

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE 309**

SUBJECT NAME : **CONSTRUCTION MANAGEMENT & ACCOUNTS**

FACULTY NAME : **DURGA PRASAD TANWAR**

DESIGNATION : **LECTURE (CIVIL)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
1Introduction : Different types of construction Stages in construction from conception to realization Construction team - owners, engineer and contractor Construction management	1	AUGT.	SEP. 9	MASS ABSENT	CPWD WORKS MANUAL 2012
2Function of construction management- planning, organising, staffing, directing, controlling and co- ordinating joint venturing and BOT (Build Operate and Transfer) projects	1	AUGT.			DITTO
3Construction project planning Stages in planning	1	SEP.			DITTO
4Bar charts	1	SEP.			DITTO
5Introduction to Network Planning and scheduling by bar charts Limitations of bar chart	1	SEP.			DITTO
6PERT and CPM Network construction	1	SEP.			DITTO
7Determination of project schedule and critical	1	SEP.			DITTO
8Resource allocation and cost time balancing.	1	OCT.			DITTO
9Types of organisation Line, functional and line & staff and their description chart	1	OCT.			DITTO
10Advantages, disadvantages and applications of various organisation	1	OCT.			DITTO
11Principles of organisation Site organisation	1	OCT.			DITTO
12Principles of storing and stacking materials at site Location of equipments Introduction of job layout and factors influencing it	1	NOV.			DITTO

13Construction Contracts : Introduction Proposal and agreements	1	NOV.			DITTO
14Types of construction contracts : lumpsum contract, rate contract, cost	1	NOV.			DITTO
15General conditions of contracts	1	NOV.			DITTO
16Contract labour act	1	DEC.			DITTO
17Construction Labour : Condition of construction workers in India Wages paid to workers	1	DEC.			DITTO
18Trade unions Trade union act	1	JAN.			DITTO
19Important provisions of Minimum Wages Act	1	JAN.			DITTO
20Productivity in construction Workman's Compensations Act	1	JAN.			DITTO
21Inspection and Quality Control : Technical services required for inspection Quality construction Quality control operation	1	JAN.			DITTO
22Quality control in concreting, earthwork and other constructions	1	FEB.			DITTO
23Quality control in concreting, earthwork and other constructions	1	FEB.			DITTO
24Methods of recording progress of a project	1	FEB.			DITTO
25Construction Safety : Meaning and scope Legal requirements	1	FEB.			DITTO
26Causes and effects of accidents First Aid First prevention	1	MARCH			DITTO
27Safety programme Safety training	1	MARCH			DITTO
28Public Works Accounts : Payment to labourers Payment to contractors and suppliers Standard measurement book	1	MARCH			DITTO

29First and final bill Running account bill Advance payments Hand receipt form no. 28	1	MARCH			DITTO
30General instructions for preparation of bills Payment to work-charged establishment Imprest account Temporary advance account Treasury challan Cash book	1	MARCH			DITTO
TOTAL	30				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE 204**

SUBJECT NAME : **SURVEYING**

FACULTY NAME : **DURGA PRASAD TANWAR**

DESIGNATION : **LECTURE (CIVIL)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
1.Introduction : Plane surveying and geodetic surveying Uses of surveying in engineering. Principles of surveying	2	August	AUG. 24 and 31	mass absent	INTERNET AVAILABLE IN SURVEY LAB.
2.Chain Surveying :Different types of chains Metric chainEngineer's chain Gunter's chain,Revenue chainTypes of Tapes Linen tapesMetallic tapesInvar tapes Steel band	2	september	Sep. 7	GH. On Aug. 29	Ditto
3.Ranging rodsOffset rodsLine rangerCross staff Optical square	2	september			ditto
4.Arrows Folding, unfolding, of chains Testing and adjusting of chainsRanging Direct rangingIndirect ranging	2	september			Ditto
5.Chaining on plane ground, Conventional signs in surveying Recording in field book	2	september			Ditto
6.Chaining on sloping ground Direct method Indirect method	2	september			Ditto
7.Common errors and precautions Traversing Fixing and marking stations Base line, Check lines and Tie lines Common obstacles in chaining Plotting of traverse	2	october			Ditto
8.Prismatic compass Surveyor's compass	2	october			Ditto
9.Difference in the above two compasses Definitions Meridian - magnetic, true, arbitrary Magnetic dipMagnetic declination Fore bearing Back bearing	2	october			Ditto
10Whole circle bearing system Quadrilateral bearing system Conversion from whole circle bearing to quadrilateral	2	october			Ditto
11Reading the bearing of lines Computation of internal angles	2	november			Ditto
12Distribution of instrumental error Local attractionCorrection of bearings due to local attractions	2	november			ditto
13Traversing with chain and compass Open traverse Closed traverse Booking in field book Adjustment of error in a closed traverse	2	november			Ditto
14Levelling :Definitions Level surfaceLevel line Horizontal line Vertical line Mean sea level Reduced level Names and function of different parts of -Dumpy level Tilting level Auto level	2	november			Ditto

