



DEPARTMENT OF CIVIL ENGINEERING
COURSE STRUCTURE and SYLLABUS- Revised 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 Spirit 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.
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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 entrepreneur.

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
REVISED W.E.F.A.Y 2022-23

SEMESTER-I

GROUP A: MECHANICAL, MECHATRONICS, CIVIL, STRUCTURAL ENGG.

Branch	Course Code	Course Title	Course	Teaching			Credits	Evaluation Scheme			
				L (hrs.)	T (hrs.)	P (hrs.)		T	CIA	ESE	Total
Mechanical Engg. Mechatronics Engg. Civil Engg. Structural Engg.	BS1001	Engineering Mathematics-I	TH	3	1	--	4	--	40	60	100
	BS100	Engineering Physics	TH	3	--	--	3	--	40	60	100
	ES1001	Engineering Graphics	TH	2 ⁺	--	--	2	--	20	30	50
	ES1002	Computer Fundamentals and	TH	3	--	--	3	--	40	60	100
	MLC	Induction Program	--	--	--	--	--	--	--	--	--
BRANCH SPECIFIC COURSES(THEORY)											
Mechanical	ES1006	Basics of Mechanical Engg.	TH	2	--	--	2	--	20	30	50
Mechatronics Engg.	ES1008	Theory of Development and Engineering Thinking	TH		--	--		--			
Civil Engg.	ES100	Engg. Mechanics-Statics	TH		--	--		--			
Structural	ES1009	Engg. Mechanics-Statics	TH		--	--		--			
TERM WORK											
Mechanical Engg. Mechatronics Engg. Civil Engg. Structural Engg.	BS110	Engineering Physics Lab	TW	--	--	2	1	25	--	--	25
	ES1101	Engineering Graphics Lab.	TW	--	--	2	1	25		-	25
	ES1102	Computer Fundamentals and	TW	--	--	2	1	25	--	--	25
	HS1101 HS110	Language Proficiency Lab.I (English/German/Japanese)	PR	--	--	2	1			50 [#]	50
TERM WORK (BRANCH-SPECIFIC COURSES)											
Mechanical Engg.	ES110	Basics of Mechanical Engg	TW	--	--	2	1	25	--	--	25
Mechatronics Engg.	ES1108	Theory of Development and Engineering Thinking Lab.	TW	--	--				--	--	
Civil Engg.	ES110	Engg. Mechanics-Statics	TW	--	--				--	--	
Structural	ES110	Engg. Mechanics-Statics	TW	--	--				--	--	
		Total		13	01	10	19	10	160	290	550

CIA- Continuous Internal Assessment
Tutorial

TW - Term work (Practical work in Lab.)

T -

: This ESE will be conducted internally by the Course Teacher. + : 01 Add-on Lecture is permitted.



SRES'S SANJIVANI COLLEGE OF ENGINEERING KOPARGAON

(An Autonomous Institute Affiliated to SPPU Pune)

F.Y. B. TECH. COURSE STRUCTURE – 2021 PATTERN

REVISED W.E.F A.Y 2022-23

SEMESTER-II

GROUP A: MECHANICAL, MECHATRONICS, CIVIL, STRUCTURAL ENGG.

Branch	Course Code	Course Title	Course type	Teaching			Credits	Evaluation Scheme			
				L (hrs.)	T (hrs.)	P (hrs.)		T	CIA	ESE	Total
Mechanical Engg. Mechatronics Engg. Civil Engg. Structural Engg.	BS2004	Engineering Mathematics-II	TH	3	1	--	4	--	40	60	100
	BS1002	Engineering Chemistry	TH	3	--	--	3	--	40	60	100
	ES1002	Basic Electrical and Electronics Engineering	TH	3	--	--	3	--	40	60	100
	ES1004	IT for Engineers	TH	2	--	--	2	--	20	30	50
	HS2004	Physical Education and Sport	TH	1	--	--	1	--	--	--	--
	MLC	Environmental Science	TH	2	--	--	--	--	--	--	--
BRANCH SPECIFIC COURSES(THEORY)											
Mechanical Engg.	ES2011	Engineering Mechanics	TH	2	--	--	2	--	20	30	50
Mechatronics Engg.	ES2012	Engineering Mechanics	TH		--	--		--			
Civil Engg.	ES2014	Engg. Mechanics-	TH		--	--		--			
Structural Engg.	ES2014	Engg. Mechanics-Dynamics	TH		--	--		--			
TERM WORK											
Mechanical Engg. Mechatronics Engg. Civil Engg. Structural Engg.	BS110	Engineering Chemistry	TW	--	--	2	1	25	--	--	25
	ES1102	Basic Electrical and Electronics Engineering	TW	--	--	2	1	25	--	--	25
	HS2101	Language Proficiency Lab.II	PR	--	--	2	1	--		50 [#]	50
	ES1105	Workshop Practice	TW	--	--	2	1	25	--	--	25
	HS210	Physical Education and Sport	TW	--	--	2	1	50	--	--	50
TERM WORK (BRANCH SPECIFIC COURSES)											
Mechanical Engg.	ES2112	Engineering Mechanics Lab.	TW	--	--	2	1	25	--	--	25
Mechatronics Engg.	ES2112	Engineering Mechanics Lab.	TW	--	--				--	--	
Civil Engg.	ES2114	Engg.Mechanics-Dynamics	TW	--	--				--	--	
Structural Engg.	ES2114	Engg Mechanics-Dynamics	TW	--	--				--	--	
		Total		16	01	12	21	150	160	290	600

