

Daffodil Institute of Technology

Diploma-in-Civil Technology

7th Semester

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68873

Construction Management & Documentation

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AIMS: ☐ To be able to understand the modern techniques of construction management. ☐ To be able to understand the operational research & site layout and organization. ☐ To be able to understand the mobilization of materials in construction management. ☐ To be able to understand the quality and cost control. ☐ To be able to understand the Pre-tender and Post-tender planning. ☐ To be able to prepare pre-qualification documents. ☐ To be able to evaluate pre-qualification documents. ☐ To be able to prepare technical specifications. ☐ To be able to prepare financial evaluation. ☐ To be able to prepare contract clauses. ☐ To be able to prepare tender documents. ☐ To be able to prepare contract documents. ☐ To be able to prepare Quality control document. ☐ To be able to understand the cost control. ☐ To be able to develop knowledge, skill and attitude of evaluating tenders and preparing comparative statement.

SHORT DESCRIPTION Principles of management and construction; Organization of contracts department; Operational research; Site layout and organization; Mobilization of materials; Demobilization of STRUCTURE; Safety in construction; Quality and cost control; Codes and building by-laws; Tender; Pre-tender and Posttender planning; Tender document; Tender notice; Instruction to tender; Contract clauses/condition of contract; Technical specifications of materials and works; Pre-qualification of contractors; Evaluation and comparative statement; Contract agreement.

DETAIL DESCRIPTION Theory: 1. Understand the principles of management and construction. 1.1 Define management. 1.2 State the functions of management. 1.3 Describe the planning and executive functions of management. 1.4 Define construction management. 1.5 Establish the relation between management and construction management. 1.6 Explain the necessity for scientific management in construction process. 1.7 Describe the role of an engineer as a construction manager. 1.8 List the organs of project management team (PMT). 1.9 State the main objectives of a project management team.

2. Understand the organization of contracts department. 2.1 Define organization. 2.2 Describe organizational effectiveness in an organization. 2.3 State the staffing pattern in an organization of

contract department. 2.4 Draw an organizational chart of a contracts department. 2.5 Describe the responsibilities and authorities of the components of contracts Department. 2.6 List different government engineering department in Bangladesh. 2.7 Explain the role and responsibilities of the following within the engineering Organization: i) Chief Engineer (CE), ii) Additional Chief Engineer (ACE), iii) Superintending Engineer (SE), iv) Executive/Divisional Engineer (XEN/DE), v) Sub-Divisional Engineer (SDE), vi) Asstt. Engineer (AE), vii) Sub-Asstt. Engineer(SAE), viii) Work Supervisor/Work Assistant. 2.8 Explain the need for relation and co-operation between site engineer and contractor's agent. 2.9 Describe the relation between-a. Site office and Head office, b. Contractor and Head office 2.10 Define consultancy services. 2.11 State the conditions for enlistment of consulting firm. 2.12 Describe the function and objectives of consultants. 3. Understand the operational research in construction management process.

3.1 Define operational research. 3.2 Explain construction stage, construction operation and construction schedule. 3.3 Describe the budget and flow-chart of money and materials. 3.4 Explain the method of calculating project time schedule. 3.5 Describe bar chart and its shortcoming and remedies. 3.6 State the necessity of network planning. 3.7 Classify network planning. 3.8 Describe the procedure construction network. 3.9 Define critical path method (CPM) and project evaluation & review technique (PERT). 3.10 Describe the process of construction CPM network. 3.11 Describe the process of drawing a PERT network. 3.12 State advantages of CPM and PERT network. 3.13 Distinguish between CPM and PERT network. 3.14 Describe the preparation of CPM and PERT network for a 6-storied building project. 3.15 Explain the following terms: a. Event b. Activity c. Duration d. Dummy activity e. Total float f. Free float 4. Understand the site layout and mobilization of materials in construction management. 4.1 State different features of a site layout plan. 4.2 Draw a site layout plan of a construction site organization. 4.3 Explain the importance of site security. 4.4 Define mobilization of materials and equipment.

4.5 Explain the procedure of receiving materials on site. 4.6 Draw a line plan of a material warehouse within the site. 4.7 Explain the procedure of removing materials from the site. 5. Understand the safety measures to be taken in construction management. 5.1 Define safety measure. 5.2 State the nature of accidents in construction work. 5.3 Describe objectives, application and policy planning of safety program in construction work. 5.4 Draw a typical organization chart for safety group. 5.5 Describe the responsibility of employers and employees in respect of safety measure. 5.6 State the general safety requirements in construction works. 5.7 State different signals, signs and tags used in safety work. 5.8 Describe necessary safety measure in working field. Such as - material handling, storage and disposal, handling of machinery and mechanical equipment and operating motor during work in the outer edge of a structure. 5.9 Explain the necessity of safety training for employees. 5.10 Explain the process of preparation of accident report. 5.11 Prepare an accident report to the employer. 6. Understand the quality control and cost control process in construction management. 6.1 Define quality control and cost control. 6.2 Describe the effects of lack of adequate quality control. 6.3 State the effects and benefit of quality control for the contractor, the designer and consultants. 6.4 Draw a flow diagram of a quality plan. 6.5 Describe the responsibilities to control the quality of construction of a) the client, b) the designer, c) the manufacturer, d) the contractor and f) the supervisor. 6.6 Mention the requirements for an effective cost control system. 6.7 State the phases of a management cost and control system. 6.8 Mention the procedural steps of management cost control system (MCCS). 6.9 Explain cost reduction cycle. 7. Understand the concept of tender, codes and building by-laws in practice. 7.1 Define tender or bid. 7.2 Mention different types of tender. 7.3 State the meaning of local competitive bid (LCB) and

