Techno India NJR Institute of Technology

Environmental Monitoring and Design Lab

(7CE4-24)

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For Techno India NJR Institute of Technology
पंकज पोरवाल
Dr. Pankaj Kumar Porwal
(Principal)

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Syllabus

IV Year- VIII Semester: B. Tech. (Civil Engineering)

7CE4-24: Environmental Monitoring and Design Lab

Credit 1 **Max. Marks: 50(IA:30, ETE:20)**

0L+0T+2P

Design:

1. Sewer design and estimation of Waste/Storm water bysoftware.
2. Design of Water Treatment Plant and Sewage TreatmentPlant
3. Design of Oxidation pond, stabilization pond and aeratedlagoons.
4. Design of aerobic and anaerobicdigester.

Lab:

1. Demonstration of air pollution monitoring instruments namely, High volume sampler
2. Determination of SPM, $PM_{10}$and$PM_{2.5}$.
3. Demonstration of noise pollution monitoring equipment namely, modular precision sound levelmeter.
4. Air quality monitoring for Traffic/Residential locality and its effect on the environment.
5. Noise quality monitoring for Traffic/Residential locality and its effect on the environment.
6. Latest technology for management of municipal solid waste, e-waste, bio-medical waste and their prevalent rules andregulations.

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Course Overview:

Environmental Engineering combines the principles of engineering, chemistry, and biology to provide safe water, sanitation, and clean air. With an increasing demand for safer environments, the need for highly trained environmental engineers is growing. Environmental engineers design systems that protect people and planet from the mismanagement of toxic and hazardous waste. And they develop solutions to rehabilitate impacted terrestrial and aquatic environments. From wastewater treatment systems to air quality management technologies, environmental engineers are creating a cleaner and safer tomorrow

Course Outcomes:

CO.NO.	Cognitive Level	Course Outcome
1	**Analysis**	Analyze characteristics of water and wastewater.
2	**Evaluation**	Estimate the quantity of drinking water and domestic wastewater generated.
3	**Synthesis**	Design components of water supply systems.
4	**Synthesis**	Accumulate the information about water supply fittings.
5	**Application**	Calculate physical chemical properties by lab experiments for sewage sample.

Prerequisites:

1. Analyze characteristics of water and wastewater
2. Students will develop an appreciation for the importance of environmental engineering as a major factor in preserving and protecting human health and the environment

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Course Outcome Mapping with Program Outcome:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Course Outcome	3	2	2	2	2	2	2	1	2	1	1	1	2	2	3
	3	2	2	2	2	2	1	1	2	1	2	2	2	3	3
	3	2	2	2	2	2	1	1	2	1	2	2	2	3	3
	2	2	2	2	2	2	2	1	2	2	2	2	2	1	1
	2	2	2	2	2	2	2	1	2	2	2	2	2	1	1
CO472 (AVG)	2.6	2	2	2	2	2	1.6	1	2	1.4	1.8	1.8	2	2	2.2

Course Coverage Module Wise:

Lab No.	Experiments List According to RTU Syllabus
1	Physical Characterization of water: Turbidity, Electrical Conductivity, pH
2	Analysis of solids content of water: Dissolved, Settleable, suspended, total, volatile, inorganic etc
3	Alkalinity and acidity, Hardness: total hardness, calcium and magnesium hardness
4	Optimum coagulant dose
5	Chemical Oxygen Demand (COD)
6	Dissolved Oxygen (D.O) and Biochemical Oxygen Demand (BOD)
7	Break point Chlorination
8	Bacteriological quality measurement: MPN
12	Development of Plan, Front Elevation and Sectional Elevation from line diagram
	Advance List of Experiment Beyond the RTU Syllabus

1	Field Sample Collection of Water and Sewage

Faculty Lab Manual Link

1. https://r.search.yahoo.com/_ylt=AwrxzALl4qxhC3UAPWu7HAx.;_ylu=Y29sbwNzZzMEcG9zAzEEdnRpZAMEc2VjA3Ny/RV=2/RE=1638749029/RO=10/RU=https%3a%2f%2fwww.iare.ac.in%2fsites%2fdefault%2ffiles%2flab1%2fEnvironmental_Engineering%2520_Laboratory_Lab_MANUAL.pdf/RK=2/RS=wegI0PvdQ_xKJ3fWJJE2IP5K808-

Assessment Methodology:

1. Practical exam Of Environmental lab Experiment
2. Internal exams and Viva Conduct.
3. Final Exam (practical paper) at the end of the semester.

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