15 Difference in dumpy and tilting level. Internal and external focusing telescope Temporary adjustments of dumpy and tilting level	2	november			Ditto
16 Levelling staff Self reading Telescope staff Target staff Reading a levelling staff Levelling with dumpy and tilting levels Taking observations Recording in a level book. Calculation of R.L. Height of instrument method Rise and fall method Arithmetical checks	2	december			Ditto
17 Types of levelling Fly levelling Differential levelling Profile levelling Reciprocal levelling Precise levelling	2	january			Ditto
18 Effect of curvature and refraction in levelling and their corrections. Permanent adjustment Dumpy level	2	january			Ditto
19 Tilting level Automatic level	2	january			Ditto
20 Contouring : Concept Purpose of contouring Contour interval	2	january			Ditto
21. Horizontal equivalent Factors affecting contour interval Characteristics of contours	2	jan. and feb.			Ditto
22 Methods of contouring - direct and indirect	2	feb.			Ditto
23 Interpolation of contours	2	feb.			Ditto
24 Uses of contour maps Drawing cross sections from contour maps	2	feb.			Ditto
25 Plane Table Surveying : Description and uses of plane table and its accessories Advantages of plane table surveying Centering, levelling and orientation of plane table	2	feb. and march			Ditto
26 Radiation Intersections Traversing Resection	2	march			Ditto
27 Two point problems	2	march			Ditto
28 Three point problems Errors in plane tabling	2	march			Ditto
29 Minor Instrument : Study and uses of Hand level Abney level Clinometer Planimeter	2	march			Ditto
30 Pantagraph Sextant Cylon ghat tracer	2	april			Ditto
TOTAL	60				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE 303**

SUBJECT NAME : **DESIGN OF R.C.C. STRUCTURES**

FACULTY NAME : **DURGA PRASAD TANWAR**

DESIGNATION : **LECTURE (CIVIL)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
1. Introduction : 1.1 Reinforced Cement Concrete-its meaning, constituents, functions and specifications as per I.S.. 1.2 Working stress method of design 1.3 Limit state method of design 1.4 Ultimate method of design	2	AUG.	Sep. 3 (lect. And tutorial period)	mass absent	civil engineering lectures on RCC ,IIT, Kharagpur
2.Past practice and present practice for the design of structures. 1.6 Grades of concrete and steel 1.7 Stress -strain curve for concrete and steel	2	AUG.	sep. 9		Ditto
3. Load factors 1.9 Steel concrete bond, development length, anchorage value 1.10 Effective span, specification of reinforcement as per BIS	2	SEP.			Ditto
4.Flexural Members : 2.1 Limit state of collapse 2.2 Limit state of flexure	2	SEP.			Ditto
5. Neutral axis, moment of resistance, balanced and unbalanced sections 2.4 Limit state of shear, nominal shear stress, shear strength of beam.	2	SEP.			Ditto
6. Design of shear reinforcement	2	SEP.			Ditto
7.Limit state of serviceability deflection and cracking criteria. 2.7 Curtailment of bars	2	SEP.			Ditto
8.Analysis and Design of Beams : 3.1 Single reinforced beam	2	OCT.			Ditto
9.Single reinforced beam Doubly reinforced beam	2	OCT.			Ditto
10 Doubly reinforced beam	2	OCT.			Ditto
11 T-beam	2	OCT.			Ditto
12 Lintel	2	NOV.			Ditto

