DEPARTMENT OF CIVIL ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I

Course Title	Computational Laboratory		
Course Code	CELR17	**No. of Credits**	2
Course Code of Pre-requisite subject(s)	Nil		
Session	Jan 2018	**Section (if, applicable)**	B
Name of Faculty	Dr.Deendayal	**Department**	Civil Engineering
Email	deendayal@nitt.edu	**Telephone No.**	
Name of Course Coordinator(s) (if, applicable)	NA		
E-mail		**Telephone No.**	
Course Type	☐ Core course	☐ Elective course	☑ ELR

Syllabus (approved in BoS)

Solution of the following problems using MATLAB / C language / Excel

1. Design of the structural elements in concrete and steel.
2. Development of simple programs for solving Transportation Engineering problems: Highway geometrics, pavement design.
3. Development of simple programs for solving Geotechnical Engineering problems: Earth pressure, Foundation settlement and stress analysis, Consolidation.
4. Problems in Environmental and Water resources engineering: Treatment systems, Pipe networks analysis, Synthetic Unit hydrograph derivation, Flood routing, Water balance model.

Analysis, Design and Detailing packages in Structural Engineering, Transportation Engineering, Environmental and Water Resources , Geotechnical Engineering and GIS and Remote sensing applications

COURSE OBJECTIVES

- To learn the software developing skills for structural design.
- To understand the computing techniques in the field of transportation.
- To gain knowledge in problem solving in water resources.
- To learn the software skills in structural engineering, transportation engineering, geotechnical engineering and GIS and Remote Sensing.

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)
On completion of the course, the students will be able to:	
1. Apply the software skills in the transportation engineering, water resources and environmental engineering.	4, 5, 11
2. Apply computing skills to geotechnical engineering	4, 5, 11

COURSE PLAN – PART II

COURSE OVERVIEW

This course offers to develop the software and computational skills of students in different disciplines of Civil Engineering.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Date	Topic	Mode of Delivery
1	11.01.18	Design of Structural elements in Concrete and Steel – Problem solving using MATLAB	PPT/ Demonstration/ Practice
2	18.01.18	Design of Structural elements in Concrete and Steel – Problem solving using C language / Excel	PPT/ Demonstration/ Practice
3	25.01.18	Development of simple programs for solving Transportation Engineering problems: Highway geometrics	PPT/ Demonstration/ Practice
4	01.02.18	Development of simple programs for solving Geotechnical Engineering problems: Earth pressure, Foundation settlement and stress analysis, Consolidation.	PPT/ Demonstration/ Practice
5	08.02.18	Problems in Environmental and Water resources engineering: Treatment systems, Pipe networks analysis, Synthetic Unit hydrograph derivation, Flood routing, Water balance model.	PPT/ Demonstration/ Practice
6	15.02.18	Analysis, Design and Detailing Packages in Structural Engineering – Staadpro	PPT/ Demonstration/ Practice
7	08.03.18	Analysis, Design and Detailing Packages in Structural Engineering - Staadpro	PPT/ Demonstration/ Practice

8	12.03.18	Analysis, Design and Detailing Packages in Transportation Engineering–KENPAVE,IITPAVE	PPT/ Demonstration/ Practice
9	19.03.18	Analysis, Design and Detailing Packages in Environmental and Water Resources	PPT/ Demonstration/ Practice
10	26.03.18	Analysis, Design and Detailing Packages in Geotechnical Engineering	PPT/ Demonstration/ Practice
11	02.04.18	Analysis, Design and Detailing Packages in GIS and Remote Sensing	PPT/ Demonstration/ Practice

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Continuous Internal Assessment (Record / Viva Voce)	-	-	50
2	Final Assessment	3rd week of April	3 hours	50

COURSE EXIT SURVEY

- Students feedback obtained through portal section 'MIS'

COURSE POLICY

MODE OF CORRESPONDENCE (email/ phone etc)
- All the correspondence regarding the course will be communicated through webmail or intimated during class hours.
- Queries/ Clarifications (if necessary) may be e-mailed or can be communicated directly during Institute working hours.

ATTENDANCE
Every student should maintain a minimum attendance of 75% during the contact hours and assessment.

FOR APPROVAL

Course Faculty _____ CC-Chairperson _____ HOD _____