**17CE3204 – CONSTRUCTION PLANNING & MANAGEMENT**

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| **Course Category** | Professional Core | **Credits** | 3 |
| **Course Type** | Theory | **Lecture - Tutorial - Practical** | 2 - 2 - 0 |
| **Prerequisite** | None | **Sessional Evaluation** | 40 |
| **Semester End Exam Evaluation** | 60 |
| **Total Marks** | 100 |

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| **Course Objectives** | 1. To understand the significance of construction management. 2. To study the construction planning using CPM and PERT methods. 3. To study the various equipment of construction industry and their significance. 4. To understand the need of the inspection for quality control in construction project. 5. To perform ethical audit and prepare audit statement. 6. To understand the concept of safety and risk on construction planning and organizational structures and roles. | |
| **Course Outcomes** | CO1 | Understand the basics of construction management. |
| CO2 | Schedule various components of project and apply CPM and PERT techniques. |
| CO3 | Know the working of various equipments in construction industries. |
| CO4 | Perform inspection for quality control. |
| CO5 | Perform ethical audit and prepare audit statement. |
| CO6 | Understand the importance of safety and risk in construction and organizational structures and roles. |
| **Course Content** | **UNIT - I**  **INTRODUCTION:** Significance of construction management – Objectives and functions of construction management – Types of construction – Resources for construction industry – Stages of construction – Construction team – Engineering drawings.  **UNIT - II**  **CONSTRUCTION PLANNING:** Stage of planning – Scheduling – Preparation of material – Equipment – Labour and finance schedules – Bar charts – Mile stone charts.  **NETWORK TECHNIQUES IN CONSTRUCTION MANAGEMENT:** Critical Path Method (CPM) – Programe Evaluation and Review Technique (PERT) – Network techniques breakdown structures – Classification of activities – Rules for developing networks – Network development – Network analysis – Critical activities and critical path – Cost optimization.  **UNIT - III**  **CONSTRUCTION AND EQUIPMENT MANAGEMENT:** Equipment requirement in construction industry – Heavy earth moving equipment: Bulldozer, scrapers, loaders, excavator, shovels and cranes – Compaction equipment – Grading equipment – Aggregate production equipment – Asphalt mixing plant – Asphalt laying equipment – Hauling equipment – Concrete mixing equipment – Material handling devices – Pneumatic equipment – Bridge construction equipment – Drilling and blasting equipment – Pumping and dewatering equipment.  **UNIT – IV**  **INSPECTION:** Need for inspection and quality control – Principals of inspection–Enforcement of specifications – Stages of inspection and quality control.  **UNIT – V**  **QUALITY CONTROL:** Ethical Audit: Introduction – Aspects of project realization – Ethical audit procedures – The decision makers – Variety of interests – Formulation of briefs – The audit statement – The audit reviews.  **UNIT – VI**  **SAFETY AND RISK:** Introduction – Safety and risk – Concept and importance of safety – Types of risk – Safety and engineers – Safety measures in construction works – Design for safety – Risk benefit analysis – Accidents.  **ORGANISING CONSTRUCTION:** Principals of organization – Communication –Leadership and human relations – Types of organization – Organization for a construction firm – Temporary services – Job layout**.** | |

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| **Textbooks**  **and References** | **TEXTBOOKS:**  1. Construction Planning and Management by P.S. Gahlot and B.M Dhir.  2. Construction Equipment and its Management by S.C. Sharma.  3. Construction Management and Machinery by B.L Gupta and Amit Gupta.  **REFERENCE BOOKS:**  1. Engineering Ethics by M. Govinda Rajan.  2. Construction Engineering and Management by S. Seetharaman.  3. Construction Management and Accounts by Haripal Singh. |