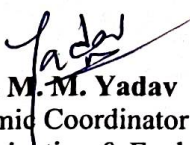




Department of Civil and Environmental Engineering

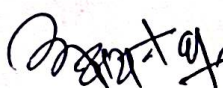
**Curriculum and Syllabus for
M. Tech in Environmental Engineering
(As Per NEP, 2020)**



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Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur
GROUP – A: M. Tech Program in Environmental Engineering
Program Outcomes (POs)

The Graduates will be able to:

Element of the Descriptor	PO Statement
Knowledge and understanding	PO1: demonstrate the advanced knowledge and understanding of the research principles, methods, and techniques applicable to the field of Environmental Engineering or professional practice.
General, technical and professional skills required to perform and accomplish tasks	PO2: illustrate advanced cognitive and technical skills required for performing and accomplishing complex tasks related to the field of Environmental Engineering.
Application of knowledge and skills	PO3: apply advanced knowledge relating to research methods to carry out research and investigations to formulate evidence-based solutions to complex and unpredictable problems in the field of Environmental Engineering.
Generic learning outcomes	PO4: communicate, in a well-structured manner, technical information and explanations, and the findings of the research studies undertaken in the field of Environmental Engineering.
Constitutional, humanistic, ethical and moral values	PO5: embrace and practice constitutional, humanistic, ethical, and moral values in the field of Environmental Engineering and professional practice to address environmental protection and sustainable development issues.
Employability and job-ready skills, and entrepreneurship skills and capabilities/qualities and mindset	PO6: develop the knowledge and skills required for managing technology-assisted work involving technological developments, innovations and entrepreneurship.

Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur
Teaching and Evaluation scheme for
GROUP – A: M. Tech Program in Environmental Engineering
Semester - I

Sr No.	Category	Course Code	Course	Teaching Scheme				Evaluation Scheme			
				L	T	P	Credits	Component	Max. Marks	Min. for Passing	
1	Program Core (PC)	MENPC0101	Air Pollution and Control	3	-	-	3	ISE1	10	20	40
								MSE	30		
								ISE2	10		
								ESE	50		
2	Program Core (PC)	MENPC0102	Physico-Chemical Processes for Water & Wastewater	3	1	-	4	ISE1	10	20	40
								MSE	30		
								ISE2	10		
								ESE	50		
3	Program Core (PC)	MENPC0103	Solid & Hazardous Waste Management	3	-	-	3	ISE1	10	20	40
								MSE	30		
								ISE2	10		
								ESE	50		
4	Programme Elective (PEC)	MENPE1***	Program Elective (PE-I)	3	-	-	3	ISE1	10	20	40
								MSE	30		
								ISE2	10		
								ESE	50		
5	Audit Course (AU)	MENAU0181	Applied Environmental Chemistry and Microbiology (AU-I)	2	-	-	0	ISE	100	40	40
6	Program Core (PC)	MENPC0131	Environmental Monitoring Lab. I	-	-	2	1	ISE	50	20	
7	Program Core (PC)	MENPC0132	Treatability Studies Lab. I	-	-	4	2	ISE	50	20	
8	Research Methodology	MENIL0171	Research Methodology	3	1	-	4	ESE	100	40	
Total:				17	2	6	20	Total Marks: 700 Total Credit: 20 Total Contact Hours/Week: 25			

List of Program Electives

Course Code	Program Elective – I
MENPE0111	Industrial Health and Safety (PE-I)
MENPE0112	Environmental Social Governance (PE-I)
MENPE0113	Operation and Maintenance of treatment Plants (PE-I)
MENPE0114	Green Buildings (PE-I)

Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur
Teaching and Evaluation scheme for
GROUP – A: M. Tech Program in Environmental Engineering
Semester- II

