Lab Name: Transportation Engineering Lab

Branch: Civil & III-I

A.Y: 2025-2026

Course Code: 23CEL306

| S.No | Lab lesson schedule | No of hours |
|------|---------------------|-------------|
| 1 | Aggregate Crushing value | 3 |
| 2 | Aggregate Impact Test. | 3 |
| 3 | Specific Gravity and Water Absorption. | 3 |
| 4 | Attrition Test | 3 |
| 5 | Abrasion Test. | 3 |
| 6 | Shape tests | 3 |
| 7 | Viscosity Test. | 3 |
| 8 | Ductility Test. | 3 |
| 9 | Softening Point Test. | 3 |
| 10 | Flash and fire point tests. | 3 |
| 11 | Penetration test | 3 |
| 12 | Stripping test | 3 |
| | | |
| | Total contact hours | 36 |

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| Contact Hour (Cumulative) | Unit No. | Topic | Teaching Methodology | Remarks |
|---|---|---|---|---|
| 1 | I | Introduction | PPT | |
| 2 | I | Highway development | PPT | |
| 3 | I | Modes of transportation, role of highway transportation in India | PPT | |
| 4 | I | Necessity and road development plans | PPT | |
| 5 | I | Road development plans | PPT | |
| 6 | I | Road network patterns | PPT & BB | |
| 7 | I | Alignment | BB | |
| 8 | I | Factors affecting alignment | BB | |
| 9 | I | Engineering surveys and drawings | PPT & BB | |
| 10 | II | Geometric design, Cross section elements | PPT | |
| 11 | II | Sight distance and types | BB | |
| 12 | II | SSD, OSD, ISD | BB | |
| 13 | II | Sight distance problems | BB | |
| 14 | II | Super elevation | BB | |
| 15 | II | Problems on super elevation | BB | |
| 16 | II | Design of transitional curve | BB | |
| 17 | II | Extra widening | BB | |
| 18 | II | Design of vertical curves | BB | |
| 19 | II | Design of vertical curves | BB | |
| 20 | II | Vertical gradient | BB | |

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|---|---|---|---|---|
| 21 | III | Highway material – soil | PPT | |
| 22 | III | Aggregate properties | PPT | |
| 23 | III | Aggregate tests | PPT & BB | |
| 24 | III | Bitumen and tar | PPT | |
| 25 | III | Tests on bitumen | PPT | |
| 26 | III | Bitumen types | PPT | |
| 27 | III | Problems on mix design | PPT | |
| 28 | III | Bituminous concrete | PPT | |
| 29 | III | Marshall mix design | BB | |
| 30 | III | Different types of roads | PPT & BB | |
| 31 | III | Earthen and WBM Roads | BB | |
| 32 | III | BT roads | PPT & BB | |
| 33 | III | CC roads and stresses | PPT & BB | |
| 34 | III | Tie bars and dowel bars | PPT & BB | |
| 35 | III | Flexible pavement construction | PPT & BB | |
| 36 | III | Distresses on flexible pavement | PPT | |
| 37 | III | Types of pavement & maintenance | PPT & BB | |
| 38 | III | Maintenance and drainage | PPT | |
| 39 | III | Arboriculture culture and lighting | PPT | |
| 40 | IV | Elements of Traffic Engineering - Vehicle & Road User Characteristics, | PPT | |
| 41 | IV | Accessibility & Mobility concept, | PPT | |

| 42 | IV | Traffic Volume studies & methods, | PPT | |
|----|-----|-----------------------------------|-----|---|
| 43 | IV | Speed Studies – Time Mean Speed, Space Mean Speed, | PPT & BB | |
| 44 | IV | Travel time and Delay studies, | PPT | |
| 45 | IV | Origin - Destination studies, | PPT & BB | |
| 46 | V | Highway capacity and level of service (LOS) | BB | |
| 47 | V | Highway capacity and level of service (LOS) | PPT | |
| 48 | V | capacity of urban and rural roads, | PPT | |
| 49 | V | PCU concept and its limitations | PPT | |
| 50 | V | Parking Studies – Problems of parking, | PPT | |
| 51 | V | types of parking facilities – on street & off street, | PPT | |
| 52 | V | types of parking facilities – on street & off street, | PPT | |
| 53 | V | Accidents -Causes and Mitigative measures | PPT | |
| 54 | V | Accident data Recording | PPT | |
| 55 | V | Condition Diagram and Collision Diagrams | PPT | |

