SANJIVANI RURAL EDUCATION SOCIETY'S

SANJIVANI COLLEGE OF ENGINEERING KOPARGAON-423603

(An Autonomous Institute Affiliated to SPPU Pune)



DEPARTMENT OF CIVIL ENGINEERING

COURSE STRUCTURE and SYLLABUS- 2021 PATTERN

Profile: Sanjivani College of Engineering was established in the year 1983. The Civil Engineering Department is a part of the institute since its inception. The Department has grown over the years with qualified teaching faculty members who are passionate to impart quality education. The department laboratories are fully equipped with latest equipment, software and with all necessary teaching aids. It is now recognized as one of the prominent departments and known for academic excellence under the Pune University. The department is having valid Accreditation by 'NBA' from 31 July 2015 to June 2025. Besides high quality teaching and instruction at UG, PG and Ph. D., the department is actively involved in basic and applied research and consultancy services. The department is providing quality technical and advisory support through consultancy to various private construction agencies, State Government, Central Government projects.

Apart from academic knowledge, we also, train our students to face the challenges in their profession by providing value added courses like Communication and Presentation skills, building of Team Sprit through field study, expert talk etc. The department also, provides an opportunity to learn software like AUTOCAD, REVIT ARCHITECTURE, STAD-PRO, ETAB, MS-PROJECT etc. to make our students more digitalized.

We arrange regular interaction of our stake holders like students, parents and faculty along with a Training and Placement cell which works full time for bright future of our students. The results are consistently above 90% and considerable number of student ranks in SPPU merit list. Students from Civil department have made incredible mark national and international levels and we are sure will continue in times to come.

The Infrastructure development in India is growing at a faster rate and there are many career paths for civil engineers. Civil engineers are essential in government sector, public and private sector and Multinational companies, to build various mega projects like highways, Industrial structures, smart cities, and reservoirs etc. The next decade will be most demanding and rewarding for Civil engineers.



Civil Engineering Department

VISION

• To become a premier source of competent Civil Engineering Professionals for providing service to the Nation.

MISSION

- To provide quality education in Civil Engineering profession.
- To impart knowledge to students for socio-economic growth of India.
- To promote Civil Engineering Graduates to become an entrepreneur.
- To motivate Civil Engineering Professionals towards competitive services, higher studies and research.

Program Educational Objectives: (PEOs)

- **PEO** 1: Excellence in civil engineering profession by acquiring knowledge of advanced civil engineering technologies.
- **PEO 2:** Capable to identify, analyze and design solutions for civil engineering problems in context of social, environmental, ethical and economic growth of the nation
- **PEO 3:** To improve their technical and professional skills through value addition programs, software's to develop a long term productive career in industry, Govt Services or an enterpreur.

Program Outcomes (POs):

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: (PSOs)

PSO1: Graduates will be able to model, analyze and design Civil Engineering Infrastructures using modern tools and technologies.

PSO2: Graduates will be able to identify and provide innovative and sustainable solutions to water, soil, and environmental problems needs including construction planning, project managements and Transportation systems.





SRES'S SANJIVANI COLLEGE OF ENGINEERING KOPARGAON

(An Autonomous Institute Affiliated to SPPU Pune) F.Y. B. TECH. COURSE STRUCTURE-2021 PATTERN

SEMESTER-I

CTDIICTIIRAL.

