

KOLHAPUR INSTITUTE
OF TECHNOLOGY'S
**COLLEGE OF
ENGINEERING**
(AUTONOMOUS),
KOLHAPUR

**Structure for
B.Tech in
Civil and Environmental Engineering
(To be Implemented w.e.f. Academic Year 2022-23)**

**Department of Civil and Environmental Engineering
Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur,
Maharashtra, INDIA**

Recd Head
08/09/2022
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Head,
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College of Engineering (Autonomous)
Kolhapur



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**Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING**

VISION AND MISSION OF INSTITUTE

VISION:

- To be the Centre of Excellence in technical education and preferred choice of Faculty, Students, Industry and Society.

MISSION:

- To empower the faculty, staff and aspiring Engineers with essential technical knowledge and skills.
- To develop competence towards serving the ever changing needs of industry and society.
- To inculcate social and ethical values amongst the Students and Employees.
- To strengthen collaborative Research and Consulting Environment with industry and other institutions.

VISION AND MISSION OF DEPARTMENT

VISION

- To develop as a center of excellence in Civil and Environmental Engineering Education.

MISSION

- To impart essential technical knowledge, skills and Environmental ethics.
- To develop professional capabilities to meet changing societal and industrial needs.
- To build up base for Research and Consultancy activities.

PROGRAM EDUCATION OBJECTIVES (PEOs)

PEO 1: Solve Civil and Environmental Engineering problems and pursue higher studies using solid foundation in mathematics, science and technology.

PEO2: Design, execute and operate various Civil and Environmental Systems in related fields through participative education.

PEO3: Develop skills to communicate effectively and work in a team in multidisciplinary areas.

PEO4: Respond to the challenges of issues of Civil and Environmental Engineering through research and development.

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PROGRAM OUTCOMES (POs)

Civil and Environmental Engineering Graduates will be able to:

1. Apply the knowledge of mathematics, Science and Engineering fundamentals for solution of problems of Civil and Environmental Engineering.
2. Identify, formulate, review research literature and analyze Civil and Environmental Engineering problems using fundamentals of mathematics, sciences and engineering.
3. Develop solutions for Civil and Environmental Engineering problems and design system components and processes to meet the specified needs with appropriate consideration for the public health and safety.
4. Make use of their knowledge to interpret the data by experimental analysis to provide valid conclusions.
5. Select and apply various engineering and IT tools and models to solve Civil and Environmental Engineering problems.
6. Assess societal, health, safety and legal issues by applying Civil and Environmental Engineering knowledge.
7. Assess the impact of Civil and Environmental Engineering solutions in Societal and Environmental context for Sustainable Development.
8. Practice ethical principles to fulfill responsibilities as Civil and Environmental Engineer.
9. Function effectively as an individual, and as member or leader in multidisciplinary areas.
10. Discuss effectively issues of Civil and Environmental Engineering and solutions through written and oral presentations to engineering communities and society.
11. Demonstrate knowledge and understanding of the engineering and management principles to manage Civil and Environmental Engineering projects.
12. Practice the need of lifelong learning through updating technical knowledge in the context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

1. Identify and analyze the pollution related problems generated due to urbanization and industrialization.
2. Interpret the data using various tools and techniques to provide effective and applicable solutions.

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MAPPING OF PROGRAM OUTCOMES TO PROGRAM EDUCATION OBJECTIVES

PEO	PO												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
PEO 1	3	1	2			1		1			1	2	1	3
PEO 2	2	1	3	2	1	2	1	1					2	3
PEO 3									2	3	2			2
PEO 4	2	3	2				2					2	1	3

**Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur**

Teaching and Evaluation scheme for

Second Year B. Tech. Program in Civil and Environmental Engineering Semester-III

Course Code	Course Name	Curriculum Component	Hours/Week				Evaluation Scheme				
			L	T	P	Credits	Component	Marks			
								Max	Min for Passing		
UCEC0301	Applied Mathematics	BS	3	1	-	4	ISE I	10	20	40	
							MSE	30			
							ISE II	10	20		
							ESE	50			
UCEC0302	Surveying	ES	3	-	-	3	ISE I	10	20	40	
							MSE	30			
							ISE II	10	20		
							ESE	50			
UCEC0303	Fluid Mechanics	ES	3	-	-	3	ISE I	10	20	40	
							MSE	30			
							ISE II	10	20		
							ESE	50			
UCEC0304	Solid Mechanics	PC	3	1	-	4	ISE I	10	20	40	
							MSE	30			
							ISE II	10	20		
							ESE	50			
UCEC0305	Building Materials and Concrete Technology	PC	3	-	-	3	ISE I	10	20	40	
							MSE	30			
							ISE II	10	20		
							ESE	50			
UCEA0361	Environmental Studies (Audit Course - III)	BS	2	-	-	-	ESE	100	40	40	
UCEC0331	Surveying Laboratory	ES	-	-	2	1	ISE	50	20		
							ESE (POE)	25	10		
UCEC0332	Fluid Mechanics Laboratory	ES	-	-	2	1	ISE	25	10		
							ESE (POE)	25	10		
UCEC0333	Strength of Materials Laboratory	PC	-	-	2	1	ISE	25	10		
UCEC0334	Concrete Technology Laboratory	PC	-	-	2	1	ISE	25	10		
							ESE (OE)	25	10		
UCEC0335	Building Drawing Laboratory	PC	-	-	2	1	ISE	50	20		
			17	2	10	22	500 + 250 = 750 + Audit Course				

Total Credits - 22, Total Contact hours – 29

Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur
Teaching and Evaluation scheme for

Second Year B. Tech. Program in Civil and Environmental Engineering Semester-IV

Course Code	Course Name	Curriculum Component	Hours/Week				Evaluation Scheme			
			L	T	P	Credits	Component	Marks		
								Max	Min for Passing	
UCEC0401	Environmental Chemistry and Microbiology	BS	3	-	-	3	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEC0402	Hydrology and Water Resources Engineering	PC	3	1	-	4	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEC0403	Structural Analysis	PC	3	1	-	4	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE*	50	20	
UCEC0404	Hydraulics	PC	3	-	-	3	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEC0405	Surveying and Geospatial Technology	PC	3	-	-	3	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEA0461	Constitution of India (Audit Course - IV)	HS	2	-	-	-	ESE	100	40	40
UCEC0431	Environmental Chemistry and Microbiology Laboratory	BS	-	-	2	1	ISE	25	10	
							ESE (POE)	25	10	
UCEC0432	Building Planning and Design Laboratory	PC	-	-	2	1	ISE	25	10	
							ESE (POE)	25	10	
UCEC0433	Open Channel Hydraulics Laboratory	PC	-	-	2	1	ISE	25	10	
							ESE (OE)	25	10	
UCEC0434	Geospatial Laboratory	PC	-	-	2	1	ISE	50	20	
UCEC0451	Mini Project - I	PW	-	-	2	1	ISE	50	20	
			17	2	10	22	500 + 250 = 750 + Audit Course			

Total Credits - 22, Total Contact hours – 29

Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur
Teaching and Evaluation scheme for

Third Year B. Tech. Program in Civil and Environmental Engineering Semester- V

Course Code	Course Name	Curriculum Component	Hrs/Week				Evaluation Scheme			
			L	T	P	Credits	Component	Marks		
								Max	Min for Passing	
UCEC0501	Water Supply Engineering	PC	3	1	-	4	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEC0502	Highway and Traffic Engineering	PC	3	-	-	3	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEC0503	Solid and Hazardous Waste Management	PC	4	-	-	4	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEE05**	Program Elective - I	PE	3		-	3	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEO05**	Open Elective - I	OE	3	-	-	3	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEA0561	Engineering Management (Audit Course - V)	HS	2	-	-	-	ESE	100	40	40
UCEC0531	Water Treatment Laboratory	PC	-	-	2	1	ISE	50	20	
							ESE (POE)	25	10	
UCEC0532	Transportation Engineering Laboratory	PC	-	-	2	1	ISE	25	10	
							ESE (OE)	25	10	
UCEC0533	Programming Laboratory	ES	-	-	2	1	ISE	25	10	
							ESE (POE)	25	10	
UCEC0534	Solid Waste Analysis Laboratory	PC	-	-	2	1	ISE	25	10	
UCEC0551	Mini Project - II	PW	-	-	2	1	ISE	50	20	
			18	1	10	22	500 + 250 = 750 + Audit Course			