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# ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

## (AN AUTONOMOUS INSTITUTION)

Class: III-I [Section: B]   **B. TECH (2025-26)**

Subject: Irrigation and Water Resources Engineering (23CET311)

Faculty Name: Dr. M. Suresh

| Contact Hour (Cumulative) | Unit No. | Topics | Teaching Methodology | Remarks |
|---|---|---|---|---|
| 1 | 1 | Hydrological Cycle, World water balance | PPT | |
| 2 | 1 | Water - budget equation, Problems | BB | |
| 3 | 1 | Forms & measurement of precipitation | BB | |
| 4 | 1 | Rainguage network systems and Types | PPT | |
| 5 | 1 | Mean area precipitation | BB | |
| 6 | 1 | Depth-area duration, Maximum intensity relationship | PPT | |
| 7 | 1 | Depth-duration frequency relationship, Probable max precipitation | BB | |
| 8 | 1 | Numerical related to DAD | BB | |
| 9 | 1 | Evaporation process frequency relationship, Analytical methods of evaporation process | BB | |
| 10 | 1 | Reservoir evaporation for its reduction, Interception, depression storage | BB | |
| 11 | 1 | Infiltration, Infiltration capacity | BB | |
| 12 | 1 | Measurement & Classification of infiltrations | BB | |
| 13 | 1 | Infiltrations indices and its numerical | BB | Unit-I will be completed |
| 14 | 2 | Hydrograph | BB | |
| 15 | 2 | Factors affecting runoff hydrograph | PPT | |
| 16 | 2 | Components of hydrograph | PPT | |
| 17 | 2 | Base flow separation and its numerical | BB | |
| 18 | 2 | Effective rainfall and unit hydrograph | BB | |
| 19 | 2 | Effective rainfall and unit hydrograph | BB | |
| 20 | 2 | Unit hydrograph | BB | |
| 21 | 2 | S-hydrograph, IUH | BB | |
| 22 | 2 | S-hydrograph and IUH Numerical | BB | Unit-II will be completed |
| 23 | 3 | Saturated formation, aquifer properties | PPT | |
| 24 | 3 | Geological formation of aquifers | PPT | |
| 25 | 3 | Well Hydraulics | BB | |

| | | | | |
|---|---|---|---|---|
| 26 | 3 | steady state flow in wells | BB | |
| 27 | 3 | Equilibrium equations for confined and unconfined | BB | |
| 28 | 3 | Numerical related to confined, unconfined aquifer | BB | Unit-III will be completed |
| 29 | 4 | Aquifer tests | PPT | |
| 30 | 4 | Water withdraws and uses introduction | BB | |
| 31 | 4 | Analysis of surface water supply | BB | |
| 32 | 4 | Duty and delta problems soil water relationships | BB | |
| 33 | 4 | Duty and delta problems soil water relationships | BB | |
| 34 | 4 | Infiltration, problems | BB | |
| 35 | 4 | Estimation of evapotranspiration | PPT | |
| 36 | 4 | Numerical related to estimation of evapotranspiration | BB | |
| 37 | 4 | Irrigation requirements | PPT | |
| 38 | 4 | Methods of applying water to the fields | PPT | |
| 39 | 4 | Water logging | BB | Unit-IV will be completed |
| 40 | 5 | Design of channels introduction | PPT | |
| 41 | 5 | Alluvial channels | BB | |
| 42 | 5 | Kennedy's theory and design steps | BB | |
| 43 | 5 | Numerical related to Kennedy's Theory | BB | |
| 44 | 5 | Lacey's theory and design steps | BB | |
| 45 | 5 | Numerical related to Lacey's Theory | BB | |
| 46 | 5 | River Training Works | PPT | |
| 47 | 5 | classification and objectives of River Training works | PPT | |
| 48 | 5 | Types of Cross Drainage Works | PPT | Unit-V will be completed |