GROUP A	: MEC	CHANICAL, MECHA	TRON	ICS	, CI	VIL	STR	UC	TUR	AL	
		the second second		Teac	hing				Eval	uation S	cheme
Branch	Cours e Code	Course Title	Cours e type	L (hrs.)	T (hrs.	P (hrs.)	Credits	TW	CIA	ESE	То
	BS1001	Engineering Mathematics-I	TH	3	1		4		40	60	10
Mechanical Engg.	BS1002	Engineering Physics	TH	3			3		40	60	10
Mechtronic Engg.	ES1001	Engineering Graphics	ТН	2			2		20	30	50
Civil Engg. Structural Engg.	ES1003	Basic Electrical and Electronics Engineering	TH	3			3		40	60	10
Lingg.	MLC	Induction Program									
		BRANCH SPECIFIC	COUI	RSES	(ТН	EOR	Y)				
Mechanical Engg.	ES1006	Basics of Mechanical Engg.	ТН								
Mechtronic Engg.	ES1008	Theory of Development and Engineering Thinking	TH	2			2		20	30	50
Civil Engg.	ES1009	Engg. Mechanics-Statics	TH								
Structural Engg	ES1009	Engg. Mechanics-Statics	TH								
		TERN	I WOR	K				V-03-3			
	BS1102	Engineering Physics Lab	TW			2	1	25			25
Mechanical	ES1101	Engineering Graphics	TW			2	1				
Engg. Mechtronic Engg.	ES1103	Basic Electrical and Electronics Engineering Lab.	TW			2	1	25			25
Civil Engg. Structural Engg.	HS1101 HS1102 HS1103	Lab.I	TW			2	1	50			50
		TERM WORK (BRANC		CIFI	CC	OUR	SES)				
Mechanical Engg.	ES1106	Basics of Mechanical Engg Lab.	TW								
Mechtronic Engg.	ES1108	Theory of Development and Engineering Thinking Lab.	TW	· 		2					
Civil Engg.	ES1109	Engg. Mechanics-Statics Lab	TW			2	1	50			50
Structural	ES1109	Engg. Mechanics-Statics Lab	TW						· 		
Engg.		Total nal Assessment TW - Ter		13	01	10	19	175	160	240	575



SRES'S SANJIVANI COLLEGE OF ENGINEERING KOPARGAON

(An Autonomous Institute Affiliated to SPPU Pune)
F.Y. B. TECH. COURSE STRUCTURE – 2021 PATTERN

SEMESTER-II

GROUP A: MECHANICAL, MECHATRONICS, CIVIL, STRUCTURAL

	Cours		Cours		eachi Schen		Credit	E	valua	tion S	Scheme
Branch	e	Course Title	e	L	\mathbf{T}_{i}	P	S	erri l	CT		
经验证 医多种皮肤	Code		type	(hrs.	(hrs.	(hrs.		T	CIA	ESE	Total
	BS2004	Engineering Mathematics- II	TH	3	1		4		40	60	100
Mechanical Engg.	BS1003	Engineering Chemistry	TH	3			3		40	60	100
Mechtronic s Engg.	ES1002	Computer Fundamentals and Programming	TH	3			3		40	60	100
Civil Engg. Structural	ES1004	IT for Engineers	TH	2			2		20	30	50
Engg.	HS2004	Physical Education and Sport	TH	1			1				
	MLC	Environmental Science	TH	2							
		BRANCH SPECIFIC	COU	RSES	(THE	ORY)				
Mechanical Engg.	ES2011	Engineering Mechanics	TH								
Mechtronics Engg.	ES2013	Engineering Mechanics	TH	000							
Civil Engg.	ES2014	Engg. Mechanics-	TH	2			2		20	30	50
Structural	ES2014	Engg. Mechanics-	TH								
Engo		TERM	I WOR	K	1		NATION.		* 1	in the	
	BS1102	Engineering Chemistry Lab.	TW			2	1	25			25
Mechanical	ES1102	Computer Fundamentals and Programming Lab.	TW			2	1	25			25
Engg. Mechtronic s Engg. Civil Engg.	HS210 1 HS210	Language Proficiency Lab.II (English/German/Japanes	TW			2	1	50			50
Structural	ES1105	Workshop Practice	TW			2	1	25			25
Engg.	HS2107	Physical Education and Sport	TW			2	1	50			50
创产的方法	数本条件的	TERM WORK (BRANC	CH SPI	ECIF	IC C	OUR	SES)			11 1	
Mechanical Engg.	ES2111	Engineering Mechanics Lab.	TW								
Mechtronics Engg.	ES2113	Engineering Mechanics Lab.	TW								
		105	ENGINE	1							

