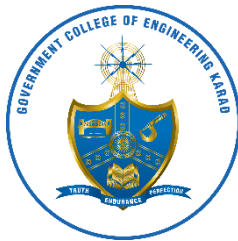


Government College of Engineering, Karad

(An Autonomous Institute of Govt. of Maharashtra)



Department of Civil Engineering

B.Tech Civil Curriculum Structure

Academic Year: 2023-24

Institute Vision

To emerge as a technical Institute of national repute driven by excellence in imparting value based education and innovation in research to face the Global needs of profession.

Institute Mission

To create professionally competent engineers driven with the sense of responsibility towards nature and society.

Department Vision

To educate civil engineers having value based excellence with innovative approach towards research that will help to face global challenges of this profession.

Department Mission

To promote excellence by imparting quality education in civil engineering and encouraging creativity, critical thinking and discipline along with sensitivity towards society and environment.

Programme Educational Objectives (PEO):

PEO1	Graduates of the program will have technical expertise and imbibe leadership and ethical qualities to design and execute Civil Engineering projects.
PEO2	Graduates of the program will have qualities of life-long learning, team work with effective communication for successful implementation of Civil engineering projects.
PEO3	Graduates of the program will have able to effectively manage projects globally by inculcating necessary management skills.
PEO4	Graduates of the program will develop sensitivity towards environment and society for sustainable development and effective disaster management.

Programme Outcomes (PO):

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSO):

PSO1	The students will demonstrate ability to acquire in depth knowledge to practice in the field of Civil Engineering profession globally.
PSO2	The student will demonstrate the ability to apply the knowledge in desired form in respective specialization of Civil Engineering.

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Civil Engineering

Proposed Scheme of Instructions: First Year B. Tech. in Civil Engineering

Semester – I(w.e.f. 2023-24)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	BSC	CE3101	Applied Physics	3	--	--	3	3	20	20	60	100
2	BSC	CE3102	Applied Mathematics - I	3	1	--	4	4	20	20	60	100
3	ESC	CE3103	Basics of Civil Engineering	3	--	--	3	3	20	20	60	100
4	ESC	CE3104	Engineering Graphics	3	--	--	3	3	20	20	60	100
5	ESC	CE3105	Design Thinking	1	--	2	3	2	-	50	-	50
6	BSC	CE3106	Applied Physics Lab	--	--	2	2	1	-	25	25	50
7	ESC	CE3107	Engineering Graphics Lab	--	--	2	2	1	-	50	-	50
8	HSSM	CE3108	Professional Communication Skills	1	--	2	3	2	-	50	25	75
9	VSEC	CE3109	Civil Workshop	--	--	4	4	2	-	100	25	125
10	CCA	CE3110	Yoga	--	--	2	2	1	-	50	-	50
			Total	14	1	14	29	22	80	405	315	800

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE - In Semester Evaluation

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	08	09	-	-	-	02	02	-	01
Cumulative Sum	08	09	-	-	-	02	02	-	01

PROGRESSIVE TOTAL CREDITS: 00+22 =22

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Civil Engineering

Proposed Scheme of Instructions: First Year B. Tech. in Civil Engineering

Semester – II (w.e.f. 2023-24)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME	ISE	ESE	TOTAL
									MSE			
1	BSC	CE3201	Applied Mathematics - II	3	1	--	4	4	20	20	60	100
2	BSC	CE3202	Applied Chemistry	3	--	--	3	3	20	20	60	100
3	ESC	CE3203	Programming for problem solving	3	--	--	3	3	20	20	60	100
4	PCC	CE3204	Engineering Mechanics	3	1	--	4	4	20	20	60	100
5	HSSM	CE3205	Indian Knowledge Systems (MOOC)	-	-	-	-	2	-	-	100	100
6	BSC	CE3206	Applied Chemistry Lab	-	-	2	2	1	-	25	25	50
7	ESC	CE3207	Programming for problem solving Lab	--	--	2	2	1	-	50	-	50
8	PCC	CE3208	Engineering Mechanics Lab	--	--	2	2	1	-	50	25	75
9	VSEC	CE3209	Experiential Learning Lab	--	--	4	4	2	-	50	25	75
10	CCA	CE3210	NCC/NSS/CSP/E-Cell	--	--	2	2	1	-	50	-	50
			Total	12	2	12	26	22	80	305	415	800

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE - In Semester Evaluation

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	08	04	05	-	-	02	02	-	01
Cumulative Sum	16	13	05	-	-	04	04	-	02

PROGRESSIVE TOTAL CREDITS: 22+22 =44

Exit Course

Exit option : Award of UG Certificate in Major with 44 credits and an additional 8 credits from following Exit Courses				
Sr. No	Course Code	Course Title	Mode	Credits
1	CE-EC-0101	Industrial Internship	Online/offline certification Course	8
		OR		
2	CE-EC-0102	Basics of Civil Infrastructure		4
	CE-EC-0104	Basics of Civil Infrastructure lab		4
		OR		
3	CE-EC-0103	Construction Materials		4
	CE-EC-0105	Construction Materials Lab		4

