

LESSON PLAN FOR RAILWAY AND BRIDGE ENGINEERING

Discipline CIVIL ENGG.	Semester: 6 th	Name of teaching faculty: RICHA SETH
Subject: RAILWAY AND BRIDGE ENGINEERING	Nos of days per week class allotted : 4	Semester from date:9.12.19 to date:31.03.20
Week	Class day	Theory topics
DEC 2 ND Week	1 ST	Railway terminology
	2 ND	Advantages of railways Classification of Indian Railways
	3 RD	Definition and components of a permanent way
	4 th	Concept of gauge, different gauges prevalent in India
DEC 3 rd Week	1 ST	suitability of these gauges under different conditions
	2	Functions and requirement of rails
	3	Types of rail sections, length of rails
	4	Rail joints – types
January 1 st week	1	Requirement of an ideal joint
	2	Purpose of welding of rails & its advantages
January 2 nd week	1	Creep definition, cause & prevention
	2	Definition, function & requirements of sleepers
	3	Classification of sleepers
	4	Advantages & disadvantages of different types of sleepers
January 3 rd week	1	Functions & requirements of ballast
	2	Materials for ballast
	3	Fixtures for Broad gauge 3.4.1 Connection of rails to rail-fishplate, fish bolts
	4	Connection of rails to sleepers
January 4 th week	1	Geometric for Broad gauge 4.1 Typical cross – sections of single & double broad gauge railway track in cutting and embankment
	2	Permanent & temporary land width
	3	Gradients for drainage
January 5 th week	1	Super elevation – necessity & limiting valued
	2	Definition, necessity of Points and crossings

	3	Types of points & crossings with tie diagram
February 2nd week	1	Methods of Laying & maintenance of track
	2	Details of a permanent way inspector
	3	Introductions to bridge engineering
	4	Definitions Components of a bridge
February 3rd week	1	Classification of bridges
	2	Requirements of an ideal bridge
	3	Bridge Site investigation, hydrology & planning
	4	Selection of bridge site
February 4th week	1	Bridge alignments
	2	Determination of flood discharge
	3	Waterway & economic span
February 5th week	1	Afflux, clearance & free board
	2	Collection of bridge design data & sub surface investigation
	3	Scour depth minimum depth of foundation
	4	Types of bridge
March 1st week	1	foundations – spread foundation,
	2	pile foundation- pile driving, well foundation – sinking of wells, caisson foundation
	3	Coffer dams
March 2 nd week	1	Bridge substructure and approaches 10.1 Types of piers
	2	Types of abutments
March 3 rd week	1	Types of wing walls
	2	Approaches
	3	Permanent bridges 11.1 Masonry bridges
	4	11.2 Steel bridges – classification with sketches
March 4 th week	1	11.3 Concrete bridges – classification, brief description with sketches
	2	11.4 IRC bridge loading
	3	Culvert & cause ways 12.1 Types of culvers - brief description
	4	12.2 Types of causeways - brief description