

18CEPE15		RIVER ENGINEERING			L	T	P	C
					3	0	0	3
Course Objectives:								
1.	To acquire a wide knowledge on rivers required to make an integrated river basic management plan based on natural & social sciences and engineering& technology.							
2.	To know the relation to river systems, long term environmental changes of rivers and their factors, river flows and river channel processes, river and lake ecological systems.							
3.	To study the recent characteristics of flood disasters, integrated river basin planning including flood control,							
4.	To understand the sustainable reservoir management, nature restoration, and sediment transport management							
5.	To develop the abilities to design the protection works.							
Unit I INTRODUCTION					9	+	0	
Introduction, classification of Rivers, Mechanics of alluvial rivers including channel and flood plain features, Sediment transport and budgets, River morphology and various classification schemes.								
Unit II BEHAVIOUR OF RIVER					9	+	0	
Behaviour of Rivers: Introduction, River Channel patterns, Straight river channels, causes, characteristics and shapes of meanders and control, cutoff, Braided Rivers, Bed forms, Instability of rivers, Hydraulic geometry, Delta formation and control								
Unit III MECHANICS OF RIVER					9	+	0	
Mechanics of Alluvial Rivers, Rivers and restoration structures, Socio-cultural influences and ethics of stream restoration.								
Unit IV ANALYSES AND DESIGN OF RIVER					9	+	0	
Bio-engineering Techniques, Classification review, Natural Channel Design Analysis, Time Series, Analysis of flow, Sediment and channel geometry data.								
Unit V River Training and Protection Works					9	+	0	
River Training and Protection Works: Introduction, Classification of River Training, Types of River training works, Protection for Bridges with reduced waterway, Design of Guide Band, embankment and spurs/dampners and other river/ flood protection works.								
Total = 45 Periods								
Course Outcomes:								
Upon completion of this course, the students will be able to:								
CO1	:	Design various channel systems						
CO2	:	Design head and cross regulator structures						
CO3	:	Identify various types of reservoir and their design aspects						
Text Books:								
1.	Chatterjee, S. N., Water Resources Conservation and Management, Atlantic Publishers, 2008.							
2.	Murthy, V.V.N., Land and Water Management, Khalyani Publishers, 2009.							
Reference Books:								
1.	Muthy, J. V. S., Watershed Management, New Age International Publishers, 1998.							
2.	Suresh Rao, Soil and Water Conservation Practices, Standard Publishers, 1998.							

CO-PO-PSO MAPPING

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	2	2	2	2	2	1	1	1	1	1	2	1	1
CO2	1	2	2	2	2	2	2	1	1	1	1	1	2	1	2
CO3	1	2	2	2	2	2	2	2	1	1	1	1	2	1	2

1 – Slightly

2 – Moderately

3 – Strongly