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Civil Engineering

Proposed Scheme of Instructions: Second Year B. Tech. in Civil Engineering

Semester – III (w.e.f. 2024-25)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	BSC	CE3301	Applied Mathematics-III	2	-	-	2	2	20	20	60	100
2	PCC	CE3302	Surveying	3	--	--	3	3	20	20	60	100
3	PCC	CE3303	Geoscience	2	--	--	2	2	20	20	60	100
4	PCC	CE3304	Mechanics of Materials	3	--	--	3	3	20	20	60	100
5	MDM	##	Multi-disciplinary Minor - 01	2	--	--	2	2	20	20	60	100
6	OE	\$D/O/I	Open Elective -01	3	--	--	3	3	20/NA/NA	20/NA/50	60/100/50	100
7	HSSM	CE3307	Universal Human Values	2	--	--	2	2	-	50	-	50
8	HSSM	CE3308	Economics for Engineer	2	--	--	2	2	-	50	-	50
9	PCC	CE3309	Surveying Lab	--	--	2	2	1	-	25	-	25
10	PCC	CE3310	Mechanics of Materials Lab	--	--	2	2	1	-	25	-	25
11	OE	\$D/O/I	Open Elective -01 Lab	--	--	2	2	1	-	25	25	50
			Total	19	0	06	25	22	120	295	385	800

*Note: Open Elective-01 (OE) can be offered as offline/Online mode (MOOC).

Note: \$ D/O/I- Any course offered by Department/Online/Institute OE bucket. ##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE - In Semester Evaluation

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	02	-	10	-	06	-	04	-	-
Cumulative Sum	18	13	15	-	06	04	08	-	02

PROGRESSIVE TOTAL CREDITS: 44+22 =66

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Civil Engineering

Proposed Scheme of Instructions: Second Year B. Tech. in Civil Engineering

Semester – IV (w.e.f. 2024-25)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	CE3401	Geotechnical Engineering	3	--	--	3	3	20	20	60	100
2	PCC	CE3402	Concrete Technology	3	-	--	3	3	20	20	60	100
3	PCC	CE3403	Fluid Mechanics	3	--	--	3	3	20	20	60	100
4	MDM	##	Multi-disciplinary Minor - 02	2	--	--	2	2	20	20	60	100
5	OE	\$D/O/I	Open Elective -02	2	--	--	2	2	20/NA/NA	20/NA/50	60/100/50	100
6	HSSM	CE3406	Strategic Management	2	--	--	2	2	-	25	-	50
7	HSSM	CE3407	Professional Ethics	2	--	--	2	2	-	25	-	50
8	VSEC	CE3408	Geotechnical Engineering Lab		--	4	4	2	-	50	50	100
9	PCC	CE3409	Concrete Technology Lab	--	--	2	2	1	-	25	25	50
10	EL	CE3410	Community Engagement Project	--	--	2	2	1	-	50	-	50
11	BSC	CE3411	Environmental Science	2	--	--	2	Audit	-	-	-	-
12	PCC	CE3412	Fluid Mechanics Lab	--	--	2	2	1	-	25	25	50
			Total	19	0	10	29	22	100	300	400	800

*Note: Open Elective-02 (OE) can be offered as offline/Online mode (MOOC).

Note: \$ D/O/I- Any course offered by Department/Online/Institute OE bucket. ##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE - In Semester Evaluation

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	11	-	04	02	04	01	-
Cumulative Sum	18	13	26	-	10	06	12	01	02

PROGRESSIVE TOTAL CREDITS: 66+22 =88

Exit Course

Exit option : Award of UG Diploma in Major with 88 credits and an additional 8 credits from following Exit Courses				
Sr. No	Course Code	Course Title	Mode	Credits
1	CE-EC-0204	Building Planning Drawing and Design Studio	Online/offline certification Course	8
		OR		
2	CE-EC-0205	Industrial Internship		8

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Civil Engineering

Proposed Scheme of Instructions: Third Year B. Tech. in Civil Engineering

Semester – V

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	CE3501	Structural Mechanics	3	--	--	3	3	20	20	60	100
2	PCC	CE3502	Building Planning and Design	3	--	--	3	3	20	20	60	100
3	PCC	CE3503	Transportation Engineering	3	1	--	4	4	20	20	60	100
4	PEC	CE35*4	Program Elective -01	3	--	--	3	3	20	20	60	100
5	MDM	##	Multi-disciplinary Minor - 03	3	--	--	3	3	20	20	60	100
6	OE	\$D/O/I	Open Elective -03	2	--	--	2	2	20/NA/NA	20/NA/50	60/100/50	100
7	PCC	CE3507	Building Planning and DesignLab	--	--	2	2	1	-	25	25	50
8	PCC	CE3508	Transportation EngineeringLab	--	--	2	2	1	-	50	-	50
9	PEC	CE35*9	Program Elective -01 Lab	--	--	2	2	1	-	25	25	50
10	MDM	CE3510	Multi-disciplinary Minor – 03 Lab	--	--	2	2	1	-	50	-	50
			Total	17	1	8	26	22	120	270	410	800

*Note: Open Elective-03 (OE) can be offered as offline/Online mode (MOOC).