						1 2	1	50			50
Civil Engg.	ES2114	Engg.Mechanics- Dynamics Lab.	TW				•				
Structural Engg.	ES2114	Enga Mashania	TW					225	170	240	625
		Total		16	01	12	21	225	100000000000000000000000000000000000000	240	

CIA- Continuous Internal Assessment TW - Term work (Practical work in Lab.) T - Tutorial



SANJIVANI COLLEGE OF ENGINEERING KOPARGAON-423603

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DEPARTMENT OF CIVIL ENGINEERING

COURSE STRUCTURE and SYLLABUS- 2021 PATTERN

SECOND YEAR B. TECH.

(w.e.f. June 2022)

Board of Studies in Civil Engineering, June 2022

bbreviation	Full Form	Abbreviation	Full Form
BS	Basic Science	HSC	Humanity Science
PCC	Professional Core	CIA	Continuous Internal Assessment
PEC	Professional Elective	OR	Oral Examination
OE	Open Elective	PR	Practical Examination
ISE	In-Semester Evaluation	TW	Continuous Term work Evaluation
ESE	End-Semester Evaluation	MLC	Mandatory Learning Course
BS	Basic Science	PRJ	Project/Seminar/Internship/Online Course

SEMESTER-III

Cat	Code	Course Title	Hr	s/W	eek	Credits	Eval	luatio	on So	chen	ne	Total
		77	L	T	P		The	eory	OR	PR	TW	Marks
							CIA	ESE				
PCC	CE201	Solid Mechanics	4	-	-	4	40	60	-	-	-	100
BS	BS202	Engineering Mathematics-III	3	1	1 - 4	4	40	60	-	-	-	100
PCC	CE203	Surveying	4	-	-	4	40	60	-	-	-	100
PCC	CE204	Building Technology and	3	-	-	3	40	60	-	-	-	100
		Materials										neer Transpers
HSC	HS205	Universal Human Values and Ethics	3	=	-	3	40	60	-	-	-	100
PCC	CE206	Solid Mechanics Lab	7-	-	2	1	-	-	50	-	-	50
PCC	CE207	Surveying Lab	-	-	2	1	-	-	-	50	-	50
PCC	CE208	Building Technology and Basics of AUTO CAD Lab	-	-	4	2	-	-	50	-	50	100
MLC	MC210	Mandatory Course - III	2	-	-	No	-	-	-	-	-	Pass /
						Credits						Fail
		Total	19	01	08	22	200	300	100	50	50	700

	MC210	Mandatory Course-III	Constitution of India – Basic features and fundamental principles
1			



COURSE STRUCTURE and SYLLABUS- 2021 PATTERN

SECOND YEAR B. TECH.

(w.e.f. June 2022)

Board of Studies in Civil Engineering, June 2022

以为人类的	LIST OF	ABBREVIATI	
Abbreviation	Full Form	Abbreviation	Full Form
BS	Basic Science	HSC	Humanity Science
PCC	Professional Core	CIA	Continuous Internal Assessment
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BS	Basic Science	PRJ	Project/Seminar/Internship/Online Course

SEMESTER-IV

Cat	Code	Course Title	Hrs	/W	eek	Credits	Eva	luation	Scher	ne-N	Iarks	5
			L	T	P		The	eory	OR	PR	TW	Total
							CIA	ESE				
PCC	CE211	Programming in Civil	3	-	-	3	40	60	-	-	-	100
		Engineering										
PCC	CE212	Concrete Technology	3		-	3	40	60	-		-	100
PCC	CE213	Geotechnical Engineering	4	-	-	4	40	60	-	-	-	100
PCC	CE214	Analysis of Structures	3	1	-	4	40	60	-	-	-	100
PCC	CE215	Computer Aided	-		4	2	-	_	50	-	-	50
		Architectural building										
		drawing Lab										
HMSC	HS216	Corporate Readiness-I	-		2	1		-	-	-	50	50
PCC	CE217	Programming in Civil	-	-	2	1		-	-	-	50	50
		Engineering Lab										
PCC	CE218	Concrete Technology Lab	-	-	2	1		-	50	-	-	50
PCC	CE219	Geotechnical Engg. Lab	-	-	2	1		-	-	50	-	50
PRJ	CE220	Seminar/Mini Project /PBL	-	-	4	2		-	50	-	-	50
MLC	MC221	Mandatory Course-IV	2	-	-	No	-	-	-	-	-	Pass /
						Credits						Fail
		Total	15	1	16	22	160	240	150	50	100	700

