

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 1/5
Branch	CIVIL ENGINEERING			Semester	6th
Course Code	C03	Course Name	CONSTRUCTION PLANNING AND MANAGEMENT		
Course Outcome 1	Explain construction management, organizations and its terminologies.			Teach Hrs	Marks
Learning Outcome 1	Describe construction management, its objectives, function and classification of construction management.			06	06
Contents	Significance of construction management, main objectives of construction management, functions of construction management - planning, organizing, staffing, directing, controlling and coordinating, meaning of each of these with respect to construction job. Classification of construction into light, heavy and industrial construction, stages in construction from conception to completion construction team: owner, engineer, architect and contractors, their functions and inter-relationship.				
Method of Assessment	External Theory Exam – Pen Paper Test				
Learning Outcome 2	Describe the organization, its objectives, principles and classification.			05	06
Contents	Organization-objectives, principles of organization, types of organization: government / public and private construction industry, Role of various personnel in construction organization, agencies associated with construction work- owner, promoter, builder, designer, architects.				
Method of Assessment	Internal Theory Exam – Mid Semester Test I				
Learning Outcome 3	Describe the role of Consultation and different methods of carrying out works.			03	04
Contents	Role of consultant for various activities: Preparation of Detailed Project Report (DPR), monitoring of progress and quality, settlement of disputes, method used for carrying out works contract method and departmental method, rate list method, piece work method, day's work method.				
Method of Assessment	Internal Theory Exam – Mid Semester Test I				
Course Outcome 2	Describe contract, contractor, types of contract and projects, its objectives and procedure of payment to contractor.			Teach Hrs	Marks
Learning Outcome 1	Describe various types of Contract and its objective.			05	05
Contents	Definition of contract, objects of contract, requirements of valid contract. Types of engineering contract- Lump sum contract, item rate contract, percentage rate contract, cost plus percentage, cost plus fixed fee, cost plus variable percentage and cost plus variable fee contract, labor contract, demolition contract, fee contract, target contract, negotiated contract, class of contractor, registration of contractor.				
Method of Assessment	External Theory Exam – Pen Paper Test				

Learning Outcome 2	Explain different types of contractors and projects.	05	05
Contents	Classification of contractor on basis of financial limits, Requirement of documents for registration of contractor. Build Operate Transfer (BOT) Project, BOT Toll contract, BOT (Annuity) contract, Design, Build, Finance, Operate and Transfer (DBFOT) contract, Hybrid Annuity contract, Operate Maintain and Transfer (OMT) contract, Operation & Maintenance contract (Introduction only).		
Method of Assessment	External Theory Exam – Pen Paper Test		
Learning Outcome 3	Explain procedure of payment to Contractors	04	04
Contents	Mode of payment to the contractor : Interim payment and its necessity, Advance payment, secured advance, on account payment, Final payment, first and final payment, retention money, reduced rate payment, petty advance, mobilization advance.		
Method of Assessment	External Theory Exam – Pen Paper Test		
Course Outcome 3	Explain tendering system and its various aspects.	Teach Hrs	Marks
Learning Outcome 1	Describe tender, its classification and various terminology related to tendering process.	06	05
Contents	Definition of Tender, necessity of tender, Types of local & global, tender notice, points to be included while drafting tender notice, Drafting of Tender Notice. Meaning of terms: earnest money, security deposit, validity period, right to reject one or all tenders, corrigendum to tender notice and its necessary.		
Method of Assessment	External Theory Exam – Pen Paper Test		
Learning Outcome 2	Describe tender document and its procedure.	06	05
Contents	Tender documents – List, scheduled A, Schedule B, Schedule C. Terms related to tender documents –Contract conditions, time limit, time extension, penalty, defective material and workmanship, termination of contract, suspension of work, subletting of contract, extra item, escalation, arbitration, price variation clause, defect liability period, liquidated and un liquidated damages.		
Method of Assessment	External Theory Exam – Pen Paper Test		
Learning Outcome 3	Explain different steps for tender process	08	10
Contents	Filling the tender by contractor and points to be observed by him, procedure of submitting filled in, tender document, procedure of opening tender, comparative statement, scrutiny of tenders, award of contract, acceptance letter and work order, unbalanced tender, ring formation.		
Method of Assessment	Internal Theory Exam – Mid Semester Test II		