Note: \$ D/O/I- Any course offered by Department/Online/Institute OE bucket. ##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE - In Semester Evaluation

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	12	04	06	-	-	-	-
Cumulative Sum	18	13	38	04	16	06	12	01	02

PROGRESSIVE TOTAL CREDITS: 88+22=110

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Civil Engineering

Proposed Scheme of Instructions: Third Year B. Tech. in Civil Engineering

Semester – VI

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	CE3601	Foundation Engineering	3	--	--	3	3	20	20	60	100
2	PCC	CE3602	Limit State Design of Concrete Structures	3	--	--	3	3	20	20	60	100
3	PCC	CE3603	Quantity Surveying and Valuation	2	--	--	2	2	20	20	60	100
4	PEC	CE36*4	Program Elective -02	3	--	--	3	3	20	20	60	100
5	PEC	CE3605	Environmental Engineering	3	--	--	3	3	20	20	60	100
6	MDM	##	Multi-disciplinary Minor - 04	2	--	--	2	2	20	20	60	100
7	VSEC	CE3607	Foundation EngineeringLab	1	--	2	3	2	-	25	25	50
8	PCC	CE3608	Limit State Design of Concrete StructuresLab	--	--	2	2	1	-	25	25	50
9	PCC	CE3609	Quantity Surveying and Valuation Lab	--	--	2	2	1	-	25	25	50
10	PEC	CE36*0	Program Elective -02 Lab	--	--	2	2	1	-	25		25
11	PEC	CE3611	Environmental EngineeringLab	--	--	2	2	1	-	25	-	25
			Total	17	0	10	27	22	120	245	435	800

##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE - In Semester Evaluation

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	10	08	02	02	-	-	-
Cumulative	18	13	48	12	18	08	12	01	02

PROGRESSIVE TOTAL CREDITS: 110+22 =132

Exit option : Award of B. Vocational in Major with 132 credits and an additional 8 credits from following Exit Courses				
Sr. No	Course Code	Course Title	Mode	Credits
1	CET-EC-0306	Construction Planning Management	Online/offline certification Course	8
		OR		
2	CE-EC-0307	Construction Practices		8
		OR		
3	CE-EC-0308	Industrial Internship		8

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Civil Engineering

Proposed Scheme of Instructions: Final Year B. Tech. in Civil Engineering

Semester – VII

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	CE3701	Water Resources Engineering	3	--	--	3	3	20	20	60	100
2	PCC	CE3702	Design of RCC and pre-stressed Concrete structures	3	--	--	3	3	20	20	60	100
3	PEC	CE37*3	Program Elective -03	2	--	--	2	2	20	20	60	100
4	EL	CE3704	Research Methodology	3	--	--	3	3	20	20	60	100
5	MDM	##	Multi-disciplinary Minor - 05	2	--	--	2	2	20	20	60	100
6	PCC	CE3706	Design of RCC and pre-stressed Concrete structures Lab	-	-	2	2	1		50	50	100
7	EL	CE3707	Project Phase - I	--	--	16	16	8	-	100	100	200
			Total	13	0	18	31	22	100	250	450	800

##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE - In Semester Evaluation

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	07	02	02	-	-	11	-
Cumulative Sum	18	13	55	14	20	08	12	12	02

PROGRESSIVE TOTAL CREDITS: 132+22 =154

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Civil Engineering

Proposed Scheme of Instructions: Final Year B. Tech. in Civil Engineering

Semester – VIII (Academic Mode)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	PCC	CE3801	Management for Civil Engineering	2	--	--	2	2	20	20	60	100
2	PCC	CE3802	Design of steel structure	3	--	--	3	3	20	20	60	100
3	PEC	CE38*3	Program Elective -04	2	--	--	2	2	20	20	60	100
4	PEC	CE3804	Hydraulic Structures	3	--	--	3	3	20	20	60	100
5	MDM	##	Multi-disciplinary Minor - 06	2	--	--	2	2	20	20	60	100
6	PCC	CE3806	Design of steel structureLab	--	--	2	2	1	-	50	50	100
7	EL	CE3807	Project Phase - II	--	--	18	18	9	-	100	100	200
			Total	12	0	20	32	22	100	250	450	800

##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE- In Semester Evaluation

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	06	05	02	-	-	09	-
Cumulative Sum	18	13	61	19	22	08	12	21	02

PROGRESSIVE TOTAL CREDITS: 154+22 =176

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Civil Engineering

Proposed Scheme of Instructions: Final Year B. Tech. in Civil Engineering

Semester – VIII (Industry Mode)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	MOOC	CE3808	MOOC - I					4			100	100
2	MOOC	CE3809	MOOC - II					4			100	100
3	MDM	##	Multi-disciplinary Minor –06 (MOOC)	--	--	--	--	2	-	-	100	100
4	EL	CE3811	Internship	--	--	--	-	12	-	250	250	500
			Total	-	-	-	--	22	-	250	550	800

##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE- In Semester Evaluation

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	06	06	02	-	-	04	-
Cumulative Sum	18	13	60	19	22	08	12	22	02