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# LESSON PLAN
## ACADAMIC YEAR: 2025-26
## YEAR & SEM: III/I,
## SECTION: A
## FACULTY NAME: Sri. G. GOWRI SANKARAREAO
## SUBJECT: ADVANCDC STRUCTURAL ANALYSIS

| Contact Hour (Cumulative) | Unit No. | Topic | Teaching Methodology | Remarks |
|---|---|---|---|---|
| 1 | I | Assumptions in slope deflection method - application to the analysis of statically indeterminate beams with and without settlement of supports | BB & PPT | |
| 2 | I | Solving the problems of continuous beam without sinking | BB | |
| 4 | I | Solving the problems of continuous beam without sinking | BB | |
| 5 | I | Solving the problems of continuous beam with sinking | BB | |
| 6 | I | Solving the end moments of the rigid frame without sway | BB | |
| 8 | I | Solving the end moments of the rigid frame with sway and draw the BMD & SFD, Solving the end moments of the rigid frame with sway and draw the BMD & SFD | BB | |
| 9 | II | Moment Distribution method explain Stiffness and carry over factors and also Distribution factors | BB & PPT | |
| 10 | II | Solving the problems of continuous beam end moments without sinking | BB | |
| 12 | II | Solving the problems of continuous beam end moments without sinking and draw BMD. | BB | |
| 13 | II | Solving the problems of continuous beam end moments with sinking and draw BMD. | BB | |
| 15 | II | Solving the end moments of the rigid frame and draw the BMD & SFD, Solving the end moments of the rigid frame with sway and draw the BMD & SFD | BB | |
| 16 | III | Kani's method- Analysis of continuous beams – including without sinking | BB | |
| 17 | III | Analysis of continuous beams – including without sinking | BB | |

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| 19 | III | Kani's method- Analysis of continuous beams – including witht sinking | BB | |
|---|---|---|---|---|
| 20 | III | Kani's method- Analysis of continuous beams – including without sinking | BB | |
| 21 | III | Analysis of continuous beams – including without sway | BB | |
| 23 | III | Analysis of continuous beams – including without sway | BB | |
| 24 | III | Find end moments and draw the BMD & SFD of the portal frame with sway | BB | Unit-3 will be completed |
| 25 | IV | Introduction to Stiffness Method | BB | |
| 26 | IV | Analysis of continuous beams with two unknons. | BB | |
| 27 | IV | Analysis of continuous beams with two unknons. | BB | |
| 39 | IV | Analysis of continuous beams with two unknons. | BB | |
| 30 | IV | Analysis of portal frame with two unknons. | BB | |
| 31 | IV | Analysis of portal frame with two unknons | BB | |
| 33 | IV | Analysis of portal frame with two unknons | BB | |
| 34 | IV | Analysis of portal frame with two unknons | BB | Unit-4 will be completed |
| 35 | V | Explanation of flexibility method | BB | |
| 36 | V | Analysis of continuous beams with two unknons use flexibility method | BB | |
| 38 | V | Analysis of continuous beams with two unknons. | BB | |
| 39 | V | Analysis of portal frame with two unknons | BB | |
| 41 | V | Analysis of portal frame with two unknons by flexibility method | BB | |
| 42 | V | f Analysis of portal frame with two unknons by flexibility method | BB | Unit-5 will be completed |
| 42 | VI | Introduction to Plastic Analysis | BB | |
| 44 | VI | Assumption in plastic theory-plastic hinge-plastic moment or collapse moment-collapse load | BB & PPT | |
| 45 | VI | load factor- shape factor- collapse load for Different types of beams | BB | |
| 46 | VI | Find the collapse load in beams | BB | |
| 48 | VI | Solving the collapse load in beams | BB | |
| 49 | VI | Solving the collapse load in beams | | |
| 50 | VI | Solving the collapse load in beams | | |
| 52 | VI | Solving the collapse load in beams | | Unit-6 will be completed |

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# ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
## (AN AUTONOMOUS INSTITUTION)
### B. TECH (2025-26)

Class: III-I [Section: A]

Subject: Irrigation and Water Resources Engineering (23CET311)