13Cantilever beam	2	NOV.			Ditto
14Slabs : 4.1 Design criteria as per BIS	2	NOV.			Ditto
15Design of one-way slab	2	NOV.			Ditto
16Design of one-way slab Design of two-way slab with corners free to lift	2	DEC.			Ditto
17Design of two-way slab with corners free to lift	2	DEC.			Ditto
18Compression Members (axially loaded columns) : 5.1 Limit state of compression 5.2 Load carrying capacity	2	JAN.			Ditto
19Design of short column rectangular, square and circular cross section)	2	JAN.			Ditto
20Design of short column rectangular, square and circular cross section)	2	JAN.			Ditto
21Design of Footing : 6.1 Critical section for shear and bending moment	2	JAN.			Ditto
22Design of an isolated footing of uniform depth for a square column	2	FEB.			Ditto
23Layout of reinforcement	2	FEB.			Ditto
24 Retaining Wall : 7.1 Types of retaining walls Design of cantilever type retaining wall	2	FEB.			Ditto
25 Design of cantilever type retaining wall Reinforcement details	2	FEB.			Ditto
26Prestressed Concrete : 8.1 Definition, advantages	2	MARCH			Ditto
27methods of prestressing	2	MARCH			Ditto
28Losses in prestressing	2	MARCH			Ditto
29Stress calculations for point loads for different tendon positions	2	MARCH			Ditto
30Stress calculations for uniformly distributed load for different tendon positions	2	MARCH AND APRIL			Ditto
TOTAL	60				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE 304**

SUBJECT NAME : **SURVEYING - II**

FACULTY NAME : **DURGA PRASAD TANWAR**

DESIGNATION : **LECTURE (CIVIL)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
1Theodolite :Types Different parts of a Vernier Transit Theodolite Fundamental axes Temporary adjustment	2	Aug.	Sep. 5 and 7	mass absent	NPTL
2Transiting Swinging Measurement of horizontal angle (Repetition and Reiteration)	2	Aug.	Sep. 7	mass absent and GH on AUG. 29.	
3Measurement of vertical angle Measurement of the bearing Prolonging a line Use as level	2	SEP.			
4Permanent adjustment	2	SEP.			
5Permanent adjustment	2	SEP.			
6Types - open and closed traverse Methods of traversing Traversing by included angles Traversing by deflection angles	2	SEP.			
Latitudes and departures Balancing of a traverse by Bowditch's rule Transit rule	2	OCT.			
8Omitted measurements	2	OCT.			
9Omitted measurements	2	OCT.			
10Omitted measurements	2	OCT.			
11Tacheometry : Concept,Methods Stadia methods Tangential methods Anallatic lens	2	OCT. AND NOV.			
12Determination of horizontal and vertical distances by	2	NOV.			
13Staff normal to the line of sight	2	NOV.			
14Substance bar	2	NOV.			
15Trigonometrical Levelling :Determination of heights and distance of a point Base accessible	2	NOV.			
16Trigonometrical Levelling :Determination of heights and distance of a point Base inaccessible	2	NOV.			
17Trigonometrical Levelling : Determination of heights and distance of a point Base inaccessible	2	DEC. AND JAN.			

18 Trigonometrical Levelling : Determination of heights and distance of a point Base inaccessible	2	JAN.			
19 Elements of simple circular curves Designation of curve Radius and degree of curve Relation between radius and degree of curve	2	JAN.			
20 Setting out of simple circular curve	2	JAN.			
21 Setting out of simple circular curve	2	JAN. and FEB.			
22 Setting out of simple circular curve	2	FEB.			
23 Vertical curves Types Setting out of vertical curves	2	FEB.			
24 Transition Curves- Ideal transition curve Types of transition curve	2	FEB.			
25 Equipment of mine surveys	2	FEB. and March			
26 The stations and station markers	2	March			
27 Measurement of distance and difference in elevation	2	March			
28 Tunnel alignment and setting out	2	March			
29 Electronic distance measuring instruments T-2-Theodolite	2	March			
30 Total station Global Positioning system	2	April			
TOTAL	60				

