Name of the Faculty : Pawan Kumar

Discipline : Civil Engineering

Semester : 6th

Subject : CONSTRUCTION MANAGEMENT AND ACCOUNTS

Lesson Plan Duration : 15 Weeks

Week	Theory	
	Lecture Day	Topic (including assignment / test)
1st	1	**Introduction to the Subject and its necessity**
	2	**1. Introduction:** 1.1 Significance of construction management 1.2 Main objectives of construction management and overview of the subject
	3	1.3 Functions of construction management, planning, organising, staffing, directing, controlling and coordinating, meaning of each of these with respect to construction job.
	4	1.4 Classification of construction into light, heavy and industrial construction 1.5 Stages in construction from conception to completion
	5	1.6 The construction team: owner, engineer, architect and contractors, their functions and inter-relationship
2nd	6	**2. Construction Planning:** 2.1 Importance of construction planning
	7	2.2 Stages of construction planning - Pre-tender stage - Contract stage
	8	2.3 Scheduling construction works by bar charts - Definition of activity, identification of activities
	9	- Preparation of bar charts for simple construction work
	10	- Preparation of bar charts for simple construction work
3rd	11	- Preparation of schedules for labour, materials, machinery and finances for small works - Limitations of bar charts
	12	- Practice of bar chart preparation
	13	2.4 Scheduling by network techniques - Introduction to network techniques; PERT and CPM,
	14	2.4 Scheduling by network techniques - Differences between PERT and CPM terminology
	15	Practice of CPM
4th	16	Practice of PERT
	17	**Revision**
	18	**3. Organization:** 3.1 Types of organizations: Line,
	19	line and staff,
	20	Functional and their characteristics
5th	21	Practice of preparation of organizational chart of an organization.

	22	**4. Site Organization:** 4.1 Principle of storing and stacking materials at site
	23	4.2 Location of equipment
	24	4.3 Preparation of actual job layout for a building
	25	Practice of job lay-out
6th	26	4.4 Organizing labour at site
	27	**Revision/Assignment-I**
	28	**Sessional Test -I**
	29	**5. Construction Labour:** 5.1 Conditions of construction workers in India,
	30	Wages paid to workers
7th	31	5.2 Important provisions of the following Acts: - Labour Welfare Fund Act 1936 (as amended)
	32	- Payment of Wages Act 1936 (as amended)
	33	- Minimum Wages Act 1948 (as amended)
	34	**Revision/Quarries**
	35	**6. Control of Progress:** 6.1 Methods of recording progress
8th	36	6.2 Analysis of progress 6.3 Taking corrective actions keeping head office informed
	37	6.4 Cost time optimization for simple jobs - Direct and indirect cost,
	38	variation with time, cost optimization
	39	Practice of Cost Optimization
	40	**7. Inspection and Quality Control:** 7.1 Need for inspection and quality control
9th	41	7.2 Principles of inspection
	42	7.3 Stages of inspection and quality control for
	43	- Earth work
	44	- Masonry
	45	- RCC - Sanitary and water supply services
10th	46	**Revision**
	47	**8. Accidents and Safety in Construction:** 8.1 Accidents – causes and remedies
	48	8.2 Safety measures for
	49	- Excavation work
	50	- Drilling and blasting - Hot bituminous works
11th	51	- Scaffolding, ladders, form work - Demolitions
	52	8.3 Safety campaign and safety devices
	53	**Revision/Assignment-II, Sessional Test -II**
	54	**9. Public Work Accounts:** Introduction, technical sanction, administrative approval, allotment of
	55	funds, re-appropriation of funds bill,
12th	56	Contractor ledger, measurement book,
	57	Preparation of bill of quantities (BOQ),