MC221	Mandatory Course-IV	Innovation - Project based – Sc., Tech, Social, Design & Innovation



COURSE STRUCTURE and SYLLABUS- 2021 PATTERN

THIRD YEAR B. TECH.

(W.e.f. Aug, 2023)

Board of Studies in Civil Engineering, Aug, 2023

	LIST OF ABBREVIATIONS									
Abbreviation	Full Form	Abbreviation	Full Form							
ESC	Engineering Science	HSC	Humanity Science							
PCC	Professional Core	CIA	Continuous Internal Assessment							
PEC	Professional Elective	OR	Oral Examination							
OE	Open Elective	PR	Practical Examination							
LC	Laboratory Course	TW	Continuous Term work Evaluation							
ESE	End-Semester Evaluation	MLC	Mandatory Learning Course							
		PRJ	Project/Seminar/Internship/Online Course							

SEMESTER-V

	(Course	Hrs	./W	eek	Credits		Marks Theory OR PR TW Total							
Cat	Code	Course Title	L	T	P		Total								
							CIA	ESE							
PCC	CE301	Design of Steel Structures	3	1	-	4	40	60	-	-	-	100			
PCC	CE302	Fluid Mechanics	4		-	4	40	60	-	-	-	100			
PCC	CE303	Construction Project Management	3	-	-	3	40	60	-	-	. -	100			
PCC	CE304	Engineering Geology	3	- 2	-	3	40	60	-	-	-	100			
PEC	PE305	Professional Elective- I	3	-	-	3	40	60	-	-	-	100			
LC	CE306	Design of Steel Structures Lab	-	-	2	1	-	-	50	-		50			
LC	CE307	Fluid Mechanics Lab	-	-	2	1	-2		50	-	-	50			
PRJ	CE308	Seminar and Technical Communication Skills	- "	-	2	1	-	-	-		25	25			
LC	CE309	Computer Aided Analysis and design of Structure Lab.	-	-	2	1	-	-	-	-	25	25			
PRJ	CE310	Corporate Readiness-II	-	- 2	2	1	-	-	-	-	50	50			
MLC	MC311	Mandatory Course-V:	1	2.0	3-	Non Credit	-	-	-	-	-	Pass/Fail			
		Tota	1 17	01	10	22	200	300	100		100	700			

MC310	Mandatory Course-V	Field Practices in Civil Engineering

Dr.C.L.Jejurkar
Head of Department

Dr.A.B.Pawar **Dean Academics**

Dr.A.G.Thakur **Director**



Professional Elective- I: (PEC305)

oreoground i	Sective-1. (1 EC303)
(PE305-a):	Analysis of Indeterminate Structures
(PE305-b):	Matrix Analysis of Structure
(PE305-c):	Infrastructure Engineering and Construction Techniques
(PE305-d):	Fire safety & Disaster Management
(PE305-e):	Sustainable Building Planning



COURSE STRUCTURE and SYLLABUS- 2021 PATTERN

THIRD YEAR B. TECH. Sem-II

(W.e.f. Jan, 2024)

Board of Studies in Civil Engineering, Jan, 2024

Abbreviation	Full Form	Abbreviation	Full Form					
ESC	Engineering Science	HSC	Humanity Science					
PCC	Professional Core	CIA	Continuous Internal Assessment					
PEC	Professional Elective	OR	Oral Examination					
OE	Open Elective	PR	Practical Examination					
LC	Laboratory Course	TW	Continuous Term work Evaluation					
ESE	End-Semester Evaluation	MLC	Mandatory Learning Course					
	一种人们的	PRJ	Project/Seminar/Internship/Online Course					

