	Membrane Technologies for water and Wastewater Treatment	3	0	0	3
<b>AUDIT COURSES</b>					
YEGOE1	English for Research Paper Writing	2	0	0	0
YPSOE1	Constitution of India	2	0	0	0
<b>OPEN ELECTIVES</b>					
YCOOE1	Business Analytics	3	0	0	3
YMEOE1	Industrial Safety	3	0	0	3
YMAOE1	Operations Research	3	0	0	3
YCOOE2	Cost Management of Engineering Projects	3	0	0	3

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
<b>SEMESTER I</b>							
1.	Core I	YEN101	Chemistry and Microbiology for Environmental Engineers	3	0	0	3
2.	Core II	YEN102	Unit Operation and Processes in Environmental Systems	3	0	0	3
3.	Programme Elective	YEN103	Elective - I	3	0	0	3
4.	Programme Elective	YEN104	Elective - II	3	0	0	3
5.	Core Lab I	YEN105	Environmental Quality Measurements Laboratory - I (Water & Wastewater)	0	0	2	2
6.	Core Lab II	YEN106	Microbiology Laboratory	0	0	2	2
7.	MLC	YRM107	Research Methodology and IPR	2	0	0	2
8.	Audit I		Audit Course- 1	2	0	0	0
<b>Total</b>				<b>16</b>	<b>0</b>	<b>4</b>	<b>18</b>

SEMESTER II							
1.	Core III	YEN201	Transport of Water and Wastewater	3	0	0	3
2.	Core IV	YEN202	Biological Treatment of Wastewater	3	0	0	3
3.	Programme Elective	YEN203	Elective - III	3	0	0	3
4.	Programme Elective	YEN204	Elective - IV	3	0	0	3
5.	Core Lab III	YEN205	Environmental Quality Measurements Laboratory - II (Air, Noise and Solidwaste)	0	0	2	2
6.	Core Lab IV	YEN206	Unit Operation Laboratory	0	0	2	2
7.	Core	YEN207	Mini Project	0	0	4	2
8.	Audit 2		Audit Course - 2	2	0	0	0
<b>Total</b>				<b>14</b>	<b>0</b>	<b>8</b>	<b>18</b>

S.No	Category	Course Code	Courses	Credits			
				L	T	P	TO
SEMESTER III							
1.	Programme Elective	YEN301	Elective - V	3	0	0	3
2.	Open Elective		Open Elective	3	0	0	3
3.	Dissertation	YEN303	Dissertation Phase - I	0	0	20	10
<b>Total</b>				<b>6</b>	<b>0</b>	<b>20</b>	<b>16</b>
SEMESTER IV							
1.	Dissertation	YEN303	Dissertation Phase - I	0	0	32	16
<b>Total</b>				<b>0</b>	<b>0</b>	<b>32</b>	<b>16</b>

**Total Credit - 68**

**Note**

**L – Lecture, T – Tutorial, P – Practical, C – Credit**

## PROFESSIONAL ELECTIVE COURSES

S.No	Description	Course Code	Courses	Credits			
				L	T	P	TO
<b>Professional Elective Course I</b>							
1.	PEC	YEN103A	Energy and Environment	3	0	0	3
2.	PEC	YEN103B	Environmental Economics	3	0	0	3
3.	PEC	YEN103C	Air Pollution and Control	3	0	0	3
<b>Professional Elective Course II</b>							
1.	PEC	YEN104A	Instrumental Methods and Analysis of Environmental Pollutants	3	0	0	3
2.	PEC	YEN104B	Theory and Practice of Industrial Wastewater Treatment	3	0	0	3
3.	PEC	YEN104C	Environmental Policies and Legislation	3	0	0	3
<b>Professional Elective Course III</b>							
1.	PEC	YEN203A	Environmental Biotechnology	3	0	0	3
2.	PEC	YEN203B	Sustainable Urban development Concepts and Strategies	3	0	0	3
3.	PEC	YEN203C	Solid and Hazardous Waste Management	3	0	0	3
<b>Professional Elective Course IV</b>							
1.	PEC	YEN204A	Remote sensing and GIS	3	0	0	3
2.	PEC	YEN204B	Environmental Geotechnology	3	0	0	3
3.	PEC	YEN204C	Simulation and Modeling in Environmental Systems	3	0	0	3
<b>Professional Elective Course V</b>							
1.	PEC	YEN301A	Ground Water Contamination and Transport Modeling	3	0	0	3
2.	PEC	YEN301B	Environmental Impact Assessment	3	0	0	3
3.	PEC	YEN301C	Membrane Separation for Water and Wastewater	3	0	0	3

**Audit Courses**

1.	AC	YEGOE1	English for Research Paper Writing	2	0	0	0
2.	AC	YPSOE1	Constitution of India	2	0	0	0

**Open Electives**

1.	OEC	YCOOE1	Business Analytics	3	0	0	3
2.	OEC	YMEOE1	Industrial Safety	3	0	0	3
		YMAOE1	Operations Research	3	0	0	3
		YCOOE2	Cost Management of Engineering Projects	3	0	0	3