Course Outcome 4	Explain details of specification and accounting system of organizations.	Teach Hrs	Marks
Learning Outcome 1	Classify specifications and describe its various aspects.	06	06
Contents	Necessity and importance of specifications of items, points to be observed in framing specifications of an item, types of specification, brief and detailed, standard and manufacturers specifications, preparing detailed specifications of items in civil engineering works, standards specification book, legal aspects of specification.		
Method of Assessment	External Theory Exam – Pen Paper Test		
Learning Outcome 2	Explain the terminology related to accounts of organization and procedure of cash, bills and auction and various account forms.	08	10
Contents	Procedure to settle account of money received, various account forms and their uses – Measurement Books, E- Measurement book (E-MB), Nominal Muster Roll (NMR), imprest cash, indent, invoice, bill, vouchers, hand receipt cash book, temporary advance, heads of accounts, permanent and temporary advance, comparison, checking of bills and vouchers, auction procedure etc.		
Method of Assessment	External Theory Exam – Pen Paper Test		
Course Outcome 5	Explain the procedure for scheduling in construction project using CPM and PERT and safety measures in construction.	Teach Hrs	Marks
Learning Outcome 1	Describe planning and scheduling by network analysis using CPM.	10	12
Contents	Introduction to terminology related to scheduling, methods of scheduling, advantages of scheduling, bar chart, preparing construction schedule, advantages and limitations of bar chart, development of bar chart, CPM network, planning and scheduling by Network Analysis, activity of arrow, activity on node, elements of network: event, activity, dummy activities, precautions in drawing Network, numbering the events, identifying broad activities in construction work & allotting time to it, activity time estimate, event times by forward & backward pass calculation, start and finish time of activity, project duration, determination of various timings: EST, EFT, LST, LFT, types of floats - free, independent, interfering and total floats, critical activities and critical path, preparation of activity table, example on developing critical path. (Simple problems on Bar Chart and CPM)		
Method of Assessment	External Theory Exam – Pen Paper Test		
Learning Outcome 2	Explain PERT, scheduling of work and resource management.	10	12

Contents	Introduction to PERT, terms used, comparison between CPM and PERT, optimistic time, pessimistic time, most likely time, expected time, standard deviation, preparing construction schedule comprising of items of work and duration, earliest expected event time, latest allowable occurrence time, slack, critical path, simple numerical problems on PERT, resource allocation, resource smoothing, resource leveling for Human Resource, Project Cost Analysis - project cost, Cost vs Time, optimization of cost through network contraction (No mathematical problems on Project cost analysis and resource levelling in examination) Purpose of crashing a network, normal time and cost, crash time and cost, cost slope, optimization of cost and duration. Material Management- ordering cost, inventory carrying cost, economic order quantity (no numerical problem on resource leveling).		
Method of Assessment	External Theory Exam – Pen Paper Test		
Learning Outcome 3	Describe various safety measures in construction and labour laws.	08	10
Contents	Necessity of maintaining daily diary, need for presence of sub engineer, A/R & S/R, charge to be handled to be cash transferred inspection of rest houses, measures to improve the efficiency of labour, trade unions, aims of labour legislation, labour courts, attitudes of sectional officers towards labour, safety in construction industry—causes of accidents, remedial and preventive measures, Labour Laws and Acts pertaining to Civil construction activities (Introduction only)		
Method of Assessment	Internal Theory Exam – Assignments/Quizzes/Seminars/Presentation		

List of Suggested Books: -

S.No	Title	Author	Publisher
1.	Construction Engineering and Management	Sharma S C and Deodhar S V	Khanna Book Publishing, New Delhi

2.	Construction planning and management	Gahlot,P.S. and Dhir,	New Age International (P) Ltd. Publishers, New Delhi.
3.	Project Planning and Controlling with PERT And CPM	Punmia, B.C. and Khandelwal, K.K	Laxmi Publications (P)Ltd.
4.	The A To Z of Practical Building Construction and its Management	Mantri, S	Satya Prakashan New Delhi
5.	Industrial Engineering and Management,	Sharma, S.C.	Khanna Publications, New Delhi
6.	Construction Management and Planning,	Sengupta, B., Guha H	Tata-McGraw Hill.