**Lecture Plan**

Branch : civil engineering Semester : iii

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| Name of faculty | s.k. sur |
| subject | Construction technology |
| Contract hour | 42 hrs |
| Learning aids required | White board, marker, eraser,  Laptop & lcd projector in 401 or 501 |
| Size of section | 65 each |
| Objective | This lecture plan provides a comprehensive introduction to every aspect of project planning and management including financial evaluation of the project, project cost and time control  It offers the concept of contract management and safety and risk management along with arbitration etc |
| Entry behaviour | Students are familiar with |
| Means of assessment | Adequate information of the back ground of the students are obtained from faculty of previous semester and own assessment will be done with initial interaction in the class room so as to fine tune the methodology of lectures appropriately suiting to their level of understanding. |
| Guidance | * To be regular, punctual in the class and attentive to the lecture * To be inquisitive and ask more question with paraphrasing through encouraging environment of class room * Time--- 42hrs are needed to complete the content * Content—introduction to be provided in combination with development of content and summery * Aids—brief notes on critical topics shall be provided |

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| unit | lecture | duration | Details of content | Learning aids |
| I | Lec-1 | 1 hr | * Capital investment proposal and criteria |  |
| Lec-2 | 1 hr | * **Building requirement and construction system** * Type of building and construction * Building components and their function |  |
| Lec-3 | 1 hr | * Load bearing and frame structure * construction * foundation and site preparation |  |
| Lec-4 | 1 hr | * Type of foundation, depth of foundation, foundation plan |  |
| Lec-5 | 1 hr | * Sequence of construction activities and coordination |  |
| Lec6&7 | 2 hrs | * **Temporary structures**...types and method of shoring, shuttering, formwork and scaffolding | Laptop& lcd projector |
| Lec 8 &9 | 2 hrs | * Lift slab construction technique | do |
| Lec-10 | 1 hr | * Prefabrication and precast construction and their merits and demerits |  |
| Lec-11 | 1 hr | * **Historical perception of brick work** * Brick work and stone masonry: basic principle of stone masonry |  |
| Lec-12&13 | 2 hrs | * Type of bonds and its merit and demerit of English ,Flemish and double Flemish bond |  |
| Lec-14 | 1 hr | * Comparison between **stone and brick masonry** * Classification and general principle of stone masonry |  |
| II  III | Lec-15 | 1 hr | * **Damp proofing** * Its causes, effects and precautionary measure * Material for damp proofing in buildings |  |
| Lec-16 &17 | 2 hrs | * **Anti termite treatment** * Causes and effects * Materials as per approval of govt * Methodology |  |
| Lec-17 | 1 hr | * **Joints** * Type of joints and its requirement * Construction details and material to be used * Grouting of precast concrete structures |  |
| Lec-18 | 1 hr | * **Arches and lintels** * Type of lintels and arches * Construction details of thin precast lintels etc |  |
| Lec-19 | 1 hr | * **Partition wall** * Type of walls, * requirement and use of partition wall |  |
| Lec-20 &21 | 2 hrs | * stairs * type of stair cases and uses * requirement of good staircase and construction methodology * lift and elevators and lamps * fittings and fixtures * **fabrication and erection work** * materials required for fabrication of steel structures * layout ,fabrication of steel structures * wielding process * handling and transportation and equipments to be used * methodology of erection adhering to safety norms and equipment required for erection | Laptop & lcd projector |
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| Lec-22 &23 | 2 hrs |
| Lec-24 &25 | 2 hrs | * **Ground floor and upper floor** * Type of floors * Component and function of component * Details of construction * Merits and demerits |  |
| Lec-26 & 27 | 2 hrs | * **Roof and roof covering** * Purpose and classification of roof * Type of pitched roof and its trusses * Terminology of different component of truss * Method of construction and erection procedure * Roof covering material * Rcc ribbed slab for floor * Plank flooring |  |
| IV  V | Lec-28 & 29 | 2 hrs | * **Advance construction equipments** * Earth moving equipments * Excavator, dozer, scrapper ,loader etc and their capacity and manufacturers * Their output | Laptop & lcd projector |
| Lec-30 | 1 hr | * Hauling equipment * Tripper, dumper, hyva, trailor, tractor * Their capacity and output |  |
| Lec-31 | 1 hr | * Compaction equipment * Road roller and its types * Plate compactor, rammer * Manufacturers and capacity and output |  |
| Lec-32 | 1 hr | * Dewatering equipments * Type of pumps and their function * Nameof manufacturers and discharge capacity * Grouting equipment and its function |  |
| Lec-33 & 34  Lec35 &36 | 2 hr  2 hrs | * Pile driving equipment * Concreting equipment * Concrete mixer and its capacity * Batching plant and is capacity * Drag line * Transit mixer and its capacity * Concrete pump and its function * Boom placer and its function * Concrete vibrators and its uses * Brand name of each equipment * Detailed information of manufacturers * Approximate cost of each equipment * **Equipment management construction project** * Assess the requirement of each category of equipment * Select the equipment required for the work * Find out capacity and out put * Forecast the requirement of equipments |  |
| Lec-37& 38 | 2 hrs | * Spare parts management * Assess essential spare parts * Owning cost and investment * Depreciation cost and calculation of * depreciation by various methods |  |
| Lec-39&40 | 2 hrs | * Calculation of major repair costs * Over head cost accounting * Breakeven point theory * Cost volume profit * Variable and fix cost * Contribution-sale ratio |  |
| Lec 41 | 1 hr | * Replacement of equipment * Maintenance management * Type of maintenance * Break down maintenance * Planned and unplanned * Run to break down |  |
| Lec 42 | 1 hr | * Preventive and reactive maintenance * Function of preventive maintenance * Technique of enhancing maintenance |  |
|  | **42 hrs** |  |  |

**Note**

1. **Total contract hours is 42 as per syllabus**
2. **Assessment of outcomes shall be as per teacher’s profile**