Total Credits - 22, Total Contact hours – 29

Program Elective – I (PE-I)		Open Elective – I (OE-I)	
UCEE0521	Environmental Sanitation (PE-I)	UCEO0531	Environmental Policies and Laws (OE-I)
UCEE0522	Noise Pollution and Control (PE-I)	UCEO0532	Water Resources Management (OE-I)
UCEE0523	Construction Practices (PE-I)	UCEO0533	Sustainable Development (OE-I)

Kolhapur Institute of Technology's
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Teaching and Evaluation scheme for

Third Year B. Tech. Program in Civil and Environmental Engineering Semester- VI

Course Code	Course Name	Curriculum Component	Teaching Scheme				Evaluation Scheme			
			L	T	P	Credits	Components	Marks		
								Max	Min for Passing	
UCEC0601	Wastewater Engineering	PC	3	1	-	4	ISE-I	10	20	40
							ISE-II	10		
							MSE	30		
							ESE	50	20	
UCEC0602	Air Pollution and Control	PC	3	-	-	3	ISE-I	10	20	40
							ISE-II	10		
							MSE	30		
							ESE	50	20	
UCEC0603	Geotechnical Engineering	PC	3	-	-	3	ISE-I	10	20	40
							ISE-II	10		
							MSE	30		
							ESE	50	20	
UCEE06**	Program Elective - II	PE	3	1	-	4	ISE-I	10	20	40
							ISE-II	10		
							MSE	30		
							ESE	50	20	
UCEO06**	Open Elective - II	OE	3	-	-	3	ISE-I	10	20	40
							ISE-II	10		
							MSE	30		
							ESE	50	20	
UCEA0661	Transportation Infrastructure (Audit Course - VI)	PC	2	-	-	-	ESE	100	40	40
UCEC0631	Wastewater Engineering Laboratory	PC	-	-	2	1	ISE	25	10	
							ESE (POE)	25	10	
UCEC0632	Environmental Monitoring Laboratory	PC	-	-	2	1	ISE	25	10	
							ESE (OE)	25	10	
UCEC0633	Geotechnical Engineering Laboratory	PC	-	-	2	1	ISE	25	10	
							ESE (POE)	25	10	
UCEC0634	Design and Drawing of Environmental Systems	PC	-	-	2	1	ISE	50	20	
UCEC0651	Mini Project - III	PW	-	-	2	1	ISE	50	20	
			17	2	10	22	500 + 250 = 750 + Audit Course			

Total Credits - 22, Total Contact hours – 29

Program Elective – II (PE-II)		Open Elective – II (OE-II)	
UCEE0621	Renewable Energy Resources (PE-II)	UCEO0631	Environmental Impact Assessment (OE-II)
UCEE0622	Irrigation and Hydraulic Structures (PE-II)	UCEO0632	Waste Management (OE-II)
UCEE0623	Green Buildings (PE-II)	UCEO0633	Green Buildings (OE-II)
UCEE0624	Design of Steel Structures (PE-II)		

**Kolhapur Institute of Technology's
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Teaching and Evaluation scheme for

