

VAISH TECHNICAL INSTITUTE, ROHTAK

Lesson Plan

Name of the Faculty : VIRENDER SINGH DALAL, HOD

Discipline : CIVIL Engg.

Semester : 4th

Subject : Concrete Technology

Lesson Plan Duration : Jan-Apr 2019

Work Load (Lecture/Practical) per week : Lectures-03, practical -02 per group

| Week | Theory | | Practical | |
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| | Lecture day | Topic (Including assignment / test) | Practical Day | Topic |
| 1st | 1 | Chapter 1. Introduction Definition of concrete uses of concrete in comparison to other building material | 1 | To determine the physical properties of cement as per IS Codes |
| | 2 | Chapter 2. Ingredients of Concrete Cement: physical properties of cement; different types of cement as per IS Codes Aggregates | | |
| | 3 | Classification of aggregates according to size and shape Characteristics of aggregates: Particle size and shape, surface texture, specific gravity of aggregate | | |
| 2nd | 4 | Bulk density, water absorption, surface moisture, bulking of sand deleterious materials soundness | 2 | To determine flakiness and elongation index of coarse aggregates |
| | 5 | Grading of aggregates: coarse aggregate, fine aggregate; All-inaggregate; fineness modulus; interpretation of grading charts | | |
| | 6 | Water: Quality requirements as per IS:456-2000 | | |
| 3rd | 7 | Chapter3. Water Cement Ratio Hydration of cement, principle of water-cement ratio | 3 | To determine flakiness and elongation index of coarse aggregates |
| | 8 | Duff Abram's Water-cement ratio law: Limitations of water-cement ratio law, Limitations of water-cement ratio law and its effects on strength of concrete | | |
| | 9 | Chapter4. Workability Workability factors affecting workability, Measurement of workability | | |

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| 4th | 10 | slump test, compacting factor and Vee Bee consistometer; Recommended slumps for placement in various conditions as per IS :456-2000/SP-23 | 4 | Determination of specific gravity and water absorption of aggregates |
| | 11 | Revision | | |
| | 12 | Assignment No.1 : 1.Characterises of Aggregates, F.M. of Aggregates, Duff Abranfs Water-cement ratio law | | |
| 5th | 13 | Sessional Test No.1 | 5 | Determination of bulk density and voids of aggregates |
| | 14 | Chapter5. Properties of Concrete Properties in plastic state | | |
| | 15 | Workability, Segregation, Bleeding and Harshness | | |
| 6th | 16 | Properties in hardened state: Strength, Durability, Impermeability, Dimensional changes | 6 | To determine surface moisture in fine aggregate by displacement method |
| | 17 | Chapter 6. Proportioning for Normal Concrete Objectives of mix design | | |
| | 18 | introduction to various grades as per IS:456 2000; proportioning for nominal mix design as prescribed by IS 456-2000 | | |
| 7th | 19 | Adjustment on site for: Bulking of fine aggregate, water absorption of aggregate, workability | 7 | Determination of particle size distribution of fine, coarse and all in aggregate by sieve analysis (grading of aggregate) |
| | 20 | Difference between nominal and controlled concrete Introduction to IS-10262-2009-Code for controlled mix design | | |
| | 21 | Chapter7. Introduction to Admixtures | | |
| 8th | 22 | Revision | 8 | To determine necessary adjustment for bulking of fine aggregate |
| | 23 | Assignment No.2: Adjustment at site for bulking of sand, Difference between nominal and controlled concrete, Admixture | | |
| | 24 | Sessional Test No.2 | | |
| 9th | 25 | Chapter8. Special Concretes (only features) Concreting under special conditions | 9 | To determine workability by slump test |
| | 26 | difficulties and precautions before, during and after concreting,Cold weather concreting | | |
| | 27 | Ready mix concrete,Fibre reinforced concrete,Polymer Concrete,Silica fume concrete,Fly ash concrete | | |

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| 10th | 28 | Chapter9.Concreting Operations Storing of Cement, Storing of cement in a warehouse | 10 | To verify the effect of water, fine aggregate/coarse aggregate ratio and aggregate/Cement ratio on slump |
| | 29 | Storing of cement at site, Storing of cement in a warehouse, Effect of storage on strength of cement | | |
| | 30 | Storing of Aggregate: Storing of aggregate at site, Batching (to be shown during site visit) | | |
| 11th | 31 | Batching of Cement, Batching of aggregate by: Volume, using gauge box (farma) selection of proper gauge | 11 | Compaction factor test for workability |
| | 32 | Weight spring balances and batching machines | | |
| | 33 | Measurement of water, Mixing, Hand mixing | | |
| 12th | 34 | Machine mixing - types of mixers, capacities of mixers, choosing appropriate size of mixers, operation of mixers | 12 | Non destructive test on concrete by rebound hammer |
| | 35 | Maintenance and care of machines, Transportation of concrete: Transportation of concrete using: wheel barrows, transit mixers, chutes, belt conveyors, pumps, tower crane and hoists etc | | |
| | 36 | Placement of concrete, Checking of form work, shuttering and precautions to be taken during placement | | |
| 13th | 37 | Compaction, Hand compaction, Machine compaction - types of vibrators, internal screed vibrators, and form vibrators, Selection of suitable vibrators for different situations | 13 | Non destructive test on concrete by ultrasonic pulse velocity test |
| | 38 | Finishing concrete slabs - screeding, floating and trowelling, Curing | | |
| | 39 | Objectives of curing, methods of curing like ponding, membrane curing, steam curing, chemical curing, Duration for curing and removal of form work | | |