	58	Practice: Preparation of bill of quantities (BOQ),
	59	Running and final account bills complete,
	60	Practice: MB/running bill/final bill
13th	61	Completion certificate & report,
	62	**Revision**
	63	Hand receipt, aquittance roll. Muster Roll labour,
	64	Casual labour roll-duties and responsibility of different cadres,
	65	Budget-stores, returns, account of stock, misc. P.W. advances,
14th	66	T & P – verification, survey report
	67	Road metal material charged direct to works,
	68	Account - expenditure & revenue head, remittance and deposit head,
	69	Definition of cash, precaution in custody of cash book,
	70	Imprest account, temporary advance, treasury challan,
15th	71	Preparation of final bills.
	72	Preparation of accounts register, stock register.
	73	Practice of preparation of: Bills/Accounts Register/Stock Register
	74	**Assignment-III**
	75	Revision

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Name of the Faculty : Pawan Kumar

Discipline : Civil Engineering

Semester : 6th

Subject : Earthquake Resistant Building Construction

Lesson Plan Duration : 15 Weeks

Week	Theory	
	Lecture Day	Topic (including assignment / test)
1st	1	**Introduction to the Subject and its necessity**
	2	**1. Elements of Engineering Seismology :** General features of tectonic of seismic regions.
	3	Causes of earthquakes, Seismic waves,
2nd	1	Earthquake size (magnitude and intensity),
	2	Epicentre, Seismograph,
	3	Classification of earthquakes,
3rd	1	Seismic zoning map of India,
	2	Static and Dynamic Loading, Fundamental period.
	3	**2. Seismic Behaviour of Traditionally-Built Constructions of India :** Performance of building during earthquakes
4th	1	Mode of failure: Out-of-plane failure, in-plane failure,
	2	Mode of failure: Diaphragm failure, Connection failure,
	3	Mode of failure: Non-structural components failure
5th	1	**Revision/Assignment-I**
	2	**Sessional Test -I**
	3	**3. Special construction method :** Special construction methods
6th	1	Special construction methods
	2	Tips and Precautions to be observed while planning,
	3	Designing and Construction of earthquake resistant building.
7th	1	Designing and Construction of earthquake resistant building.
	2	Designing and Construction of earthquake resistant building.
	3	**4. Introduction to various Seismic IS codes :** IS: 4326, IS: 13828,
8th	1	IS: 1893(Part 1),
	2	IS: 154326 and
	3	IS: 13920 (latest edition)
9th	1	**Revision/Assignment-II**
	2	**5. Seismic Provision of Strengthening and Retrofitting :** Seismic Provision of Strengthening and Retrofitting
	3	Seismic Provision of Strengthening and Retrofitting
10th	1	Measures for Traditionally-Built Constructions,
	2	Brick and RCC Structures
	3	Brick and RCC Structures
11th	1	Revision/Quarries
	2	**Sessional Test -II**
	3	**6. Provision of reinforcement detailing in masonry and RC constructions :**

12th	1	Provision of reinforcement detailing in masonry constructions
	2	Provision of reinforcement detailing in RC constructions
	3	Provision of reinforcement detailing in RC constructions
13th	1	Provision of reinforcement detailing in RC constructions
	2	**7. Disaster Management :** Disaster rescue, Psychology of rescue,
	3	Rescue workers, Rescue plan,
14th	1	Rescue by steps,
	2	Rescue equipment,
	3	Safety in rescue operations,
15th	1	Debris clearance
	2	Casuality management
	3	**Sessional Test -III**

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LESSON PLAN

Name of the Faculty	Pawan Kumar
Discipline	**Civil Engineering**
Semester	**6th**
Subject	**QUANTITY SURVEYING AND VALUATION**
Lesson Plan Duration	