Final Year B. Tech. Program in Civil and Environmental Engineering Semester-VII

Course Code	Course Name	Curriculum Component	Teaching Scheme				Evaluation Scheme			
			L	T	P	Credits	Components	Marks		
								Max	Min for Passing	
UCEC0701	Design of Concrete Structures	PC	3	1	-	4	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEC0702	Advanced Water and Wastewater Treatment	PC	3	-	-	3	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEC0703	Quantity Surveying and Valuation	PC	3	-	-	3	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE *	50	20	
UCEC0704	Environmental Impact Assessment and Legislation	PC	3	-	-	3	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEO07**	Program Elective - III	PE	3	-	-	3	ISE I	10	20	40
							MSE	30		
							ISE II	10		
							ESE	50	20	
UCEA0761	Foundation Engineering (Audit Course - VII)	PC	2	-	-	-	ESE	100	40	40
UCEC0731	Treatability Studies Laboratory	PC	-	-	2	1	ISE	50	20	
							ESE (OE)	25	10	
UCEC0732	Quantity Surveying and Valuation Laboratory	PC	-	-	2	1	ISE	50	20	
							ESE (POE)	25	10	
UCEC0751	Project Phase - I	PW	-	-	4	2	ISE I	50	20	
							ISE II	50	20	
			17	1	8	20	500 + 250 = 750 + Audit Course			

Total Credits – 20, Total Contact hours – 26

Sr. No.	Program Elective III (PE-III)
UCEE0721	Environment, Health and Safety (PE-III)
UCEE0722	Optimization Techniques (PE-III)
UCEE0723	Operation and Maintenance of Environmental Facilities (PE-III)

Kolhapur Institute of Technology's
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Teaching and Evaluation scheme for

Final Year B. Tech. Program in Civil and Environmental Engineering Semester-VIII

Course Code	Course Name	Curriculum Component	Teaching Scheme				Evaluation Scheme		
			L	T	P	Credits	Components	Max	Min for Passing
UCEC0851	Internship	PW	-	-	4	2	ISE I	50	20
							ISE II	50	20
UCEC0852	Project Phase - II	PW	-	-	8	4	ISE I	50	20
							ISE II	50	20
							ESE (OE)	100	40
UCEE08**	Program Elective - IV	PE	3	-	-	3	ISE-I	10	20
							ISE-II	10	
							MSE	30	
							ESE	50	20
UCEE08**	Program Elective - V	PE	3	-	-	3	ISE-I	10	20
							ISE-II	10	
							MSE	30	
							ESE	50	20
			6	-	12	12	100 + 200 + 200 = 500		

Total Credits-12, Total Contact hours – 18

Program Elective – IV (PE-IV)		Program Elective – V (PE-V)	
UCEE0821	Industrial Wastewater Treatment (PE-IV)	UCEE0824	Environmental Management System (PE-V)
UCEE0822	Project Management (PE-IV)	UCEE0825	Advanced Construction Technology (PE-V)
UCEE0823	Urban Infrastructure and Smart Cities (PE-IV)	UCEE0826	Environmental Social Governance (PE-V)

**Kolhapur Institute of Technology's
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B. Tech. Program in Civil and Environmental Engineering**