Faculty Name: Dr. Sanjay Kumar Ray

| Contact Hour (Cumulative) | Unit No. | Topics | Teaching Methodology | Remarks |
|---|---|---|---|---|
| 1 | 1 | Hydrological Cycle, World water balance | PPT | |
| 2 | 1 | Water - budget equation, Problems | BB | |
| 3 | 1 | Forms & measurement of precipitation | BB | |
| 4 | 1 | Rainguage network systems and Types | PPT | |
| 5 | 1 | Mean area precipitation | BB | |
| 6 | 1 | Depth-area duration, Maximum intensity relationship | PPT | |
| 7 | 1 | Depth-duration frequency relationship, Probable max precipitation | BB | |
| 8 | 1 | Numerical related to DAD | BB | |
| 9 | 1 | Evaporation process frequency relationship, Analytical methods of evaporation process | BB | |
| 10 | 1 | Reservoir evaporation for its reduction, Interception, depression storage | BB | |
| 11 | 1 | Infiltration, Infiltration capacity | BB | |
| 12 | 1 | Measurement & Classification of infiltrations | BB | |
| 13 | 1 | Infiltrations indices and its numerical | BB | Unit-I will be completed |
| 14 | 2 | Hydrograph | BB | |
| 15 | 2 | Factors affecting runoff hydrograph | PPT | |
| 16 | 2 | Components of hydrograph | PPT | |
| 17 | 2 | Base flow separation and its numerical | BB | |
| 18 | 2 | Effective rainfall and unit hydrograph | BB | |
| 19 | 2 | Effective rainfall and unit hydrograph | BB | |
| 20 | 2 | Unit hydrograph | BB | |
| 21 | 2 | S-hydrograph, IUH | BB | |
| 22 | 2 | S-hydrograph and IUH Numerical | BB | Unit-II will be completed |
| 23 | 3 | Saturated formation, aquifer properties | PPT | |
| 24 | 3 | Geological formation of aquifers | PPT | |
| 25 | 3 | Well Hydraulics | BB | |

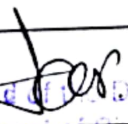| | | | | |
|---|---|---|---|---|
| 26 | 3 | steady state flow in wells | BB | |
| 27 | 3 | Equilibrium equations for confined and unconfined | BB | |
| 28 | 3 | Numerical related to confined, unconfined aquifer | BB | Unit-III will be completed |
| 29 | 4 | Aquifer tests | PPT | |
| 30 | 4 | Water withdraws and uses introduction | BB | |
| 31 | 4 | Analysis of surface water supply | BB | |
| 32 | 4 | Duty and delta problems soil water relationships | BB | |
| 33 | 4 | Duty and delta problems soil water relationships | BB | |
| 34 | 4 | Infiltration, problems | BB | |
| 35 | 4 | Estimation of evapotranspiration | PPT | |
| 36 | 4 | Numerical related to estimation of evapotranspiration | BB | |
| 37 | 4 | Irrigation requirements | PPT | |
| 38 | 4 | Methods of applying water to the fields | PPT | |
| 39 | 4 | Water logging | BB | Unit-IV will be completed |
| 40 | 5 | Design of channels introduction | PPT | |
| 41 | 5 | Alluvial channels | BB | |
| 42 | 5 | Kennedy's theory and design steps | BB | |
| 43 | 5 | Numerical related to Kennedy's Theory | BB | |
| 44 | 5 | Lacey's theory and design steps | BB | |
| 45 | 5 | Numerical related to Lacey's Theory | BB | |
| 46 | 5 | River Training Works | PPT | |
| 47 | 5 | classification and objectives of River Training works | PPT | |
| 48 | 5 | Types of Cross Drainage Works | PPT | Unit-V will be completed |

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# Lesson plan for BDRCS III / I 2025-26