Sr. No.	Category	Course Code	Course	Teaching Scheme				Evaluation Scheme			
				L	T	P	Credits	Component	Marks		
									Max. Marks	Min. for Passing	
1	Program Core (PC)	MENPC0201	Industrial Waste Treatment	3	1	-	4	ISE1	10	20	40
								MSE	30		
								ISE2	10		
								ESE	50		
2	Program Core (PC)	MENPC0202	Biological Wastewater Treatment	3	1	-	4	ISE1	10	20	40
								MSE	30		
								ISE2	10		
								ESE	50		
3	Program Core (PC)	MENPC0203	Environmental Impact Assessment & Legislation	3	1	-	4	ISE1	10	20	40
								MSE	30		
								ISE2	10		
								ESE	50		
4	Programme Elective (PEC)	MENPE12**	Program Elective (PE-II)	3	-	-	3	ISE1	10	20	40
								MSE	30		
								ISE2	10		
								ESE	50		
5	Audit Course (AU)	MENAU0281	Statistical Methods and Optimization (AU-II)	2	-	-	0	ISE	100	40	40
6	Program Core (PC)	MENPC0231	Environmental Monitoring Lab. II	-	-	2	1	ISE	50	20	20
7	Program Core (PC)	MENPC0232	Treatability Studies Lab. II	-	-	4	2	ISE	50	20	20
8	Project (PP)	MENIL0271	Mini Project	-	-	4	2	ISE	100	40	
Total:				14	3	10	20	Total Marks: 700 Total Credit: 20 Total Contact Hours/Week: 27			

List of Program Electives

Course Code	Program Elective-II
MENPE0211	Environmental Modelling and Simulation (PE-II)
MENPE0212	Environmental Management System (PE-II)
MENPE0213	Environmental Geotechnology (PE-II)
MENPE0214	Watershed Management (PE-II)

Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur
 Teaching and Evaluation scheme for
GROUP – A: M. Tech Program in Environmental Engineering
Semester- III

Sr. No.	Category	Course Code	Course	Teaching Scheme				Evaluation Scheme		
				L	T	P	Credits	Component	Marks	
									Max. Marks	Min. for Passing
1	Internship/ On Job Training (OJT)	MENIL0371	Internship	-	-	20	10	ISE	100	40
2	Project (PP)	MENIL0372	Dissertation Phase I	-	-	20	10	ISE - I	25	10
				-	-			ISE – II	25	10
				-	-			ESE (OE)	100	40
Total:				-	-	40	20	Total Marks: 250 Total Credit: 20 Total Contact Hours/Week: 40 hrs.		

Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur
 Teaching and Evaluation scheme for
GROUP – A: M. Tech Program in Environmental Engineering
Semester- IV

Sr. No.	Category	Course Code	Course	Teaching Scheme				Evaluation Scheme		
				L	T	P	Credits	Component	Marks	
									Max. Marks	Min. for Passing
1	Project (PP)	MENIL0471	Dissertation Phase II	-	-	40	20	ISE – I	50	20
				-	-			ISE – II	50	20
				-	-			ESE (OE)	150	60
Total:				-	-	40	20	Total Marks: 250 Total Credit: 20 Total Contact Hours/Week: 40 hrs.		

Kolhapur Institute of Technology's
College of Engineering (Autonomous), Kolhapur
Teaching and Evaluation scheme for
GROUP – B: M. Tech Program in Environmental Engineering

Exit Courses after Semester – II

Sr. No.	Category	Course Code	Course	Teaching Scheme				Evaluation Scheme		
				L	T	P	Credits	Component	Marks	
									Max. Marks	Min. for Passing
1	Exit Course (EX)	MENEX0291	Exit Course – I Geospatial Technology	3	1	-	4	ISE	100	40
2	Exit Course (EX)	MENEX0292	Exit Course – II (Internship/ Training)	-	-	8	4	ISE	100	40
Total:				3	1	8	8	Total Marks: 200 Total Credit: 8 Total Contact Hours/Week: 12 hrs.		

Notes:

1. Workload for the course “**Mini Project**” shall be considered as 01 hour/ student/ week.
2. Workload for the course “**Internship**” shall be considered as 01 hour/ student/ week.
3. Workload for the courses “**Dissertation Phase – I**” and “**Dissertation Phase – II**” shall be considered as 05 hours/ student/ week.
4. PG Student is required to publish at least one research paper in a SCI/ SCIE/ SCOPUS/ Web of Science/ UGC CARE/ Peer-Reviewed Journal before Thesis Submission.