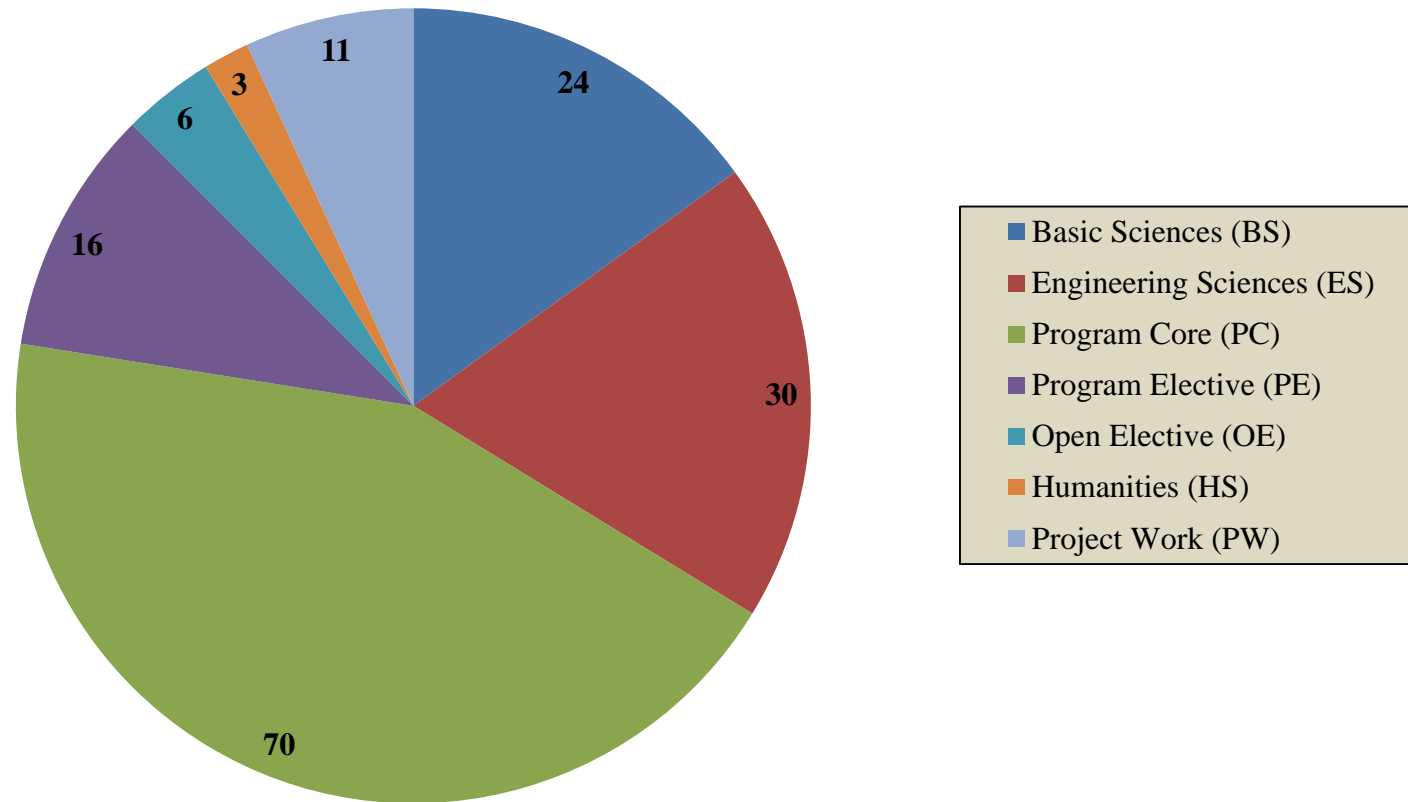
Total Credits Distribution from F.Y.B.Tech to Final Year B.Tech in Civil and Environmental Engineering

Component	F.Y.B.Tech		S.Y.B.Tech		T.Y.B.Tech		Final Year B.Tech		Total Credits	Percentage Distribution
	Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI	Sem VII	Sem VIII		
Basic Sciences (BS)	8	8	4	4	-	-	-	-	24	15.00
Engineering Sciences (ES)	9	12	8	-	1	-	-	-	30	18.75
Program Core (PC)	-	-	10	17	14	14	15	-	70	43.75
Program Elective (PE)	-	-	-	-	3	4	3	6	16	10.00
Open Elective (OE)	-	-	-	-	3	3	-	-	6	3.75
Audit Course (MC)	UHV	ED	EVS	CI	EM	TI	FE	-	Non-Credit Courses	-
Humanities (HS)	3	-	-	-	-	-	-	-	3	1.88
Project Work (PW)	-	-	-	1	1	1	2	4+2	11	6.88
Total Credits	20	20	22	22	22	22	20	12	160	100.00

Note for Mandatory Audit Courses (MC):

UHV: Universal Human Values (HS), ED: Entrepreneurship Development (HS), EVS: Environmental Studies (BS), CI: Constitution of India (HS), EM: Engineering Management (HS), TI: Transportation Infrastructure (PC), FE: Foundation Engineering (PC)

Total Credits Distribution from F.Y.B.Tech to Final Year B.Tech in Civil and Environmental Engineering



**Total Credits (%) Distribution from F.Y.B.Tech to Final Year B.Tech in
Civil and Environmental Engineering**