CIA- Continuous Internal Assessment TW - Term work (Practical work in Lab.) T- Tutorial # : This ESE will be conducted internally by the Course Teacher.



SANJIVANI COLLEGE OF ENGINEERING KOPARGAON-423603

(An Autonomous Institute Affiliated to SPPU Pune)

DEPARTMENT OF CIVIL ENGINEERING

COURSE STRUCTURE and SYLLABUS- Revised 2021 PATTERN

SECOND YEAR B. TECH., SEM-I

(w.e.f. Aug 2023)

Board of Studies in Civil Engineering, Aug 2023

LIST OF ABBREVIATIONS			
Abbreviation	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
LC	Laboratory course	TW	Continuous Term work Evaluation
ESE	End-Semester Evaluation	MLC	Mandatory Learning Course
		PRJ	Project/Seminar/Internship/Online Course

SEMESTER-III

Course			Hrs./Week				Evaluation Scheme-Marks					Total Marks
Cat	Code	Course Title	L	T	P	Credits	Theory		OR	PR	TW	
							CIA	ESE				
PCC	CE201	Solid Mechanics	3	1	-	4	40	60	-	-	-	100
BS	BS202	Engineering Mathematics-III	3	1	-	4	40	60	-	-	-	100
PCC	CE203	Surveying	4	-	-	3	40	60	-	-	-	100
PCC	CE204	Building Technology and Materials	3	-	-	3	40	60	-	-	-	100
HSC	HS205	Universal Human Values and Ethics	3	-	-	3	40	60	-	-	-	100
LC	CE206	Solid Mechanics Lab	-	-	2	1	-	-	50	-	-	50
LC	CE207	Surveying Lab	-	-	4	2	-	-	-	50	-	50
LC	CE208	Building Technology and Basics of AUTO CAD Lab	-	-	4	2	-	-	50	-	50	100
MLC	MC209	Mandatory Course – III	2	-	-	Non Credits	-	-	-	-	-	Pass/Fail
		Total	18	02	10	22	200	300	100	50	50	700

MC209	Mandatory Course-III	Constitution of India – Basic features and fundamental principles
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COURSE STRUCTURE and SYLLABUS- Revised 2021 PATTERN

SECOND YEAR B. TECH., SEM-II

(w.e.f. Jan 2024)

Board of Studies in Civil Engineering, Jan 2024

LIST OF ABBREVIATIONS			
Abbreviation	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
LC	Laboratory course	TW	Continuous Term work Evaluation
ESE	End-Semester Evaluation	MLC	Mandatory Learning Course
		PRJ	Project/Seminar/Internship/Online Course

SEMESTER-IV

Course			Hrs./Week				Evaluation Scheme-Marks					Total Marks
Cat	Code	Course Title	L	T	P	Credits	Theory		OR	PR	TW	
							CIA	ESE				
PCC	CE210	Programming in Civil Engineering	3	-	-	3	40	60	-	-	-	100
PCC	CE211	Concrete Technology	3		-	3	40	60	-		-	100
PCC	CE212	Geotechnical Engineering	3	1	-	4	40	60	-	-	-	100
PCC	CE213	Analysis of Structures	3	1	-	4	40	60	-	-	-	100
PCC	CE214	Computer Aided Architectural Building Drawing Lab	-	-	4	2	-	-	50	-	-	50
LC	CE215	Programming in Python Lab	-	-	2	1		-	-	-	50	50
LC	CE216	Concrete Technology Lab	-	-	2	1		-	50	-	-	50
LC	CE217	Geotechnical Engg. Lab	-	-	2	1		-	-	50	-	50
PRJ	CE218	Corporate Readiness-1	-		2	1		-	-	-	50	50
PRJ	CE219	PBL/Mini Project / Seminar	-	-	4	2		-	50	-	-	50
MLC	MC220	Mandatory Course-IV	2	-	-	Non Credits	-	-	-	-	-	Pass/Fail
		Total	14	2	16	22	160	240	150	50	100	700