PROGRESSIVE TOTAL CREDITS: 154+22 =176

Government College of Engineering, Karad

SCHEME OF INSTRUCTION & SYLLABI

Programme: Civil Engineering

Proposed Scheme of Instructions: Final Year B. Tech. in Civil Engineering

Semester – VIII (Research Mode)

Sr. No.	Course Category	Course Code	Course Title	L	T	P	Contact Hrs/Wk	Course Credits	EXAM SCHEME			
									MSE	ISE	ESE	TOTAL
1	MOOC	CE3812	MOOC - I					4			100	100
2	MOOC	CE3814	MOOC - II					4			100	100
5	MDM	##	Multi-disciplinary Minor - 06	2	--	--	2	2	20	20	60	100
3	EL	CE3816	Research Project	--	--	24	24	12	-	250	250	500
			Total	2	-	24	26	22	20	270	510	800

##:- Any Course offered from Dept. /Inst. level MDM buckets.

L- Lecture

T-Tutorial

P-Practical

MSE- Mid Semester Examination

ISE- In Semester Evaluation

ESE- End Semester Examination (For Laboratory End Semester performance)

Course Category	Basic Science Courses (BSC)	Engineering Science Courses (ESC)	Programme Core Course (PCC)	Programme Elective Course (PEC)	Open Elective other than particular program (OE/MDM)	Vocational and Skill Enhancement Course (VSEC)	Humanities Social Science and Management (HSSM)	Experiential Learning (EL)	Co-curricular And Extracurricular Activities (CCA)
Credits	-	-	06	06	02	-	04	04	-
Cumulative Sum	18	13	60	19	22	08	12	22	02

PROGRESSIVE TOTAL CREDITS: 154+22 =176

List of Elective subject:

Elective-ICE35*4	CE3514: Remote Sensing and GIS	CE3524: Industrial Waste Treatment	CE3534: Safety Engineering	CE3544: Advanced Engineering Geology	CE3554: Repairs and Rehabilitation of Structures
Elective- I Lab CE35*9	CE3519: Remote Sensing and GIS lab	CE3529Industrial Waste Treatment lab	CE3539: Safety Engineering Lab	CE3549: Advanced Engineering Geology Lab	CE3559: Repairs and Rehabilitation of Structures Lab
Elective-II CE36*4	CE3614:Water Power Engineering	CE3624:Building Services	CE3634: Analysis of Indeterminate Structure	CE3644: Traffic Engineering	CE3654: Structural Health monitoring and NDT
Elective-II lab CE35*9	CE3610: Water Power Engineering lab	CE3620: Building Services Lab	CE3630: Analysis of Indeterminate Structure lab	CE3640: Traffic Engineering Lab	CE3650: Structural Health monitoring and NDT Lab
Elective-III CE37*3	CE3713: Environmental auditing and management system	CE3723: Urban Renewal and Redevelopment	CE3733: Professional Practices in Civil Engineering	CE3743: Advanced Construction Practices	CE3753:Advanced Structural Analysis
Elective-IV CE38*3	CE3813: Advanced Geotechnical Engineering	CE3823: Town planning and Transportation Engineering	CE3833: Air Pollution Control	CE3843: Bridge Engineering	CE3853:Advanced Design of Concrete Structures

Basic Science Courses (BSC) Bucket for Semester I							
Sr. No.	Course Code	Name	Lecture	Tutorial	Practical	Credits	Semester
1	BSC-101	Physics	2	0	2	3	I
2	BSC-102	Electromagnetism and Optics	3	0	0	3	I
3	BSC-103	Biology for Engineering	2	0	2	3	I
4	BSC-104	Mathematics-I	2	1	0	3	I
5	BSC-105	Linear Algebra and Calculus	2	1	0	3	I

Basic Science Courses (BSC) Bucket for Semester II							
Sr. No.	Course Code	Name	Lecture	Tutorial	Practical	Credits	Semester
1	BSC-201	Mathematics-II	3	1	0	3	II
2	BSC-202	Probability Statistics and Random Processes	3	1	0	3	II
3	BSC-203	Complex Analysis & Differential Equation	3	1	0	3	II
4	BSC-204	Chemistry	3	0	0	3	II
5	BSC-205	Optimization Methods and Applications	2	0	0	2	II
6	BSC-206	Environmental Science	2	0	0	2	II
7	BSC-207	Computational Statistics	2	0	0	2	II

List of Multi-disciplinary Minor (Departmental)

