

JABALPUR ENGINEERING COLLEGE, JABALPUR (MP)
(An Autonomous Institute of Govt. of M.P.)
Affiliated to Rajiv Gandhi Technological University, Bhopal (MP)
Scheme of Study and Examination (w.e.f. July 2010)

BE (PTDC) Branch : Civil Engineering Sem : Sixth

		Periods			EVALUATION SCHEME					Credits
Course Code	Subject	L	T	P	SESSIONAL EXAM			ESE	SUB TOTAL	
					TA	CT	TOTAL			
CE-33	Structural Design & Drawing - II (Steel)	3	1	-	10	20	30	70	100	4
CE-35	Environmental Engineering - I	3	1	-	10	20	30	70	100	4
CE-37	Transportation Engineering - II	3	1	-	10	20	30	70	100	4
CE-40	Estimating Costing & Tendering	3	1	-	10	20	30	70	100	4

(PRACTICAL/DRAWING/DESIGN)

CE-34L	Structural Design & Drawing - II Lab	-	-	2	20	-	20	30	50	2
CE-36L	Environmental Engineering - I Lab	-	-	2	20	-	20	30	50	2
CE-38L	Transportation Engg. Lab - II	-	-	2	20	-	20	30	50	2
CE-39AL	Minor Project	-	-	2	50	-	50	-	50	2
	Total	12	4	8	150	80	230	370	600	24

T.A. Teachers Assessment, CT- Class Test, ESE - End Semester Examination, Total Marks 600 Total Periods : 24, Total Credits : 24

COURSE CONTENTS (w.e.f.)

Category of Course	Course Title	Course Code	Credits-4			Theory Papers
			L	T	P	
BE/PTDC	STRUCTURAL DESIGN & DRAWING – II (STEEL)	CE-33	3	1	-	Max. Marks-70 Min.Marks-22 Duration – 3 hrs.

STRUCTURAL DESIGN & DRAWING – II (STEEL)

Unit – I : Various loads and mechanism of the load transfer, partial load factors structural properties of steel, Design of structural connections-Bolted, Rivetted and Welded connections.

Unit – II : Design of compression members, Tension members, Roof Trusses – Angular & Tubular, Lattice Girders

Unit – III : Design of Simple beams Built-up beams, plate girders and gantry girders.

Unit – IV : Effective length of columns, Design of columns- simple and compound , Lacings and battens. Design of footings fro steel structures, Grillage foundation.

Unit – V : Design of industrial building frames, multi-storey frames, Bracings for high rise structures. Design of transmission towers.

NOTE : All the Designs for strength and serviceability should strictly be as per the latest version of IS 800

Reference Books :

1. Design of Steel Structures by Subramaniam
2. Design of Steel Structures by Duggle
3. Design of Steel Structures by Bhavi Katti

COURSE CONTENTS

(w.e.f.)

Category of Course	Course Title	Course Code	Credits-4			Theory Papers
			L	T	P	
BE/PTDC	ENVIRONMENTAL ENGINEERING – I	CE-35	3	1	-	Max. Marks-100 Min.Marks-35 Duration – 3 hrs.

ENVIRONMENTAL ENGINEERING – I

Unit – I : Estimation of Ground and surface water resources, quality of water from different sources, demand & quantity of water, fire demand, water requirement for various uses, fluctuations in demand, forecast of population.

Unit – II : Impurities of water and their significance, water-borne diseases, physical, chemical and bacteriological analysis of water, water standards for different uses. Intake structure, conveyance of water, pipe materials, pumps operation & pumping stations.

Unit – III : Water Treatment methods theory and design of sedimentation, coagulation, filtration, disinfection, aeration & water softening, modern trends in sedimentation & filtration, miscellaneous methods of treatment.

Unit - IV : Layout and hydraulic of different distribution systems, pipe fittings, valves and appurtenances, analysis of distribution system. Hardy cross method, leak detection, maintenance of distribution systems, service reservoir capacity and height of reservoir.

Unit – V : Rural water supply schemes, financing and management of water supply project, water pollution control act, conservancy & water carriage system, sanitary appliance and their operation, building drainage system of plumbing.

Reference Books :

1. Water Supply & Sanitary Engg. By G.S. Birdi-Laxmi publications (p) Ltd. New Delhi
2. Water & Waste Water Technology by Mark J.Hammer Prentice – Hall of India, New Delhi
3. Environmental Engineering – H.S. Paeavy & D.R. Rowe Mc Graw Hill Book Co. New Delhi
4. Water & Waste Water Technology G.M. Fair & J.C. Geyer.

COURSE CONTENT & GRADE

(w.e.f. July 2010)

Course	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
B.E/PTDC	TRANSPOTATION ENGINEERING - II	CE-37	Min "D"	Min "D"	5.0

TRANSPORTATION ENGINEERING-II

Unit – I : High way planning, Alignment & Geometric Design : Principles of highway planning, road planning in India and financing of roads, classification patterns. Requirements, Engg. Surveys for highway location. Cross sectional elements – width, camber, super-elevation, sight distances, extra widening at curves, horizontal and vertical curves, numerical problems.

Unit – II : Bituminous & Cement Concrete payments : Design of flexible pavements, design of mixes and stability, WBM, WMM, BM, IBM, surface dressing, interfacial treatment – seal coat, tack coat, prime coat, wearing coats disadvantages of rigid pavements, general principles of design, types, construction, maintenance and joints dowel bars, tie bars. Brief study of recent developments in cement concrete pavement design, fatigue and reliability.

