



# NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

## DEPARTMENT OF CIVIL ENGINEERING

COURSE PLAN – PART I			
<b>Name of the programme and specialization</b>	B. Tech and Civil Engineering		
<b>Course Title</b>	Environmental Management and Impact Assessment		
<b>Course Code</b>	CEPE24	<b>No. of Credits</b>	3
<b>Course Code of Pre-requisite subject(s)</b>			
<b>Session</b>	July 2022	<b>Section (if, applicable)</b>	NA
<b>Name of Faculty</b>	Dr. Aneesh Mathew	<b>Department</b>	Civil Engineering
<b>Official Email</b>	aneesh@nitt.edu	<b>Telephone No.</b>	8502932688
<b>Name of Course Coordinator(s) (if, applicable)</b>	NIL		
<b>Official E-mail</b>		<b>Telephone No.</b>	
<b>Course Type (please tick appropriately)</b>	<input type="checkbox"/> Core course	<input checked="" type="checkbox"/> Elective course	
<b>Syllabus (approved in BoS)</b>			
<p>Impacts of development projects on environment and Environmental Impact Assessment (EIA) and Environmental Impact Statement (EIS) – Objectives – EIA Types – EIA in project cycle – Capacity and limitations – Legal provisions on EIA – Environmental Impact Assessment notification – Environmental Impact Assessment consultants. Methods of categorization of industries for EIA – Elements of EIA – Process screening, baseline studies, mitigation, matrices, checklist – Methods of EIA – Strength, weakness and applicability – Appropriate methodology solution. Prediction and Assessment of Impact on land, water, air, noise and energy, flora and fauna - Socio economic impact – Mathematical models for impact prediction, rapid EIA, public participation – Post environmental audit. Plan for mitigation of adverse impact on environment – Options for mitigation of impact on water, air and land, energy, flora and fauna; addressing the issues related to the project affected people – Environment Management Plan – ISO 14000. EIA case studies for new and expansion projects – wastewater treatment plants, water supply and drainage, highways and bridges, railways, dams, irrigation projects, power plants.</p> <p>References</p> <ol style="list-style-type: none"> <li>1. Canter, R. L., Environmental Impact Assessment, McGraw Hill Inc., New Delhi 1996.</li> <li>2. Anjaneyulu, Y., Environmental Impact Assessment Methodologies, B. S. Publications, Hyderabad, 2002.</li> <li>3. S. K. Shukla and P. R. Srivastava, Concepts in Environmental Impact Analysis, Common Wealth Publishers, New Delhi, 1992.</li> </ol>			



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4. John G. Rao and David C. Hooten (Ed.), Environmental Impact Analysis Handbook, McGraw Hill Book Company, 1990.

### COURSE OBJECTIVES

1. To learn the importance of environmental impact assessment in various development projects
2. To understand the legal provisions on EIA and EIA notifications
3. To brief the various methodologies involved in environmental impact assessment
4. To identify the prediction tools for the assessment of different environmental impacts
5. To describe the concepts of environmental management system.

### MAPPING OF COs with POs

Course Outcomes	Programme Outcomes (PO)
1. Analyze the environmental impacts of proposed projects	2, 4, 6, 7, 12
2. Categorize the type of EIA required for proposed projects	2, 6, 7, 10
3. Predict and assess the impact of proposed projects on the environment	1, 2, 4, 5, 7, 10
4. Use mathematical tools to predict the environmental impacts	1, 2, 4, 5, 7, 10
5. Propose proper mitigation measures to avoid environmental impacts	1, 6, 7, 8, 10, 11
6. Summaries the EIA report with suitable environmental management plan	7, 9, 10, 11, 12

### COURSE PLAN – PART II

#### COURSE OVERVIEW

In this course, Basic concept of Environmental Impact Assessment (EIA), Elements of EIA, EIA Methodologies, Prediction and Assessment of Impact on various environmental parameters will be discussed. Environmental Audit & Environmental legislation, Post Audit activities, Plan for mitigation of adverse impact on environment, various case studies regarding EIA will also be explained.

#### COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	Week 1	Introduction to the course, Definition of EIA, Basic Concept of EIA, Objectives	Power Point Presentation/ Black Board





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2	Week 2 & 3	EIA in project cycle – Capacity and limitations – Legal provisions on EIA, EIA Procedure	Power Point Presentation/ Black Board
3	Week 4 & 5	Preparation of Environmental Base Map, Classification of Environmental Parameters; Preparation of an EIA Report, Introduction, Criteria for the Selection of EIA Methodology	Power Point Presentation/ Black Board
4	Week 6 & 7	EIA Methodologies and Various EIA Methods- checklist, Matrix, Network, Adhoc and Overlay methods- Strength, weakness and applicability – Appropriate methodology solution	Power Point Presentation/ Black Board
5	Week 8	Prediction and Assessment of Impacts on Soil and Ground Water Environment, Methodology for the Prediction and Assessment of Impacts on Soil and Groundwater	Power Point Presentation/ Black Board
6	Week 9	Prediction and Assessment of Impacts on Surface Water Environment, Systematic Methods for Evaluation of Impacts of Various Developmental Activities on Surface Water Environment	Power Point Presentation/ Black Board
7	Week 10 & 11	Prediction and Assessment of Impacts on the Air and Noise Environment, Socio economic impact	Power Point Presentation/ Black Board
8	Week 12	Predictive Models for Impact Assessment	Power Point Presentation/ Black Board
9	Week 13 & 14	Post environmental audit, Environment management plan, Plan for mitigation of adverse impact on environment – Options for mitigation of impact on water, air and land, energy, flora and fauna	Power Point Presentation/ Black Board
10	Week 15 & 16	EIA case studies for new and expansion projects – wastewater treatment plants, water supply and drainage, highways and bridges, dams, irrigation projects, power plants	Power Point Presentation/ Black Board

**COURSE ASSESSMENT METHODS** (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
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1	Mid Term Test	Week 9/10	1 hour 15 minutes	30
3	Seminar	Week 8 onwards	-	10
4	Assignments	-	Assignments are to be submitted within 1-week duration	10
CPA	Compensation Assessment*	Week 16	1 Hour	30
6	Final Assessment *	Week 17/18	2 Hour	50

\*mandatory; refer to guidelines on page 6

**COURSE EXIT SURVEY** (mention the ways in which the feedback about the course shall be assessed)

It is proposed to take feedback from the students, at the end of the semester to evaluate the execution of the course.

**COURSE POLICY** (including compensation assessment to be specified)

**Mode of Correspondence:**

Mode of correspondence would be through phone/ E-mail to the class representative and vice versa.

**Compensation Assessment Policy:**

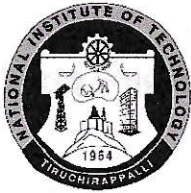
Retest will conduct to those students who have missed Mid Term Test on genuine grounds. The portions of the retest will include the portions covered till the date.

**ATTENDANCE POLICY** (A uniform attendance policy as specified below shall be followed)

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

**ACADEMIC DISHONESTY & PLAGIARISM**

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying



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from others during an assessment will be treated as punishable dishonesty.

- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

### ADDITIONAL INFORMATION, IF ANY

- For any queries or doubt clarification, students are free to contact through E-mail [aneesh@nitt.edu](mailto:aneesh@nitt.edu) or Via Phone.

### FOR APPROVAL

Course Faculty

*Anush*  
16/9/22

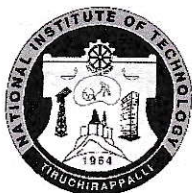
CC- Chairperson

*Abraham*  
16/09/22

HOD

*G. R.*





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### Guidelines

- a) The number of assessments for any theory course shall range from 4 to 6.
- b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.
- c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.
- d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	2017	2016	2015	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

- e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.