Offered by Department	Sr.No.	Course category	Course code & Title	Semester
Civil Engineering	1	Multi-disciplinary Minor - 01	CE3305: Basic civil engineering	III
	2	Multi-disciplinary Minor – 02	CE3404: Building materials	IV
	3	Multi-disciplinary Minor – 03	CE3505: Building planning and drawing	V
	4	Multi-disciplinary Minor Lab – 03	CE3510: Building planning and drawing lab	V
	5	Multi-disciplinary Minor – 04	CE3606: Building services	VI
	6	Multi-disciplinary Minor – 05	CE3705: Smart building I	VII
	7	Multi-disciplinary Minor - 06	CE3805: Smart building II	VIII
Mechanical Engineering	1	Multi-disciplinary Minor - 01	ME3304: Material Science	III
	2	Multi-disciplinary Minor – 02	ME3405: Analysis of Mechanical elements	IV
	3	Multi-disciplinary Minor – 03	ME3505: Thermal Engineering	V
	4	Multi-disciplinary Minor Lab – 03	ME3509: Mechanical Engineering Lab	V
	5	Multi-disciplinary Minor – 04	ME3606: Manufacturing Engineering	VI
	6	Multi-disciplinary Minor – 05	ME3705: Energy Conservation and Management	VII
	7	Multi-disciplinary Minor - 06	ME3805: Mechanical System Design	VIII
Electrical Engineering	1	Multi-disciplinary Minor - 01	EE3304: DC Machines and Transformers	III
	2	Multi-disciplinary Minor – 02	EE3404: AC Machines	IV
	3	Multi-disciplinary Minor – 03	EE3505: Basics of Power System	V
	4	Multi-disciplinary Minor Lab – 03	EE3510: Electrical Machine Lab	V
	5	Multi-disciplinary Minor – 04	EE3606: Electrical Drives	VI

	6	Multi-disciplinary Minor – 05	EE3705: Switchgear and Protection	VII
	7	Multi-disciplinary Minor - 06	EE3805: Energy Management and Audit /Electrical Vehicle	VIII
Information Technology	1	Multi-disciplinary Minor - 01	IT3305: Basics of Data Structure	III
	2	Multi-disciplinary Minor – 02	IT3404:Software Essentials (OS and Application Software)	IV
	3	Multi-disciplinary Minor – 03	IT3505:Database Management Systems	V
	4	Multi-disciplinary Minor Lab – 03	IT3511:Database Management Systems Lab	V
	5	Multi-disciplinary Minor – 04	IT3604:Basics of AI and ML	VI
	6	Multi-disciplinary Minor – 05	IT3705:Python Programming	VII
	7	Multi-disciplinary Minor - 06	IT3805:Web Technology	VIII
Electronics & Telecommunications Engineering	1	Multi-disciplinary Minor - 01	EX3304: Electronic Circuits	III
	2	Multi-disciplinary Minor – 02	EX3404: Digital Electronics	IV
	3	Multi-disciplinary Minor – 03	EX3505: Signals & Systems	V
	4	Multi-disciplinary Minor Lab – 03	EX3510: Signals & Systems Laboratory	V
	5	Multi-disciplinary Minor – 04	EX3606: Communication System	VI
	6	Multi-disciplinary Minor – 05	EX3706: Microprocessor & Microcontroller	VII
	7	Multi-disciplinary Minor - 06	EX3805: Mobile Communication	VIII

List of Multi-disciplinary Minor (Institute Level-Industrial)

Stream/Technology	Sr.No.	Course category	Course code & Title	Semester
Electrical Vehicle (Electrical Engineering- Institute Level-Industrial)	1	Multi-disciplinary Minor - 01	IMI3311: Foundation of EV and Hybrid Vehicle	III
	2	Multi-disciplinary Minor – 02	IMI3412: EV Battery Technology and Powertrain Development	IV
	3	Multi-disciplinary Minor – 03	IMI3513: EV Power Electronics and Embedded System	V
	4	Multi-disciplinary Minor Lab – 03	IMI3514: Electric Vehicle Lab	V
	5	Multi-disciplinary Minor – 04	IMI3615: EV Charging Infrastructure, Vehicle Testing & Homologation	VI
	6	Multi-disciplinary Minor – 05	IMI3716: EV Vehicle Design, Analysis and Control	VII
	7	Multi-disciplinary Minor - 06	IMI3817: EV PCB Design & Data Analytics	VIII
Image Processing(ETC- Institute Level-Industrial)	1	Multi-disciplinary Minor - 01	IMI3321:Fundamentals of Image.	III
	2	Multi-disciplinary Minor – 02	IMI3422: Basics of Image Processing for Healthcare	IV
	3	Multi-disciplinary Minor – 03	IMI3523:Particle Size Analysis using Image Processing	V
	4	Multi-disciplinary Minor Lab – 03	IMI3524: Particle Size Analysis using Image Processing Lab	V
	5	Multi-disciplinary Minor – 04	IMI3625: Particle Characterization in Healthcare	VI
	6	Multi-disciplinary Minor – 05	IMI3726:Particle Characterization in Formulation and Reverse Engineering	VII
	7	Multi-disciplinary Minor - 06	IMI3827:Project	VIII
Electrical Vehicle (Mechanical Engineering- Institute Level-Industrial)	1	Multi-disciplinary Minor - 01	IMI3331:Foundation of EV and Hybrid Vehicle	III
	2	Multi-disciplinary Minor – 02	IMI3432:Automotive Mechanics for EV	IV
	3	Multi-disciplinary Minor – 03	IMI3533:EV Design, Development, Analysis and Control	V
	4	Multi-disciplinary Minor Lab – 03	IMI3534:3D modelling and simulation Lab	V
	5	Multi-disciplinary Minor – 04	IMI3635:EV Product Development, Homologation and Hydrogen FCEV	VI
	6	Multi-disciplinary Minor – 05	IMI3736:EV FEA ANALYSIS	VII
	7	Multi-disciplinary Minor - 06	IMI387:CYBER SECURITY AND DATA ANALYSIS	VIII