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| 14th | 40 | Objectives of curing, methods of curing like ponding, membrane curing, steam curing, chemical curing, Duration for curing and removal of form work | 14 | Tests for compressive strength of concrete cubes for different grades of concrete |
| | 41 | Jointing: Location of construction joints, treatment of construction joints, expansion joints in buildings - their importance and location | | |
| | 42 | Chapter 10; Importance and methods of non-destructive tests (introduction only) non-destructive tests | | |
| 15th | 43 | Revision | 15 | Revision |
| | 44 | Assignment No.3 Curing, Objectives of curing, Cold weather concreting, Compaction, Fibre reinforced concrete, Readymix concrete, comparison between machine mixing and hand mixing of concrete | | |
| | 45 | Sessional Test No.3 | | |

VAISH TECHNICAL INSTITUTE, ROHTAK**Lesson Plan****Name of the Faculty : VIRENDER SINGH DALAL, HOD****Discipline : CIVIL ENGG.****Semester : 6th****Subject : Construction Management & Accounts****Lesson Plan Duration : Jan-Apr 2019****Work Load (Lecture) per week : 04 Lectures**

| Week | Lecture Day | Topic |
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| 1st | 1st | Introduction Of Construction Management Significance. |
| | 2ND | Main Objectives Of Construction Management |
| | 3RD | Function Of Construction Management |
| | 4TH | Classification Of Construction Into Light Heavy And Industrial Construction. |
| 2nd | 1st | Construction Planning, Stages Of Construction Planning. Pre Tender Stage And Contract Stage. |
| | 2ND | Scheduling Construction Works By Bar Chart. |
| | 3RD | Definition Of Activity, Identification, Preparation Of Bar Chart. |
| | 4TH | Preparation Of Bar Chart For Simple Construction Works |
| 3rd | 1st | Preparation Of Schedules For Labour , Materials And Machinery |
| | 2ND | Limitations Of Bar Chart. Introduction To Scheduling By Network Analysis |
| | 3RD | Analysis Of PERT |
| | 4TH | Analysis Of CPM |

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| 4th | 1st | Difference Between PERT And CPM |
| | 2ND | Organization |
| | 3RD | Types Of Organizations. Line, Line And Staff, Functional And Their Characteristics. |
| | 4TH | Site Organisation |
| 5th | 1st | Principal Of Storing And Stacking Materials At Site. Location Of Equipments |
| | 2ND | Preparation Of Actual Job Layout For A Building |
| | 3RD | Organizing Labour At Site |
| | 4TH | Construction Labour, Introduction |
| 6th | 1st | Methods Of Recording Process. Labor Welfare Act 1936(As Amended) |
| | 2ND | Payment Of Wages Act 1936(As Amended) |
| | 3RD | Minimum Wages Act 1948(As Amended) |
| | 4TH | Control Of Progress, Introduction |
| 7th | 1st | Method Of Recording Progress |
| | 2ND | Analysis Of Progress. Taking Corrective Actions Keeping Head Office Informed |
| | 3RD | Cost Time Optimization For Simple Jobs (Direct And Indirect Costs) |
| | 4TH | Variation With Time And Cost Optimization |

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| 8 th | 1 st | Inspection And Quality Control , Introduction. Need For Inspection And Quality Control For The Following 1-Earthwork 2-Masonry |
| | 2 ND | 3-RCC 4-Sanitary And Water Supply Services |
| | 3 RD | Accidents And Safety In Constructions ,Introduction |
| | 4 TH | Accidents – Causes And Remedied |
| 9 th | 1 st | Safety Measure For 1-Excavation Work 2-Drilling And Blasting |
| | 2 ND | 3-Hot Bituminous Work 4- Scaffolding , Ladders , Formworks |
| | 3 RD | 5-Demolition |
| | 4 TH | Safety Campaign And Safety Devices |
| 10 th | 1 st | Public Works Accounts , Introduction, Technical Sanction, Administrative Approval |
| | 2 ND | Allotment Of Funds, Re Appropriation Of Fund Bills |
| | 3 RD | Contractor Ledger, Measurement Book |
| | 4 TH | Running And Final Account Bills |
| 11 th | 1 st | Preparation Of BOQ,Completion Certificate And Report , Hand Receipt |
| | 2 ND | Aquittance Roll, Muster Roll Labour |
| | 3 RD | Casual Labour Rolls Duties, And Responsibility Of Different Cadres. |
| | 4 TH | Budget Stores, Account Of Stock |

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| 12 th | 1 st | PW Advances T&P |
| | 2 ND | Verification, Survey Report |
| | 3 RD | Road Metal Material Charged Direct To Works |
| | 4 TH | Account, Expenditure And Revenue Report Remittance And Deposit Head |
| 13 th | 1 st | Definition Of Cash, Cash Book |
| | 2 ND | Precaution In Custody Of Cashbook |
| | 3 RD | Imprest Account |
| | 4 TH | Temporary Advance |
| 14 th | 1 st | Treasury Challan |
| | 2 ND | Preparation Of Final Bill |
| | 3 RD | Precautions Taken During Final Bill |
| | 4 TH | Account Register |
| 15 th | 1 st | How To Prepare Account Register |
| | 2 ND | Stock Register |
| | 3 RD | How To Prepare Stock Register |
| | 4 TH | Revision |