MC221	Mandatory Course-IV	Innovation - Project based – Sc., Tech, Social, Design & Innovation
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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./Week			Credits	Marks					
Cat	Code	Course Title	L	T	P		Theory		OR	PR	TW	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	-	-	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	-	-	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	1	-	-	-	-	50	50
MLC	MC311	Mandatory Course-V:	1	-	-	Non Credit	-	-	-	-	-	Pass/Fail
		Total	17	01	10	22	200	300	100	-	100	700

MC310	Mandatory Course-V	Field Practices in Civil Engineering
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Professional Elective- I: (PEC305)

(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- Revised 2021 PATTERN

THIRD YEAR B. TECH.

(W.e.f. Jan, 2025)

Board of Studies in Civil Engineering, Jan, 2025

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
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SEMESTER-VI

Course			Hrs./Week			Credits	Marks					
Cat	Code	Course Title	L	T	P		Theory		OR	PR	TW	Total
							CIA	ESE				
PCC	CE312	Water Resources Engineering	3	-	-	3	40	60	-	-	-	100
PCC	CE313	Design of Reinforced Concrete Structures	3	1	-	4	40	60	-	-	-	100
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 Engineering Lab	-	-	2	1	-	-	50	-	-	50
LC	CE318	Computer Aided RCC Design Lab	-	-	4	2	-	-	50	-	-	50
PRJ	CE319	Project Based Learning	-	-	2	1	-	-	-		25	25
PRJ	CE320	Creational Activity	-	-	2	1	-	-	-	-	25	25
MLC	MC321	Mandatory Course- VI(Formwork in Constructions)	1	-	-	Non Credits	-	-	-	-	-	Pass/Fail
		Total	15	01	10	20	180	270	100	-	50	600

PEC-Professional Elective- II: (PE314)

(PE315-a):	Water Treatment and Distribution
(PE315-b):	Modern Surveying
(PE315-c):	Rural and Urban Town Planning
(PE315-d):	Ground Improvement Techniques
(PE314-e):	Introduction to Finite Element Method



Sanjivani College of Engineering Kopergaon-423603
Department of Civil Engineering
COURSE STRUCTURE and SYLLABUS- Revised 2021 PATTERN
FINAL YEAR B. TECH.

(W.e.f July 2025)

Board of Studies in Civil Engineering, July 2025

LIST OF ABBREVIATIONS

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

Course		Course Title	Teaching Scheme				Evaluation Scheme / Marks						
Cat	Code		Hrs /Week			Credits	Theory			OR	PR	TW	Total
			L	T	P		CIA	ISE	ESE				
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	PE409	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
		Total	16	-	14	22	200	-	300	175	-	125	800



FINAL YEAR B. TECH. SEM-I Electives

PEC- Professional 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	PE405-e	Smart Cities Planning & Management

Dr. A. S. Sayyad
Head of Department

Dr. A. B. Pawar
Dean Academics

Dr. M. V. Nagarhalli
Director



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

(W.e.f. Jan 2026)

Board of Studies in Civil Engineering, Jan 2026

LIST OF ABBREVIATIONS			
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-VIII

Course		Course Title	Teaching Scheme				Evaluation Scheme / Marks						
Cat	Code		Hrs /Week			Credits	Theory			OR	PR	TW	Total
			L	T	P		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

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/ Course ID	Online Link
	OEC-OE412-Open Elective-I	12 Weeks	
1	Availability and Management of Groundwater Recourses	noc25_ce143	https://onlinecourses.nptel.ac.in/noc25_ce143/preview
	OEC-OE413-Open Elective-II	12 Weeks	
2	Indoor Air Pollution: Sources, Effects, Monitoring, Control and Modeling	noc25_ce142	https://onlinecourses.nptel.ac.in/noc25_ce142/preview
	OEC-OE414-Open Elective-III	8 Weeks	
3	Project Planning and Control	noc25_ce91	https://onlinecourses.nptel.ac.in/noc25_ce91/preview

