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**DR. A.P.J ABDUL KALAM TECHNICAL  
UNIVERSITY, LUCKNOW**



**EVALUATION SCHEME & SYLLABUS  
FOR  
B. TECH. THIRD YEAR  
(CIVIL ENGINEERING)**

**(Effective from session 2020-21)**

## SIXTH SEMESTER

## CIVIL ENGINEERING

SESSION 2020-21

S.No	Subject Code	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit
			L	T	P	CT	TA	Total	PS	TE	PE		
1	KCE 601	Design of Concrete Structures	3	1	0	30	20	50		100		150	4
2	KCE 602	Transportation Engineering	3	1	0	30	20	50		100		150	4
3	KCE 603	Environmental Engineering	3	1	0	30	20	50		100		150	4
4		Departmental Elective-III	3	0	0	30	20	50		100		150	3
	KCE 061	Advance Structural Analysis											
	KCE 062	River Engineering											
	KCE 063	Repair and Rehabilitation of Structures											
	KCE 064	Foundation Design											
5		Open Elective-I	3	0	0	30	20	50		100		150	3
6	KCE 651	Transportation Engineering Lab	0	0	2				25		25	50	1
7	KCE 652	Environmental Engineering Lab	0	0	2				25		25	50	1
8	KCE 653	Structural Detailing Lab	0	0	2				25		25	50	1
9	KNC601/ KNC602	Constitution of India, Law and Engineering / Indian Tradition, Culture and Society	2	0	0	15	10	25		50			
10		MOOCs (Essential for Hons. Degree)											
		Total	17	3	6							900	21

**NOTE:**

1. Regular classroom interaction with industry experts is to be ensured in all theory courses (minimum two expert talks from relevant Industry).
2. Working on experiments using virtual labs is to be ensured in lab courses.
3. Student's visit to Industry/Industry Expert's project site must be arranged as & when possible.

**Course Outcomes:**

**After completion of the course student will be able to:**

- CO-1 Explain river morphology and its classification.
- CO-2 Explain hydraulic geometry and behavior of river.
- CO-3 Explain socio-cultural influences and ethics of stream restorations.
- CO-4 Analyze flow and sediment transport in rivers and channels.
- CO-5 Design guide band, embankments and flood protection systems.

**Unit 1**

Introduction, classification of Rivers, Mechanics of alluvial rivers including channel and flood plain features, Sediment transport and budgets, River morphology and various classification schemes. [8]

**Unit 2**

Behavior 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. [8]

**Unit 3**

Mechanics of Alluvial Rivers, Rivers and restoration structures, Socio-cultural influences and ethics of stream restoration. [8]

**Unit 4**

Bio-engineering Techniques, Classification review, Natural Channel Design Analysis, Time Series, Analysis of flow, Sediment and channel geometry data. [8]

**Unit 5**

River Training and Protection Works: Introduction, Classification of River Training, Types of training works, Protection for Bridges with reduced waterway, Design of Guide Band, embankment and spurs/dampners and other river/ flood protection works. [8]

**Text book:**

1. River Behavior Management and Training (Vol. I & II), CBI&P, New Delhi.
2. Irrigation & Water Power Engineering- B. C. Punmia and Pande B. B. Lal.
3. River Engineering by Margeret Peterson
4. Principles of River Engineering by ( the non tidel alluvial) PH Jameen