Unit – III Low Cost Roads, Drainage of Roads, Traffic Engg. & Transportation Planning : Principles of stabilization, mechanical stabilization, requirements, advantages, disadvantages and uses, quality control, macadam roads- types, specifications, construction, maintenance and causes of failures. **Surface and sub-surface drainage, highway materials :** Properties and testing etc. Channelised and unchannelised intersections, at grade & grade separated interections, description, rotary-design elements, advantages and disadvantages, marking, signs and signals, street lighting. Principles of planning, inventories, trip generation trip distribution, model split, traffic assignment, plan preparation.

Unit – IV : Airport Planning, Runway & Taxiway : Airport site selection. Air craft characteristic and their effects on runway alignments, windrose diagrams, basic runway length and corrections, classification of airports.

Geometrical elements : Taxi ways and runways, pattern of runway capacity.

Unit – V : Airport, Obstructions, Lightning and Traffic Control : Zoning regulations, approach area, approach surface imaginary, conical horizontal. Rotating beacon, boundary lights, approach lights, runway and taxiway lighting etc. instrumental lending system, precision approach radar, VOR enroute traffic control.

Reference Books :

Highway Engineering by S.K.Khanna & C.E.G. Justo

Airport Planning & Design by S.K.Khanna & M.G. arora

COURSE CONTENT & GRADE

(w.e.f. July 2010)

Course	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
PTDC	ESTIMATING COSTING & TENDERING	CE-40	Min “D”	Min “D”	5.0

ESTIMATING COSTING & TENDERING

Unit – I : Introduction

Estimation – Definition of estimate, Types of estimate, plinth area rate, cubical content rate, preliminary, original revised and supplementary estimates, approximate estimate.

Purpose & importance of estimates, principles of estimating methods of taking out quantities of items of work. Mode of measurement, measurement sheet and abstract sheet, bill of quantities measurement book, entries in MB, preparation of bill.

Unit – II : Rate Analysis

Task for average artisan, various factors involved in the rate of an item, material and labour requirement for various trades, preparation for rates of important item of works current schedule of rates (CSR)

Unit – III : Detailed Estimates :

Preparing detailed estimates of various types of building, works earth work calculations for roads and estimating of culverts services for building such as water supply, drainage & electrification.

Unit – IV : Cost of Works & Tendering

Factors affecting cost of work, over head charges specifications, brief specification, detailed specifications, necessity contingencies and work charge establishment, various.

Percentages for different services in building. Preparation of

Preparing tender papers – invitation of tenders . Tender notice, tender documents, submission, scrutiny & acceptance two envelop method. Award of jobs various conditions to contract right & responsibilities of parties to contracts.

Unit- V : Valuation

Purpose, depreciation, sinking fund, scrap value yours

Purchase, gross and net income, method of valuation. Set fixation of buildings, mortgage & lease problems on valuation-annuity of types.

Book References :

1. Quantity Surveying & Costing – B.N. Datta
2. Estimating & Costing for Civil Engg – G.S.Birdi
3. Quantity Surveying & Costing – Chakraborty
4. Estimating & Costing – S.C. Pengawala

COURSE CONTENT & GRADE**(w.e.f. July 2010)**

Course	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
PTDC	STRUCTURAL DESIGN & DRAWING LAB – II	CE-34L	Min “D”	Min “D”	5.0

STRUCTURAL DESIGN & DRAWING Lab – II (STEEL)**LIST OF EXPERIMENTS :**

1. Design & drawing of structural connection
2. Design & drawing of members of roof trusses
3. Design & drawing of beams & Plate Girders
4. Design & drawing of build up Columns
5. Design & drawing of Footing

COURSE CONTENT & GRADE**(w.e.f. July 2010)**

Course	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
PTDC	ENVIRONMENTAL ENGINEERING LAB – I	CE-36L	Min “D”	Min “D”	5.0

ENVIRONMENTAL ENGINEERING LAB – I**LIST OF EXPERIMENTS :**

1. To study the various standards for water
2. To study of sampling techniques for water
3. Measurement of turbidity
4. To determine the coagulant dose required to treat the given given turbid water sample
5. To determine the conc. Of chlorides in a given water samples.
6. Determination of hardness of the given sample.
7. Determination of residual chlorine by Chloroscope.
8. Determination of Alkalinity in a water samples
9. Determination of Acidity in a water samples
10. Determination of Dissolved oxygen (DO) in the water sample.

COURSE CONTENT & GRADE**(w.e.f. July 2010)**

Course	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
B.E/PTDC	TRANSPOTATION ENGINEERING LAB-II	CE-37L	Min "D"	Min "D"	5.0

TRANSPOTATION ENGINEERING LAB - II**Suggested Exercise :**

1. Aggregate Crushing Value Test
2. Devels Abrasion Test
3. Devels Attrition Test
4. Aggrate Impact Test
5. S.P. Gravity and water absorption test for Aggregate
6. Shape Test
7. Penetration Test
8. Ductility Test
9. Softener Point Test
- 10.S.P. Gravity of Bitumen
- 11.Viscosity Test
- 12.Study of C.B.R. Test
- 13.Study of Plate Bearing Test
- 14.Study of Soil Cement Test
- 15.Study of Soundness of Aggregate Test
- 16.Study of Bitumen Adhesion Test
- 17.Study of Flash and Fire Point Test
- 18.Study of Marshall Stability Test
- 19.Study of Stone Crusher.

COURSE CONTENT & GRADE**(w.e.f. July 2010)**

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
BE/PTDC	MINOR PROJECT	CE- 39L	Min “D”	Min “D”	5.0

Study regarding field data/Laboratory investigating Analysis /Design of the subject related to civil Engineering.