SEMESTER-VI

		Course	Hrs./Week Cre			Credits		Marks					
Cat	Code	Course Title	L	T	P		The	ory	OR	PR	TW	Total	
							CIA	ESE					
PCC	CE312	Water Resources	3	-	-	3	40	60	_	- 7	-	100	
		Engineering	8				90						
PCC	CE313	Design of Reinforced	3	1	,-	4	40	60	-	-	-	100	
		Concrete Structures											
PCC	CE314	Substructure Engineering	3	-		3	40	60	-	-	-	100	
PEC	PE315	Professional Elective- II	3	-	-	3	40	60	-	-	-	100	
PRJ	PR316	IPR and EDP	2	-	-	2	20	30	-	-	-	50	
LC	CE317	Water Resources	-	-	2	1	- 1	-	50	-	-	50	
		Engineering Lab						3.4			- production		
LC	CE318	Computer Aided RCC	-	-	4	2	- N	-	50	-	-	50	
		Design Lab											
PRJ	CE319	Project Based Learning	10.200	-	2	1	-	-	-		25	25	
PRJ	CE320	Creational Activity	-	-	2	1	-	-	-	-	25	25	
MLC		Mandatory Course-	1	-	-	Non	1132	-	-	-	-	Pass/Fai	
1.20		VI(Formwork in			-	Credits							
		Constructions)		× .							N.S.		
		Total	15	01	10	20	180	270	100	-	50	600	

Dr.C.L.Jejurkar

Dr.A.B.Pawar

Dr.A.G.Thakur **Director**

Head of Department

Dean Academics

PEC-Professional Elective- II: (PE314)

PEC-1 Tolcssi	mai bicettic 220 (2.20)
(PE315-a):	Water Treatment and Distribution
(PE315-b):	Modern Surveying
(PE315-c):	Rural and Urban Town Planning
(DE315-d):	Ground Improvement Techniques
(PE314-e):	Introduction to Finite Element Method
(FE314-C).	E ENGINEES

Sanjivani College of Engineering Kopargaon-423603 Department of Civil Engineering COURSE STRUCTURE and SYLLABUS- 2021 PATTERN

FINAL YEAR B. TECH.

(W.e.f July 2024)

Board of Studies in Civil Engineering, July 2024

	LIST O	FABBREVIAT	IONS
Abbreviation	Full Form	Abbreviation	Full Form
ESC	Engineering Science	HSC	Humanity Science
PCC	Professional Core	CA	Continuous Assessment
PEC	Professional Elective	OR	Oral Examination
OEC	Open Elective	PR	Practical Examination
ISE	In-Semester Evaluation	TW	Continuous Term work Evaluation
ESE	End-Semester Evaluation	MLC	Mandatory Learning Course
		PRJ	Project/Seminar/Internship/Online Course

SEMESTER-VII

Co	ourse	Course Title	T	eacl	ing S	Scheme		Evalı	ıatior	Sche	me/	Mark	S
Cat	Code		Hr	s /V	Veek	G 11.	T	heor	y	OR	PR	TW	Total
			L	T	P	Credits	CIA	ISE	ESE			1 **	Total
PCC	CE401	Waste Water Treatment, Disposal and Recycling	3	-	-	3	40	-	60	-	-	-	100
PCC	CE402	Transportation Engineering	3	-	-	3	40	-	60	-	-	-	100
PCC	CE403	Quantity Survey, Contracts & Tenders	3	-	-	3	40	-	60	-	-	-	100
PEC	PE404	Professional Elective - III	3	-	-	3	40	-	60	-	-	-	100
PEC	PE405	Professional Elective - IV	3	-	-	3	40	-	60	-	-	=	100
LC	CE406	Characterization of Wastewater Lab	-	-	2	1	-	-	-	50	-	-	50
LC	CE407	Transportation Engineering Lab	-	-	2	1	-	-	-	-	-	25	25
LC	CE408	Professional Practice Lab	-	-	2	1	-	-	-	50	-	-	50
LC	CE409	Professional Elective-III Lab	-	-	2	1	-	-	-	25	-	-	25
PROJ	CE410	Project Stage-I	-	-	6	3	-	-	-	50	-	100	150
MLC	MC411	Mandatory Learning Course- VII (Financially Smart)	1	-	-	Non-Credit	•	-	-	-	-	-	Pass/ Fail
	COMPANIES THE STATE OF THE STAT	Total	16	-	14	22	200	-	300	175	-	125	800