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1 | I | Introduction to Reinforced concrete structures and its practical application | PPT | | |
| | 2 | I | Working Stress Method (WSM) | PPT | | |
| | 3 | I | Working Stress Method (WSM) | PPT | | |
| | 4 | I | Limit state design statistical principles-characteristic loads, strength, γ | PPT | | |
| | 5 | I | IS 456 provisions, Clauses Over view | Chalk & Talk | | |
| | 6 | I | Representative stress-strain curves deformed bars and mild steel bars | Role Play | | |
| | 7 | I | Comparison LSD, WSM and ULM. Assumptions of LSD | PPT | | |
| | 8 | I | Stress–block parameters | Chalk & Talk | | |
| | 9 | I | Stress–block parameters | Chalk & Talk | | |
| | 10 | I | limit state analysis and design of singly reinforced balanced section | Chalk & Talk | | |
| | 11 | I | limit state analysis and design of singly reinforced- URS | Chalk & Talk | | |
| | 12 | I | limit state analysis and design of singly reinforced-URS | Chalk & Talk | | |
| | 13 | I | limit state analysis and design of singly reinforced-URS | Chalk & Talk | | |
| 3 | 14 | I | limit state analysis and design of singly reinforced-ORS | Chalk & Talk | | |
| | 15 | I | limit state analysis of singly reinforced-ORS | Chalk & Talk | Unit-3 will be completed |
| | 16 | II | Introduction to doubly reinforced sections | PPT | | |
| | 17 | II | limiting moment of Resistance | Chalk & Talk | | |
| | 18 | II | Design of doubly reinforced | Chalk & Talk | | |
| | 19 | II | Design of doubly reinforced | Chalk & Talk | | |
| | 20 | II | Design of doubly reinforced | Chalk & Talk | | |
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| | | | | | | |

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|---|---|---|---|---|---|---|
| 21 | II | Design of doubly reinforced | Chalk & Talk | | | |
| 22 | II | Limit state analysis and design of section for shear and torsion introduction | PPT | | | |
| 23 . | II | Problems on shear- min shear reinforcement | Chalk & Talk | | | |
| 24 | II | Problems on shear | Chalk & Talk | | | |
| 25 | II | Problems on shear | Chalk & Talk | | | |
| 26 | II | Torsion example | Chalk & Talk | | | |
| 27 | II | Torsion example | Chalk & Talk | | | |
| 28 | II | Concept of bond, anchorage and development length, I.S. code provisions | PPT | | | |
| 29 | II | Problem | Chalk & Talk | | | |
| 30 | II | Problem | Chalk & Talk | Unit-2 will be completed | | |
| 31 | III | Introduction and classification of slabs | Chalk & Talk | | | |
| 32 | III | Design of one - way slab | Chalk & Talk | | | |
| 33 | III | Design of one - way slab | Chalk & Talk | | | |
| 34 | III | Design of one - way slab | Chalk & Talk | | | |
| 35 | III | Design of two - way slab | Chalk & Talk | | | |
| 36 | III | Design of two - way slab | Chalk & Talk | | | |
| 37 | III | Design of two - way slab | Chalk & Talk | | | |
| 38 | III | Design of continuous slabs using IS Coefficients (conventional) | Chalk & Talk | | | |
| 39 | III | Design of continuous slabs using IS Coefficients (conventional) | Chalk & Talk | | | |
| 40 | III | Design of continuous slabs using IS Coefficients (conventional) | Chalk & Talk | Unit-3 will be completed | | |
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|---|---|---|---|---|
| 41 | IV | Introduction to columns, Slenderness ratio, Effective length of a column | PPT | |
| 42 | IV | Design of short columns under axial loads | Chalk & Talk | |
| 43 | IV | Design of short columns under axial loads | Chalk & Talk | |
| 44 | IV | Design of short columns under axial loads | Chalk & Talk | |
| 45 | IV | Design of short columns under uniaxial bending | Chalk & Talk | |
| 46 | IV | Design of short columns under uniaxial bending | Chalk & Talk | |
| 47 | IV | Design of short columns under biaxial bending (Use of SP 16) | Chalk & Talk | |
| 48 | IV | Design of short columns under biaxial bending (Use of SP 16) | Chalk & Talk | |
| 49 | IV | Design of long columns (theory) | PPT | |
| 50 | IV | Design of long columns (theory) | PPT | Unit-4 will be completed |
| 51 | V | Types of footings | PPT | |
| 52 | V | Types of footings & Distribution of base pressure | PPT | |
| 53 | V | General Design considerations for footings. | PPT | |
| 54 | V | Design of Isolated rectangular footing | Chalk &Talk | |
| 55 | V | Design of Isolated rectangular footing | Chalk &Talk | |
| 56 | V | Design of Isolated rectangular footing | Chalk &Talk | |
| 57 | V | Design of Isolated square footing | Chalk &Talk | |
| 58 | V | Design of Isolated square footing | Chalk &Talk | |
| 59 | V | Design of combined rectangular footing | Chalk &Talk | |
| 60 | V | Design of combined rectangular footing | Chalk &Talk | Unit-5 will be completed |
| | | | | |