List of Multi-disciplinary Minor (Institute Level-Other Discipline)

Offered by Department	Sr.No.	Course category	Course code & Title	Semester
Law	1	Multi-disciplinary Minor - 01	IMO3311:Constitutional Law	III
	2	Multi-disciplinary Minor – 02	IMO3412:Human Rights & International Law	IV
	3	Multi-disciplinary Minor – 03	IMO3513:Environmental Law	V
	4	Multi-disciplinary Minor Lab – 03	IMO3514:Environmental Law Field Study	V
	5	Multi-disciplinary Minor – 04	IMO3615:Civil Procedure Code (CPC)	VI
	6	Multi-disciplinary Minor – 05	IMO3716:Intellectual Property Law	VII
	7	Multi-disciplinary Minor - 06	IMO3817:Cyber Law	VIII
Management & Finance	1	Multi-disciplinary Minor - 01	IMO3321: Microeconomics	III
	2	Multi-disciplinary Minor – 02	IMO3422: Corporate Social Responsibility	IV
	3	Multi-disciplinary Minor – 03	IMO3523: Principles of Accounting	V
	4	Multi-disciplinary Minor Lab – 03	IMO3524: Principles of Accounting Lab	V
	5	Multi-disciplinary Minor – 04	IMO3625: Business Intelligence	VI
	6	Multi-disciplinary Minor – 05	IMO3726: Marketing Research	VII
	7	Multi-disciplinary Minor - 06	IMO3827: Corporate Governance and Business Ethics	VIII

Civil Engineering Department

List of Open Elective (Offline Mode)

Open Elective	Course Code	Course Title
Open Elective-I	CE3316	Environmental Chemistry
Open Elective-I lab	CE3321	Environmental Chemistry Lab
Open Elective-II	CE3415	Project Management
Open Elective-III	CE3516	Environmental Impact Assessment

List of Open Elective (MOOCs Mode)

Open Elective	Course Code	Course Title
Open Elective-I	CE3326	Environmental Chemistry
Open Elective-I lab	CE3331	Environmental Chemistry Lab
Open Elective-II	CE3425	Project Management
Open Elective-III	CE3526	Environmental Impact Assessment

Mechanical Engineering Department

List of Open Elective (Offline Mode)

Open Elective	Course Code	Course Title
Open Elective-I	ME3315	Industrial Instrumentation
Open Elective-I lab	ME3312	Industrial Instrumentation Lab
Open Elective-II	ME3416	Industrial Safety
Open Elective-III	ME3516	Entrepreneurship Development

List of Open Elective (MOOCs Mode)

Open Elective	Course Code	Course Title
Open Elective-I	ME3325	Control systems
Open Elective-I lab	ME3322	Instrumentation and Control Lab
Open Elective-II	ME3426	Industrial Safety
Open Elective-III	ME3526	Entrepreneurship

Electrical Engineering Department

List of Open Elective (Offline Mode)

Open Elective	Course Code	Course Title
Open Elective-I	EE3315	Sustainable Energy Systems
Open Elective-I lab	EE3316	Sustainable Energy Systems Lab
Open Elective-II	EE3417	Robotics and Automation
Open Elective-III	EE3518	Optimization Techniques or Electrical vehicle system

List of Open Elective (MOOCs Mode)

Open Elective	Course Code	Course Title
Open Elective-I	EE3325	Energy Systems Engineering
Open Elective-I lab	EE3326	Energy Systems Engineering Lab
Open Elective-II	EE3427	Power System Engineering
Open Elective-III	EE3528	Optimization Techniques

Electronics & Telecommunications Engineering Department

List of Open Elective (Offline Mode)

Open Elective	Course Code	Course Title
Open Elective-I	EX3315	Digital System Design
Open Elective-I lab	EX3310	Digital System Design Laboratory
Open Elective-II	EX3415	Microcontroller and Interfacing
Open Elective-III	EX3516	Embedded Systems and RTOS

List of Open Elective (MOOCs Mode)

Open Elective	Course Code	Course Title
Open Elective-I	EX3325	Digital Electronics
Open Elective-I lab	EX3320	Digital Electronics Laboratory
Open Elective-II	EX3425	Microprocessor and Microcontroller
Open Elective-III	EX3526	Embedded Systems

Information Technology Department

List of Open Elective (Offline Mode)

Open Elective	Course Code	Course Title
Open Elective-I	IT3316	Internet of Things
Open Elective-I lab	IT3311	Internet of Things Lab
Open Elective-II	IT3415	Robotics and Automation
Open Elective-III	IT3516	Augmented Reality and Virtual Reality

List of Open Elective (MOOCs Mode)