TOTAL	60				

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **CE 307**

SUBJECT NAME : **C.E. ESTIMATING AND COSTING**

FACULTY NAME : **DURGA PRASAD TANWAR**

DESIGNATION : **LECTURE (CIVIL)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME	E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
1.Introduction : 1.1 Purpose 1.2 Importance of estimating 1.3 Common items of works in civil engineering construction works 1.4 Units of measurement for common items of works 1.5 Methods of measurement	1	AUG.	SEP. 1,	mass absent	Works manual 2012
2.1.7 Different types of estimates and their significance 1.8 Merits and demerits. 1.9 Methods of taking out quantities 1.10 Study of Basic Schedule of Rates (B.S.R.)	1	AUG.	Sep. 8	mass absent	Ditto
3.Rate-Analysis : 2.1 Factors affecting cost of work 2.2 Explanation of terms 2.3 Prime cost 2.4 Original cost 2.5 Provisional items 2.6 Provisional sum 2.7 Day work, item wise	1	SEP.			Ditto
4Analysis of cost of material 2.9 Labour 2.10 Transport 2.11 Establishment charges and incidentals	1	SEP.			Ditto
5Preparation of analysis of rates for items of work involved in building construction mentioned in practical syllabus.	1	SEP.			Ditto
6Preparation of analysis of rates for items of work involved in building construction mentioned in practical syllabus.	1	SEP.			Ditto
7Importance of specifications. Principles for writing out specifications, types of specification	1	SEP.			civil works specifications Vol. I and II
8Writing general and detailed specifications for items of work in building construction mentioned in practical syllabus.	1	OCT.			Ditto
9Writing general and detailed specifications for items of work in building construction mentioned in practical syllabus.	1	OCT.			Ditto

10.Detailed Estimates for Buildings : 4.1 Calculation of quantities	1	OCT.			Civil estimates
11Preparing abstract of cost for a residential building sections	1	OCT.			civil estimates
12Earth Work Calculations for Road & Rail Formation : 5.1 Earthwork calculations and estimates for roads and rail formation For earth work following methods may be used : 5.1.1 Mean depth method. 5.1.2 Mean area method.	1	NOV.			civil estimates
13Prismoidal formula method 5.1.4 Graphical method Using longitudinal and typical cross sections	1	NOV.			civil estimates
14Cross section for different stations. 5.3 Finding earth work by these 5.4 Calculation of permanent and temporary lands for roads	1	NOV.			civil estimates
15 Economical depth of digging for canals 5.6 Mass haul diagram	1	NOV.			civil estimates
16Detailed estimates for earthwork of irrigation canals	1	DEC.			civil estimates
17Septic tank and soak pit	1	Jan.			civil estimates
18Bitumen road	1	Jan.			civil estimates
19Objects of valuation 7.2 Free-hold property 7.3 Lease-hold property 7.4 Property income 7.5 Obsolescence 7.6 Market-value 7.7 Book value	1	Jan.			real property valuation
20Distress value 7.9 Monopoly value 7.10 Salvage value 7.11 Scrap value 7.12 Accommodation value 7.13 Replacement value 7.14 Sentimental value 7.15 Speculative value 7.16 Factors affecting the value of the property	1	Jan.			real property valuation
21Annuity 7.18 Capital cost 7.19 Capitalized value 7.20 Year's purchase	1	Jan.			real property valuation
22Methods of determining depreciation	1	FEB.			real property valuation
23Valuation of property 7.23 Method of determining valuation of property 7.24 Typical valuation report	1	FEB.			real property valuation
24Types of rents 7.26 Rules of capital cost fixation for govt. buildings 7.27 Rules for calculation of standard rent	1	FEB.			real property valuation
25Main staff structure of engineering department 8.2 Duties of junior engineer 8.3 Administrative approval 8.4 Expenditure sanction or approval 8.5 Technical sanction or a approval	1	FEB.			works manual 2012

26Tender System 8.7 E-tendering 8.8 Technical bid and financial bid 8.9 Appropriation and re-appropriation of funds 8.10 Procedure for original minor and major works 8.11 Repair works	1	March			works manual 2012
27Types of estimates 8.13 Preliminary estimate 8.14 Cubical content estimate 8.15 Plinth area estimate 8.16 Revised estimate 8.17 Supplementary estimate	1	March			Works manual 2012
28Daily labour on muster roll system 8.19 Completion report	1	March			works manual 2012
29Stores, Tools and Plants : 9.1 Purchase of stores 9.2 Reserve of stock 9.3 Dead stock 9.4 Surplus and unserviceable stores	1	March			works manual 2012
30Verification of stores 9.6 Issue of materials from stock 9.7 Tools and plants 9.8 M.A.S. account	1	March			works manual 2012
TOTAL	30				

TOTAL	60				