



NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI
DEPARTMENT OF CIVIL ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	M. Tech & Geotechnical Engineering		
Course Title	Ports and Harbor Structures		
Course Code	CE829	No. of Credits	3
Course Code of Pre-requisite subject(s)	-		
Session	January 2021	Section (if, applicable)	A/B
Name of Faculty	Dr. R. Manjula	Department	Civil Engineering
Official Email	manju@nitt.edu	Telephone No.	04312503167
Name of Course Coordinator(s) (if, applicable)	-		
Official E-mail	-	Telephone No.	
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		
Syllabus (approved in BoS)			
<p>Layout of ports – Ships and size of ships – Harbour layout – Site Characterisation & navigation channel – Bathymetric survey – Tide, surge, tsunami and waves – wind rose diagram.</p> <p>Estimation of loads – Analysis, design and construction of Port Structures – Breakwaters, Jetties, Wharves, Quays, Diaphragm Walls, Slipways, Docks – Design of breakwaters – Dredging & methods of disposal – Offshore terminals and islands – fenders and Mooring Facilities.</p> <p>Limit state and working stress method of design – crack width calculations. Integrity analysis of berthing structures – Case studies of breakwater failures and other types of structures – Partial safety factors – Codal Requirements.</p> <p>Soil – Structure interaction – Pile load tests – ground improvement techniques – Design of piles – design and construction of diaphragm walls.</p>			
COURSE OBJECTIVES			
<ol style="list-style-type: none"> 1. To estimate the loading on port and harbor structures 2. To gain knowledge of analysis and design of port and harbor structures. 3. To study concepts of shoreline evaluation, dredging etc. 			



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4. To learn the concepts constructions methodology, integrity monitoring, retrofitting and rehabilitation, according to codal requirements.
5. To understand designing of piles and diaphragm walls for ports and harbours.

MAPPING OF COs with Pos

Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
1. To estimate the loading on port and harbor structures.	1, 2
2. To analyze and design any port and harbor structure.	2
3. To apply the concepts of shoreline evaluation, dredging etc.	3
4. To utilize the concepts construction methodology, integrity monitoring, retrofitting and rehabilitation, according to codal requirements.	4
5. To design piles and diaphragm walls for ports and harbors.	5

COURSE PLAN – PART II

COURSE OVERVIEW

This course covers analysis and design of various hydraulic structures such as Earthen Dams, Arch dams, Gravity dams, Masonry dams and concrete dams

COURSE TEACHING AND LEARNING ACTIVITIES

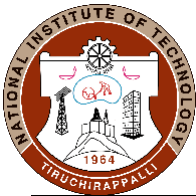
(Add more rows)

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1.	1 st week	Layout of ports – Ships and size of ships – Harbour layout	PPT and onlinemode
2.	2 nd week	Site Characterisation & nagivation channel – Bathymetric survey	PPT and onlinemode
3.	3 rd week	Tide, surge, tsunami and waves – wind rose diagram.	PPT and onlinemode
4.	4 th week	Estimation of loads – Analysis, design and construction of Post Structures	PPT and onlinemode



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5.	5 th week	Breakwaters, Jetties, Wharves, Quays, Diaphragm Walls, Slipways, Docks	PPT and onlinemode
6.	6 th week	- Do -	PPT and onlinemode
7.	7 th week	Design of breakwaters – Dredging & methods of disposal – Offshore terminals and islands	PPT and onlinemode
8.	8 th week	Fenders and Mooring Facilities. Limit state and working stress method of design	PPT and onlinemode
9.	9 th week	Crack width calculations. Integrity analysis of berthing structures	PPT and onlinemode
10.	10 th week	Case studies of breakwater failures and other types of structures	PPT and onlinemode
11.	11 th week	Partial safety factors – Codal Requirements. Soil – Structure interaction	PPT and onlinemode
12.	12 th week	Pile load tests – ground improvement techniques	PPT and onlinemode
13.	13 th week	Design of piles – design and construction of diaphragm walls	PPT and onlinemode
14.	14 th week	Design of piles – design and construction of diaphragm walls	PPT and onlinemode
15.	15 th week	Final Assessment	Onlilne mode
COURSE ASSESSMENT METHODS (shall range from 4 to 6)			



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S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Mid semester	9 th week	2 hrs	25
2	Assignments	3 rd and 8 th	-	10
3	Mini Project work	12 th week	-	25
CPA	Compensation Assessment*	11 th week	-	25
5	Online Quiz	13 th week		10
6	Final Assessment *	15 th week		30

***mandatory; refer to guidelines on page 4**

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

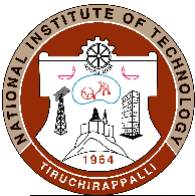
Feedback may be collected through **Questionnaire**

COURSE POLICY (including compensation assessment to be specified)

Compensation assessment is permitted due to genuine reason.

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.



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ACADEMIC DISHONESTY & PLAGIARISM

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

Course Faculty


Dr. R. Manjula

CC- Chairperson



HOD


Head
Department of Civil Engineering
National Institute of Technology
Tiruchirappalli - 620 015.



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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.