NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF CIVIL ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	**M. Tech – Structural Engineering & Transportation Engineering**		
Course Title	**Bridge Engineering**		
Course Code	**CE615**	**No. of Credits**	**3**
Course Code of Pre-requisite subject(s)			
Session	**Jan 2021**	**Section (if, applicable)**	
Name of Faculty	**Dr. Prabha Mohandoss**	**Department**	**Civil Engineering**
Email	prabham@nitt.edu	**Telephone No.**	+91 - 9894575841
Name of Course Coordinator(s) (if, applicable)	**Dr. Deendayal Rathod**		
E-mail	deendayal@nitt.edu	**Telephone No.**	
Course Type	☐ **Core course**	☑ **Elective course**	

Syllabus (approved in Senate)

Components of bridges – classification – importance of bridges – investigation for bridges – selection of bridge site – economical span – location of piers and abutments – subsoil exploration – scour depth – traffic projection – choice of bridge type.

Specification of road bridges – width of carriageway – loads to be considered - dead load – IRC standard live load – Impact effect.

General design considerations –- slab Bridge – design of T-beam bridge – prestressed concrete bridge – continuous bridge – arch Bridge – box girder bridge decks

Evaluation of sub structures – pier and abutments caps – design of pier – abutments – type of foundations.

Importance of bearings – bearings for slab bridges – bearings for girder bridges – electrometric bearing – joints – expansion joints. Construction and maintenance of bridges – lessons from bridge failures.

COURSE OBJECTIVES

1. To learn the components of bridges, classification of bridges, importance of bridges.
2. To understand the investigation for bridges, subsoil exploration, choice of bridge type.

3. To study the specification of road bridges, loads to be considered. 4. To familiarize students with various types of bridges such as slab-bridge, T-beam bridge, prestressed concrete bridge, continous bridge, arch bridge, box girder bridge decks. 5. To get exposure to evaluation of sub structures, type of foundations, importance of bearings, leassons from bridge failures.	
COURSE OUTCOMES (CO)	
Course Outcomes	**Aligned Programme Outcomes (PO)**
By the end of this course the students	
1. To be familiar with the components of bridges, classification of bridges, importance of bridges	**1 2 3**
2. To understand the investigation for bridges, subsoil exploration, choice of bridge type	**1 3 4 7 9**
3. To understand the specification of road bridges, loads to be considered	**1 3 4 7 9 11**
4. To be familiar with various types of bridges such as slab-bridge, T-beam bridge, pre-stressed concrete bridge, continuous bridge, arch bridge, box girder bridge decks	**1 3 6 7**
5. To get exposed to evaluation of sub structures, type of foundations, importance of bearings, lessons from bridge failures.	**1 3 4 7 9**

COURSE PLAN – PART II

COURSE OVERVIEW

This course uses different mode of lecture like Power point presentations, digital writing pad, Video Lectures, etc., throughout the course work for all the five units.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	1st week – 3 hours	Components of bridges and classifications	PPT & digital writing pad (Online)
2	2nd week – 3 hours	Importance of bridges – investigation for bridges – selection of bridge site	
3	3rd week – 3 hours	Location and choice of bridges	
4	4th week – 3 hours	Specifications of road bridges	
5	5th week – 3 hours	IRC loading conditions	
6	6th week – 3 hours	General design considerations – slab bridge	

7	7th week – 3 hours	Design of T beam bridge	
8	8th week – 3 hours	Prestressed concrete bridge – continuous bridge	
9	9th week – 3 hours	Arch Bridge – box girder bridge decks	
10	10th week – 3 hours	Evaluation of sub structures – pier and abutments caps	
11	11th week – 3 hours	Bearing component	
12	12th week – 3 hours	Joints – expansion joints.	
13	13th week – 3 hours	construction and maintenance of bridges –	
14	14th week – 3 hours	Lessons from bridge failures– type of foundations	
15	15th week – 3 hours	Review class / pending portions to be covered	

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Surprise quiz	Every alternate week	10 mins	5
2	Assignment –1	5th week	2 hours	10
3	Assignment - 2	10th week	2 hours	10
4	Project Presentation	15th week	15 mins	10
5	Mid semester	8th week	1 hour	35
6	Final Assessment	As per institute schedule	2 hours	30

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

The student's feedback mechanism will be followed at the end of this course through questionnaire format in MIS portal

COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)

MODE OF CORRESPONDENCE (email/ phone etc)

Apart from interactions with the students in the class, the students can also contact the concerned faculty member as given below:

Dr. Prabha Mohandoss
Email: prabham@nitt.edu
Mob: +91 9894575841

COMPENSATION ASSESSMENT POLICY

1. The students have to submit a letter and get it signed by the Head of the Department or the course coordinator/ chairman stating the reason for their absence in the exam. Only genuine cases of absence shall be considered.
2. The student can only write one compensation assessment whether he/she is found to be absent for one or both the internal assessments

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.**

MINIMUM PASS MARK POLICY

The Passing minimum mark: As per Institute norms.

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 programs.

FOR APPROVAL

Course Faculty **CC-Chairperson** 

HOD _____