DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY
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COURSE PLAN (PART I)

Name of the programme and specialization	B.Tech / Civil Engineering		
Course Title	Environmental Engineering Laboratory		
Course Code	CELR13	No. of Credits	2
Course Code of Pre-requisites	-		
Session	July / 2019	Section/s	A & B
Name of the Faculty	Mr.Samjebadurai.C	Department	Civil Engineering
E-mail	samjeba@nitt.edu	Telephone No.	9940839398
Course Coordinator(s)(if, applicable)	-		
E-mail	-	Telephone No.	-

Course Type		
		Core
		Elective
	√	Laboratory

COURSE CONTENT (Approved in Senate)

Physical characteristics of water - turbidity, suspended solids. Chemical characteristics of water - pH, hardness, alkalinity, chlorides, sulphates, iron, residual chlorine, total solids, dissolved solids, organic and inorganic solids, DO, BOD, COD. Optimum coagulant dose-Bacteriological tests - Microscopic tests.

COURSE LEARING OBJECTIVES

1. To analyse the physical and chemical characteristics of water and wastewater
2. To quantify the chemical requirement for turbidity removal
3. To familiarize the methods to estimate the organic strength of wastewater
4. To study the growth of microorganisms and its quantification

COURSE OUTCOMES (CO)

Course Outcomes (CO) & Aligned Programme Outcomes(PO)

After successful completion of the course, the students should be capable to :

CO1	Apply different analysis techniques for the measurement of physical and chemical parameters of wastewater
CO2	Quantify the pollutant concentration in water and wastewater
CO3	Recommend the degree of treatment required for the water and wastewater
CO4	Assess the microbial contamination in water

CO/PO	1	2	3	4	5	6	7	8	9	10	11	12
CO1	√	√	√	√			√					
CO2	√	√				√	√				√	
CO3		√	√	√								
CO4		√				√	√					

COURSE PLAN (PART II)

COURSE OVERVIEW

The course provides methods to estimate, analyze various constituents present in water and asses its compatibility for further utilities. And it also provides various techniques to quantify the pollution potential of wastewater.

COURSE TEACHING AND LEARNING ACTIVITIES

Sl.No.	Week	Topic	Mode of Delivery
1.	5th week of July 2019 **(3 Contact Hours)**	Determination of pH and Turbidity	Lecture / Laboratory exercise
2.	2nd week of August 2019 **(3 Contact Hours)**	Determination of Chlorides	Lecture / Laboratory exercise
3.	3rd week of August 2019 **(3 Contact Hours)**	Estimation of Total Hardness	Lecture / Laboratory exercise
4.	4th week of August 2019 **(3 Contact Hours)**	Estimation of Calcium Hardness	Lecture / Laboratory exercise
5.	5th week of August 2019 **(3 Contact Hours)**	Determination of Alkalinity	Lecture / Laboratory exercise
6.	1st week of September 2019 **(3 Contact Hours)**	Determination of Sulphates	Lecture / Laboratory exercise
7.	2nd week of September 2019 **(3 Contact Hours)**	Determination of Iron	Lecture / Laboratory exercise
8.	3rd week of September 2019 **(3 Contact Hours)**	Determination of Total Solids, Dissolved Solids, Total Suspended Solids, Fixed and Volatile Solids	Lecture / Laboratory exercise
9.	4th week of September 2019 **(3 Contact Hours)**	Determination of Optimum Coagulant Dosage	Lecture / Laboratory exercise
10.	1st week of October 2019 **(3 Contact Hours)**	Determination of Dissolved Oxygen	Lecture / Laboratory exercise
11.	2nd week of October 2019 **(Contact Hours)**	Determination of Biochemical Oxygen Demand	Lecture / Laboratory exercise
12.	3rd week of October 2019 **(3 Contact Hours)**	Determination of Chemical Oxygen Demand	Lecture / Laboratory exercise
13.	4th week of October 2019	Assessment 3	
14.	5th week of October ~~April~~ 2019 **(3 Contact Hours)**	Standard Plate Count Test	Lecture / Demonstration

COURSE ASSESSMENT METHODS

Sl. No.	Mode of Assessment	Week / Date	Duration	% Weightage
1.	Assessment 1 (Continuous Assessment on each practical session)	Weekly	NA	30%
2.	Assessment 2 (Record Work)	During the Session	NA	20%
3.	Assessment 3 (Test)	4th week of October, 2019	45 Minutes	20%
4.	End Assessment	3rd week of November, 2019	180 Minutes	30%

COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

It is proposed to take feedback from the students to evaluate the execution of the course

- Direct feedback from the students by face-to-face meeting individually and as the class as a whole.
- Feedback from the students during class committee meetings
- Exit survey from the students at the end of the session

ATTENDANCE POLICY

The attendance will be taken in all the contact hours. Students are encouraged to attend all the classes without absence. Also, the students are encouraged to participate in various co-curricular and extracurricular activities to enrich the academic / campus life.

a) At least 75% attendance in the course is mandatory.
b) A maximum of 10% shall be allowed under On Duty (OD) category
c) Students with less than 65% of attendance shall be prevented from writing the end assessment and shall be awarded 'V' grade.

COMPENSATION ASSESSMENT

a) Compensation Session will be provided on 2nd week of November, 2019 which is limited to only one experiment.
b) Students with valid reasons and prior permission are only allowed to appear for the compensation session.

ACADEMIC DISHONESTY AND PLAGIARISM

Academic Dishonesty

a) Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty
b) Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
c) The department disciplinary committee constituted with the faculty member, PAC Chair person, and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student found guilty,

Plagiarism

- Turing someone else work as your own without proper consent
- Providing incorrect information about the source of a quotation

ADDITIONAL COURSE INFORMATION

1. All the students are advised to check their NIT-T webmail regularly to know the updates.
2. Queries / Clarifications / Discussions (if required) may be E-mailed to me / contact me during working hours with prior intimation.

FOR APPROVAL

Mr. Samjebadurai.C **Course Faculty**	**Dr. J. Karthikeyan** **Chairman (Class Committee)**	**Dr. K. Baskar** **HoD / Civil Engineering**