Open Elective	Course Code	Course Title
Open Elective-I	IT3326	Sensors and Internet of Things
Open Elective-I lab	IT3321	Sensors and Internet of Things Lab
Open Elective-II	IT3425	Robotics and Automation
Open Elective-III	IT3526	Multimedia and Reality

Institute Level- Industrial orientated Open Elective

AIDSML

Open Elective	Course Code	Course Title	Sem
Open Elective-I	IOE3311	Foundations of AI, Data Science, and Data Engineering”	III
Open Elective-I lab	IOE3312	Foundations for AI, Data Science, and Data Engineering Lab”	III
Open Elective-II	IOE3413	Advanced AI Integration	IV
Open Elective-III	IOE3514	AI Applications and Emerging Technologies	V

AIOT

Open Elective	Course Code	Course Title	Sem
Open Elective-I	IOE3321	IoT Hardware and Sensors	III
Open Elective-I lab	IOE3322	IoT Hardware and Sensors lab	III
Open Elective-II	IOE3423	Fundamentals of AIoT	IV
Open Elective-III	IOE3524	Cloud Services for IoT	V

ARVR

Open Elective	Course Code	Course Title	Sem
Open Elective-I	IOE3331	AR/VR Application Development	III
Open Elective-I lab	IOE3332	AR/VR Application Development lab	III
Open Elective-II	IOE3433	Fundamentals of Real-time Rendering	IV
Open Elective-III	IOE3534	Game Development with Unreal Engine	V

ERP-SAP

Open Elective	Course Code	Course Title	Sem
Open Elective-I	IOE3341	ABAP Programming for SAP HANA	III
Open Elective-I lab	IOE3342	ABAP programming in Eclipse LAB	III
Open Elective-II	IOE3443	SAP HANA	IV
Open Elective-III	IOE3544	SAP PROJECT	V

BASKET OF BASIC SCIENCES COURSES (BSC)

LIST OF BSC COURSES OFFERED SEMESTER WISE						
SEMESTER I						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE3101	Applied Physics	3	--	--	3
2.	CE3102	Applied Mathematics - I	3	1	--	4
3.	CE3106	Applied Physics Lab	--	--	2	1
SEMESTER II						
4.	CE3201	Applied Mathematics - II	3	1	--	4
5.	CE3202	Applied Chemistry	3	--	--	3
6.	CE3206	Applied Chemistry Lab	--	--	2	1
SEMESTER III						
7.	CE3301	Applied Mathematics-III	2	-	-	2
TOTAL						18

BASKET OF ENGINEERING SCIENCE COURSES (ESC)

LIST OF ESC COURSES OFFERED SEMESTER WISE						
SEMESTER I						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE3103	Basics of Civil Engineering	3	--	--	3
2.	CE3104	Engineering Graphics	3	--	–	3
3.	CE3105	Design Thinking	1	--	2	2
4.	CE3107	Engineering Graphics Lab	--	--	2	1
SEMESTER II						
4.	CE3203	Programming for problem solving	3	--	--	3
5.	CE3207	Programming for problem solving Lab	-	-	2	1
TOTAL						13

BASKET OF PROGRAMME ELECTIVE COURSE (PEC)

LIST OF PEC COURSES OFFERED SEMESTER WISE						
SEMESTER V						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE35*4	Program Elective-01	3	--	--	3
2.	CE35*9	Program Elective-01 Lab	--	--	2	1
SEMESTER VI						
3.	CE36*4	Program Elective-02	3	--	--	3
4.	CE3605	Environmental Engineering	3	--	--	3
5.	CE36*0	Program Elective -02 Lab	--	--	2	1
6.	CE3611	Environmental Engineering Lab	--	--	2	1
SEMESTER VII						
7.	CE37*3	Program Elective -03	2	--	--	2
SEMESTER VIII						
8.	CE38*3	Program Elective-04	2	--	--	2
9.	CE3804	Hydraulic Structures	3	--	--	3
TOTAL						19

BASKET OF PROGRAMME CORE COURSE (PCC)

LIST OF BSC COURSES OFFERED SEMESTER WISE						
SEMESTER II						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE3204	Engineering Mechanics	3	1	--	4
2.	CE3208	Engineering Mechanics Lab	--	--	2	1
SEMESTER III						
3.	CE3302	Surveying	3	--	--	3
4.	CE3303	Geoscience	2	--	--	2
5.	CE3304	Mechanics of Materials	3	--	--	3
6.	CE3309	Surveying Lab	--	--	2	1
7.	CE3310	Mechanics of Materials Lab	--	--	2	1
SEMESTER IV						
8.	CE3401	Geotechnical Engineering	3	--	--	3
9.	CE3402	Concrete Technology	3	-	--	3
10.	CE3403	Fluid Mechanics	3	--	--	3
11.	CE3409	Concrete TechnologyLab	--	--	2	1
12.	CE3412	Fluid Mechanics Lab	--	--	2	1
SEMESTER V						
13.	CE3501	Structural Mechanics	3	--	--	3
14.	CE3502	Building Planning and Design	3	--	--	3
15.	CE3503	Transportation Engineering	3	1	--	4
16.	CE3507	Building Planning and Design Lab	--	--	2	1
17.	CE3508	Transportation Engineering Lab	--	--	2	1