international Competitive bid (ICB). 7.4 Mention different building codes used in Bangladesh 7.5 Mention building by-laws practiced in the country. 8. Understand the pre-tender and post-tender planning. 8.1 Define pre-tender planning. 8.2 State the objectives of pre-tender planning. 8.3 List the activities of pre-tender planning. 8.4 Define post-tender planning. 8.5 List the activities of post-tender planning. 8.6 Explain anticipation of award. 8.7 Define evaluation of contract. 8.8 Explain the silent features of evaluation. of contract.

9. Understand the concept of tender documents. 9.1 State the meaning of tender document 9.2 Mention the characteristics of ideal tender document 9.3 Describe the procedure of preparation of tender document. 9.4 Explain different methods of contract for works. 9.5 Explain the following Contents of the tender documents: ☐ Tender Notice ☐ Instruction to Tenderers (ITT) ☐ Bill of Quantities (BOQ) ☐ Construction time period ☐ Tender Form ☐ Form of Agreement ☐ General Conditions of Contract (GCC) ☐ Special Conditions of Contract (SCC) ☐ Technical specifications ☐ Date of Site Possession and Mobilization ☐ Period of commencement of work ☐ Period of Completion ☐ Security deduction ☐ Liquidated damages and penalty for delay in completion of the work ☐ Condition of engagement of a sub-contractor. ☐ Quality control clauses ☐ Time schedule of work ☐ Day-work ☐ Arbitration ☐ Extension of completion period ☐ Termination ☐ Maintenance period 10. Understand the meaning of tender notice. 10.1 Define tender notice. 10.2 Mention different types of tender notice. 10.3 Mention the particulars needed for a tender notice. 10.4 State the meaning of comparative statement. 10.5 Mention the advantage of preparing comparative statement. 10.6 Define pre-bid meeting. 11. Understand the Instruction to Tenderers (ITT). 11.1 Interpret the following terms used in ITT: (a) Scope of Tender (b) Source of Funds (c) Eligible Bidders (d) Qualification of the Bidder (e) Amendment of Tender Documents (f) Language of Tender (g) Documents Comprising the Tender (h) Tender Prices (i) Currencies of Tender and Payment (j) Tender Validity (k) Tender Security (l) Format and Signing of Tender (m) Sealing and Marking of Tenders (n) Deadline for Submission of Tenders (o) Late Tenders (p) Modification and Withdrawal of Tenders (q) Tender Opening (r) Evaluation of Contract (s) Force major (t) Earnest money/ Tender Security (u) Award Criteria (v) Performance security. 12. Understand the pre-qualification of contractors. 12.1 Define pre-qualification of contractors. 12.2 Describe the aim of prequalification of contractors 12.3 State the features of prequalification notice 12.4 Describe the procedure of preparation of pre-qualification Document. 12.5 Mention the prequalification criteria 12.6 Explain the procedure of preparation of evaluation criteria of pre-qualification document 12.7 Describe the process of evaluation of prequalification applications submitted by the intending contractors 13. Understand the evaluation and Comparative Statement of Tenders 13.1 Describe the tender opening procedure including preparation of opening memo. 13.2 Explain the process of examination of tenders and determination of responsiveness 13.3 Explain the process of evaluation and comparison of tenders. 14. Understand the Concept of e-tendering. 14.1 Define e-tender. 14.2 Describe the purpose of e-tender 14.3 Mention the advantage and disadvantage of e-tender 14.4 Describe the process of preparing e-tender. 14.5 Describe the importance of e-tendering in Bangladesh. 15. Understand the recent public procurement rules(PPR) implemented by the govt. of Bangladesh 15.1 State the back ground of PPR development in Bangladesh. 15.2 State the meaning of the following: PPR, PPA, ITT, TDS, GCC, PCC, NOA, BOQ, TOC, POC, TEC, PEC, HOPE, CS, OTM, RFQ, DPM, and CPTU. 15.3 Describe the preparation of standard tender document for works. 15.4 Describe the preparation of standard tender document for goods. 15.5 Describe the process of tender submission. 15.6 Describe the process of evaluation of tender documents.