WEEK	THEORY		PRACTICAL	
	LECTURE DAY	TOPIC	PRACTICAL	TOPIC
1	1	Introduction to quantity surveying and its importance	1st	Prepare the list of items to be executed with units for detailed estimate of a given structure from the given drawing.
	2	Duties of quantity surveyor		
	3	Types of estimates- Preliminary estimates, Plinth area estimate		
	4	Types of estimates - Cubic rate estimate, Estimate per unit base, Detailed estimates- Definition, Stages of preparation – details of measurement and calculation of quantities and abstract		
2	5	Measurement - Units of measurement for various items of work as per BIS:1200	2nd	Revision
	6	Rules for measurements,Different methods of taking out quantities – centre line method		
	7	Long wall and short wall method, Preparation of Detailed and Abstract Estimates from Drawings for: A small residential building with a flat roof		
	8	Pitched roof building, comprising of - Two rooms with W.C., bath, kitchen and verandah		
3	9	Earthwork for unlined channel, WBM road	3rd	Prepare a report on market rates for given material, labour wages, hire charges of tools &
	10	Pre-mix carpeting ,Single span RCC slab culvert		
	11	Earthwork for plain and hill roads, RCC work in beams		
	12	RCC work in slab,RCC Work in Column		
4	13	RCC work in lintel	4th	Revision
	14	RCC Work foundations,Users septic tank - 10 users		
	15	Users septic tank - 50 users		
	16	Calculation of quantities of materials for Cement mortars of different proportion		
5	17	Cement concrete of different proportion	5th	Study of items with specification given in the HSR (for any ten items)
	18	Brick/stone masonry in cement mortar		
	19	Plastering and pointing		
	20	White washing, painting		
	21	R.C.C. work in slab,R.C.C. work in beams		

6	22	Analysis of Rates- Steps involved in the analysis of rates	6th	Revision
	23	Requirement of material, labour, sundries		
	24	Contractor's profit and overheads		
7	25	Analysis of rates for finished items when data regarding labour	7th	Recording in Measurement Book (MB) for any four items
	26	Rates of material and labour is given: Earthwork in excavation in hard/ordinary soil		
	27	Filling with a concept of lead and lift		
	28	RCC in roof slab,RCC in Beam,RCC IN Lintels		
8	29	RCC in Column	8th	Revision
	30	Brick masonry in cement mortar		
	31	Cement Plaster		
	32	White washing, painting		
9	33	Stone masonry in cement mortar,Running and maintenance cost of construction equipment	9th	Prepare bill of quantities of given item from actual measurements (any four items).
	34	Contractor ship- Meaning of contract, Qualities of a good contractor and their qualifications		
	35	Essentials of a contract- Types of contracts, their advantages, dis-advantages and suitability, system of payment		
	36	Single and two cover-bids; tender, tender forms and documents, tender notice, submission of tender		
10	37	Deposit of earnest money, security deposit, retention money, maintenance period	10th	Revision
	38	Classification and types of contracting firms/construction companies		
	39	Preparation of Tender Document based on Common Schedule Rates (CSR)- Introduction to CSR and calculation of cost based on premium on CSR		
	40	Exercises on writing detailed specifications of different types of building Works from excavation to foundations		
11	41	Superstructure and finishing operation	11th	Calculate the reinforcement quantities from the given set of drawings for a room size of 3 m X 4 m with bar bending schedule (footing, column,
	42	Exercises on preparing tender documents for the following A) Earth work B) Construction of a small house as per given drawing		
	43	C) RCC works 146 D) Pointing, plastering and flooring		

	44	E) White-washing, distempering and painting F) Wood work including polishing		beam, lintel with chajja, slab)
12	45	G) Sanitary and water supply installations	12th	Calculate the quantity of items of work from the given set of
	46	Revision		
	47	H) False ceiling, aluminum (glazed) partitioning		
	48	Revision		
13	49	I) Tile flooring including base course	13th	Revision
	50	Revision		
	51	J) Construction of W.B.M/Concrete road		
	52	Exercises on preparation of comparative statements for item rate contract		
14	53	Valuation - a) Purpose of valuation, principles of valuation	14th	Use the relevant software to prepare detailed estimate of a residential building.
	54	B) Definition of various terms related to valuation like depreciation		
	55	Sinking Fund, salvage and scrap value		
	56	market value, fair rent, year's purchase etc.		
15	57	C) Methods of valuation	15th	Revision
	58	Revision		
	59	Revision		
	60	i) replacement cost method		
	61	Revision	16th	Revision
	62	Revision		
	63	(ii) rental return Method		
	64	Revision		