SEMESTER VI						
18.	CE3601	Foundation Engineering	3	--	--	3
19.	CE3602	Limit State Design of Concrete Structures	3	--	--	3
20.	CE3603	Quantity Surveying and Valuation	2	--	--	2
21.	CE3608	Limit State Design of Concrete Structures Lab	--	--	2	1
22.	CE3609	Quantity Surveying and Valuation Lab	--	--	2	1
SEMESTER VII						
23.	CE3701	Water Resources Engineering	3	--	--	3
24.	CE3702	Design of RCC and pre-stressed Concrete structures	3	--	--	3
25.	CE3706	Design of RCC and pre-stressed Concrete structures Lab	-	-	2	1
SEMESTER VIII						
26.	CE3801	Management for Civil Engineering	2	--	--	2
27.	CE3802	Design of steel structure	3	--	--	3
28.	CE3806	Design of steel structure Lab	--	--	2	1
TOTAL						61

BASKET OF OPEN ELECTIVE OTHER THAN PARTICULAR PROGRAM (OE)

LIST OF OE COURSES OFFERED SEMESTER WISE						
SEMESTER III						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE33*6	Open Elective -01	3	--	--	3
2.	CE33*1	Open Elective -01 Lab	--	--	2	1
SEMESTER IV						
4.	CE34*5	Open Elective -02	2	--	--	2
SEMESTER III						
5.	CE35*6	Open Elective -03	2	--	--	2
TOTAL						09

BASKET OF MULTIDISCIPLINARY MINOR (MDM)

LIST OF BSC COURSES OFFERED SEMESTER WISE						
SEMESTER III						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE3305	Multi-disciplinary Minor - 01	2	--	--	2
SEMESTER IV						
2.	CE3404	Multi-disciplinary Minor - 02	2	--	--	2
SEMESTER V						
3.	CE3505	Multi-disciplinary Minor - 03	3	--	--	3
4.	CE3510	Multi-disciplinary Minor – 03 Lab	--	--	2	1
SEMESTER VI						
5.	CE3606	Multi-disciplinary Minor - 04	2	--	--	2
SEMESTER VII						
6.	CE3705	Multi-disciplinary Minor - 05	2	--	--	2
SEMESTER VIII						
7.	CE3805	Multi-disciplinary Minor - 06	2	--	--	2
TOTAL						13

BASKET OF Vocational And Skill Enhancement Course (VSEC)

LIST OF VESC COURSES OFFERED SEMESTER WISE						
SEMESTER I						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE3109	Civil Workshop	--	--	4	2
SEMESTER II						
2.	CE3209	Experiential Learning Lab	2	--	2	3
SEMESTER IV						
7.	CE3408	Geotechnical Engineering Lab	--	--	4	2
SEMESTER VI						
8.	CE3607	Foundation Engineering Lab	1	--	2	2
						09

BASKET OF HUMANITIES SOCIAL SCIENCE AND MANAGEMENT (HSSM)

LIST OF HSSM COURSES OFFERED SEMESTER WISE						
SEMESTER I						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE3108	Professional Communication Skills	1	--	2	2
SEMESTER II						
2.	CE3205	Indian Knowledge Systems (MOOC)	--	--	--	2
SEMESTER III						
3.	CE3307	Universal Human Values	2	--	--	2
4.	CE3308	Economics for Engineer	2	--	--	2
SEMESTER IV						
5.	CE3406	Strategic Management	2	--	--	2
6.	CE3407	Professional Ethics	2	--	--	2
TOTAL						12

BASKET OF EXPERIENTIAL LEARNING (EL)

LIST OF EL COURSES OFFERED SEMESTER WISE						
SEMESTER IV						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE3410	Community Engagement Project	--	--	2	1
SEMESTER VII						
2.	CE3704	Research Methodology	3	--	--	3
3.	CE3707	Project Phase – I	--	--	16	8
SEMESTER VIII						
7.	CE3807	Project Phase – II	--	--	18	9
TOTAL						21

BASKET OF CO-CURRICULAR AND EXTRACURRICULAR ACTIVITIES(CCA)

LIST OF CCA COURSES OFFERED SEMESTER WISE						
SEMESTER I						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE3110	Yoga	--	--	2	1
SEMESTER II						
2.	CE3210	NCC/NSS/CSP/E-Cell	--	--	2	1
TOTAL						02

BASKET OF MOOC

LIST OF MOOC COURSES OFFERED SEMESTER WISE						
SEMESTER VIII (Industry Mode)						
Sr no.	Course Code	Course	L	T	P	Credits
1.	CE3808	MOOC – I	--	--	--	4
2.	CE3809	MOOC – II	--	--	--	4
3.	CE3815	Multi-disciplinary Minor – 06 (MOOC)	2	--	--	2
SEMESTER VIII (Research Mode)						
4.	CE3812	MOOC – I	--	--	--	4
5.	CE3814	MOOC – II	--	--	--	4
TOTAL						18