NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF CIVIL ENGINEERING

COURSE PLAN – PART I

Name of the programme and specialization	M.Tech		
Course Title	TRANSPORT OF WATER AND WASTE WATER		
Course Code	CE704	**No. of Credits**	3
Course Code of Pre-requisite subject(s)	-		
Session	~~July~~ / January __2019___	**Section (if, applicable)**	-
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)	☐ Core course	☑ Elective course	

Syllabus (approved in BoS)

Fluid properties-fluid flow -continuity principle, energy principle and momentum principle -frictional head loss in free and pressure flow, minor heads losses, Carrying Capacity -Flow measurement -Estimation of storage capacity - impounding reservoirs - intakes - gravity and pressure conduits -hydraulics of fluid flow -pumps and accessories -capacity of pumps -selection of pumps - maintenance -economic design of pumps and pumping mains , Jointing, laying and maintenance, water hammer analysis -water distribution pipe networks Design, analysis and optimization –appurtenances -corrosion prevention - minimization of water losses - leak detection -storage reservoirs -Strom water Drainage - Necessity- combined and separate system -Estimation of storm water runoff -Formulation of rainfall intensity duration and frequency relationships - Rational methods -Planning factors -Design of sanitary sewer - partial flow in sewers, economics of sewer design -Wastewater pumps and pumping stations -sewer appurtenances -material, construction, inspection and maintenance of sewers -Design of sewer outfalls -mixing conditions; transition flow critical depth in sewers -draw down curves and hydraulic jump -Use of computer software in water transmission, water distribution, sewer and storm water design – EPANET 2.0, SEWER, BRANCH and Canal ++

COURSE OBJECTIVES

1. To learn the water transmission mains
2. To study the various components of water distribution system
3. To design Sewer networks and Storm water drains
4. To utilize Computer applications in the design of water distribution and sewer networks

MAPPING OF COs with POs

Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
To select various pipe design for water, supply main, distribution Network	a,b,e

To design sewer network and water supply distribution network for various field conditions.	b,c,d
To troubleshoot water and sewage transmission	e,g
To use various computer software for the design of water and sewage network	g,h,i

COURSE PLAN – PART II

COURSE OVERVIEW

This course gives an overview of design of water supply distribution networks and sewage network and its importance.

COURSE TEACHING AND LEARNING ACTIVITIES (Add more rows)

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	1	Fluid properties-fluid flow -continuity principle, energy principle and momentum principle - frictional head loss in free and pressure flow	MD1
2	2	Minor heads losses, Carrying Capacity - Flow measurement	MD1
3	3	Estimation of storage capacity - impounding reservoirs Intakes - gravity and pressure conduits	MD1
4	4	Hydraulics of fluid flow -pumps and accessories -capacity of pumps	MD5
5	5	selection of pumps - maintenance	MD5
6	6	Economic design of pumps and pumping mains , Jointing, laying and maintenance	MD1
7	7	Water hammer analysis -water distribution pipe networks Design	MD1
8	8	Appurtenances -corrosion prevention - minimization of water losses - leak detection -storage reservoirs	MD5

9	9	Estimation of storm water runoff - Formulation of rainfall intensity duration and frequency relationships	MD1
10	10	Rational methods -Planning factors - Design of sanitary sewer -partial flow in sewers	MD1
11	11	Economics of sewer design -Wastewater pumps and pumping stations- transition flow critical depth in sewers -draw down curves and hydraulic jump	MD1
12	12	Use of computer software in water transmission, water distribution, sewer and storm water design –EPANET 2.0, SEWER, BRANCH and Canal ++	MD5

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment I	6th	1 hour	20
2	Assessment II	11th	1 hour	20
3	Assessment III (Assignment)	4th, 10th and 12th	-	10
4	Assessment IV (Final Assessment)	13th	3 hours	50

*mandatory; refer to guidelines on page 4

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

Feed back will be collected from the students

COURSE POLICY (including compensation assessment to be specified)

Only one compensation assessment will be conducted at 10th week. Those who are unable to appear Assessment I and II under medical/genuine reasons, CPA is allowed.
The minimum passing percentage is 40%

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 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 _____ CC- Chairperson _____ HOD _____