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LESSON PLAN

Name of the Faculty	Pawan Kumar
Discipline	**Civil Engineering**
Semester	**6th**
Subject	**STEEL STRUCTURE DESIGN & DRAWING**
Lesson Plan Duration	15 week

WEEK	THEORY		PRACTICAL
	LECTURES	TOPIC	
1	1	1.Structural Steel and Sections Properties of structural steel as per IS Code	Drawing No. 1: Roof Truss – Drawing of Fink Roof Truss with details ofjoints, fixing details of purlins and roof sheets. (G-I / G-II)
	2	Designation of structural steel sections as per IS handbook and IS:800	
	3	2.Riveted Connections	
	4	Types of Rivet, Permissible stresses in rivets, types of riveted joints,	
2	5	specifications as per IS800, Failure of riveted joint, strength and efficiency of riveted joint,	———
	6	Design of Riveted Connection only axially loaded number (No staggered rivetting)	
	7	Revision	
	8	3.Bolt Connections Types of bolt, permissible stresses in bolt,	
3	9	types of bolted joints, specifications for bolted	———
	10	joints as per IS 800. Failure of a bolted joint.	
	11	Assumptions in the theory of bolted joints.	
	12	Strength and efficiency of a bolted joint. Design of bolted joints for axially loaded	
4	13	4.Welded connections Types of welds and welded joints,	Drawing No.2 : Column and Column Bases - Drawing of splicing of steelcolumns. Drawings of slab base, gusseted base and grillage base for single section steel columns.(G-I / G-II)
	14	advantages and disadvantages of welded joints design	
	15	of fillet and butt weld for axially loaded members	
	16	Tension Members	
5	17	Analysis and design of single and double section tension	———
	18	Revision	
	19	their rivetted connections	
	20	welded connections with gusset plate as per IS:800-2007	
6	21	Revision	———
	22	Compression Members	
	23	Numericals problems	
	24	Numericals problems	

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7	25	Analysis and design of single angle section	Drawing No.3 : Column Beam Connections (G-I / G-II)
	26	Numericals problems	
	27	Analysis and design of doubly angle section	
	28	Numericals problems	
8	29	compression members subjected to axial laod	(a) Sealed and Framed Beam to Beam Connections (G-I / G-II)
	30	Numericals problems	
	31	Numericals problems	
	32	Numericals problems	
9	33	Numericals problems	(b) Sealed and Framed Beam o Column Connections(G-I / G-II)
	34	Numericals problems	
	35	Revision	
	36	Roof Trusses	
10	37	Form of trusses, pitch of roof truss,	Drawing No. 4 : Plate Girder (Bolted)Plan and Elevation of Plate Girder with details at supports and connection of stiffness, flange angles and cover plate with web highlighting curtailment of plates (G-I / G-II)
	38	spacing of trusses, spacing of purlins,	
	39	connections between purlin and roof covering.	
	40	Connection between purlin and principal rafter	
11	41	(no design, only concept)	———
	42	Numericals problems	
	43	Numericals problems	
	44	Numericals problems	
12	45	Numericals problems	———
	46	Numericals problems	
	47	Revision	
	48	Column Bases:	
13	49	Types of column bases i.e. slab base,	———
	50	gusseted base.Concept of buckling,	
	51	effective length, slenderness ratio,	
	52	ratio, Analysis and Design of axially loaded single coloumn	
14	53	Revision	Drawing No. 5 : Draw atleast one sheet using CAD software (G-I / G-II)
	54	Numericals problems	
	55	Numericals problems	
	56	Numericals problems	
15	57	Beams	———
	58	Revision	
	59	Analysis and design of single section simply supported laterally restrained steel beams.	
	60	Introduction to plate girder and functions of various elements of a plate girder	
	61	Numericals problems	———
	62	Revision	
	63	Fabrication and erection of steel structures like trusses,	
	64	columns and girders	

Teacher Signature