FINAL YEAR B. TECH. SEM-I Electives

PEC- Profe	essional Elective-3: (PE404)	PEC- Professional Elective-4: (PE405)				
PE404-a	Design of Reinforced and Prestressed Concrete Structures	PE405-a	Dams & Hydraulic Structures			
PE404-b	Air & Noise Pollution Control	PE405-b	Foundation Engineering			
PE404-c	Advanced Concrete Technology	PE405-c	Solid Waste Management			
PE404-d	Structural Audits & Retrofitting	PE405-d	Formwork Technology & Plumbing Systems			
PE404-e	Construction Safety Management	РЕ405-е	Smart Cities Planning & Management			



DEPARTMENT OF CIVIL ENGINEERING FINAL YEAR B. TECH. SEM-II

(W.e.f. Jan 2025)

Board of Studies in Civil Engineering, Jan 2025

Abbreviation	Full Form	Abbreviation	Full Form Humanity Science				
ESC	Engineering Science	HSC					
PCC	Professional Core	CA	Continuous Assessment				
	Professional Elective	OR	Oral Examination				
OEC	Open Elective	PR	Practical Examination				
ISE	In-Semester Evaluation	TW	Continuous Term work Evaluation				
	End-Semester Evaluation	MLC	Mandatory Learning Course				
		THE PROPERTY OF THE PROPERTY O	Project/Seminar/Internship/Online Course				

SEMESTER-VIII

C	ourse	Course Title	T	each	ing S	cheme]	Evalua	tion S	chem	e/M	arks	
Cat	Code		Hr	s/W	eek	Credits	7	Theory		OR	PR	TW	Total
			L	T	P	1	CIA	ISE	ESE				
OEC	OE412	Open Elective -1	3	-	-	3	25	-	75	-	-	-	100
OEC	OE413	Open Elective -2	3	-	-	3	25	-	75	-	-	-	100
OEC	OE414	Open Elective -3	2	-	-	2	25	-	75	-	-	-	100
PRJ	CE415	Professional Internship	-	-	12	6	-	-	-	50	_	100	150
PRJ	CE416	Project Stage-II	-	-	4	2	-	-	-	50	-	-	50
		Total	08	-	16	16	75		225	100	-	100	500

Dr. C.L. Jejurkar **BOS Chairman**

Dr. A.B. Pawar **Dean Academics**

Dr. A.G. Thakur **Director**

OEC-OE412- Open Elective- 1 through NPTEL

OEC-OE413- Open Elective- 2 through NPTEL

OEC-OE414- Open Elective- 3 through NPTEL



Sr.No.	Name of NPTEL Courses	Duration
	OEC-OE412-Open Elective-I	
1)	Optimization methods for Civil Engineering	12 Weeks
2)	Waste water treatment and recycling	12 Weeks
3)	Advance concrete technology	12 Weeks
4)	Ground Improvement	12 Weeks
	OEC-OE413-Open Elective-II	
1)	Bridge Engineering	12 Weeks
2)	Sustainable transportation systems	12 Weeks
3)	Pavement materials	12 Weeks
4)	Railway Engineering	12 Weeks
	OEC-OE414-Open Elective-III	
1)	Principals of construction management	8 Weeks
2)	Remote sensing and GIS	8 Weeks
3)	Sustainable engineering construction and life cycle analysis	8 Weeks
4)	River Engineering	8 Weeks