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Lab Name: Geographic Information System CRS4G15) lab

Branch: Civil Engineering

Year: 2025-2026

Semester: IV/I

Course Code: 20CEL411

| S. No | Lab Lesson Schedule | No. of Hours |
|---|---|---|
| 1 | Pre process of image / toposheet (which includes Geo referencing, Projection and Subset) | 3 |
| 2 | Digitization of Features from the Topo sheet | 3 |
| 3 | Topology of digitized of features | 3 |
| 4 | Study of features estimation | 3 |
| 5 | Creation of Thematic maps | 3 |
| 6 | Layout Preparation | 3 |
| 7 | Digital Elevation Model | 3 |
| 8 | Calculation of volumes for Hills and Tanks | 3 |
| 9 | Database creation for Road Network analysis | 3 |
| 10 | Delineation of watershed boundary | 3 |
| 11 | Mosaic of a dataset | 3 |
| 12 | Clip/Subset of a dataset | 3 |
| | Total Contact Hour | 36 |

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## AR-20 IV/I Sem. (2025-26) LESSON PLAN
### Course Name: REMOTE SENSING and GEOGRAPHIC INFORMATION SYSTEM

| Contact Hour (Cumulative) | Unit No. | Topic | Teaching Methodology | Remarks |
|---|---|---|---|---|
| 1 | I | Introduction to Remote Sensing | BB & Interactive | |
| 2 | I | Components of Remote Sensing | BB & LCD | |
| 3 | I | Electro Magnetic Radiation-Basic Wave Theory | BB & Student Seminar | |
| 4 | I | Electro Magnetic Radiation-Quantum Wave Theory | BB & Student Seminar | |
| 5 | I | Electro Magnetic Spectrum | BB & Student Seminar | |
| 6 | I | EMR interaction with Atmosphere | BB & LCD | |
| 7 | I | Scattering and Absorption | BB & LCD | |
| 8 | I | EMR interaction with Earth Surface Materials | BB & LCD | |
| 9 | I | EMR interaction with Vegetation | BB & LCD | |
| 10 | I | EMR interaction with Soil & Water | BB & LCD | |
| 11 | I | Atmospheric Windows & Its significance | BB & LCD | Unit-1 will be completed |
| 12 | II | Introduction to Platforms | BB & LCD | |
| 13 | II | Ground Borne & Air Borne | BB & LCD | |
| 14 | II | Space Borne Platforms | BB & LCD | |
| 15 | II | Sensors-types-Classification | BB | |
| 16 | II | Active Sensors | BB & LCD | |
| 17 | II | Passive Sensors | BB & LCD | |
| 18 | II | Introduction to Resolutions-Spectral resolution | BB & LCD | |
| 19 | II | Radiometric and Temporal Resolutions | BB & LCD | |
| 20 | II | Image data Characteristics | BB & LCD | |
| 21 | II | Image Data Formats-BIL, BIP and BSQ | BB & LCD | Unit-2 will be completed |
| 22 | III | Introduction to Image Analysis | BB & LCD | |
| 23 | III | Elements of Visual Interpretation | BB & LCD | |
| 24 | III | Digital Image Processing | BB | |
| 25 | III | Image Enhancement Techniques- Linear | BB & LCD | |
| 26 | III | Non Linear Enhancement Techniques | BB & LCD | |
| 27 | III | Introduction to image Classification | BB | |
| 28 | III | Supervised Classification | BB & LCD | |
| 29 | III | Un Supervised Classification | BB & LCD | Unit-3 will be completed |

| Contact Hour (Cumulative) | Unit No. | Topic | Teaching Methodology | Remarks |
|---|---|---|---|---|
| 30 | IV | Introduction to GIS | BB | |
| 31 | IV | Key Components | BB | |
| 32 | IV | Map Projections | BB | |
| 33 | IV | Projections Based on Scale | BB & LCD | |
| 34 | IV | Projections Based on Purpose | BB | |
| 35 | IV | Data-Spatial Data | BB | |
| 36 | IV | Non Spatial Data | BB | |
| 37 | IV | Spatial Data Inputs | BB | |
| 38 | IV | Raster Data Models | BB & LCD | |
| 39 | IV | Vector Data Models | BB & LCD | |
| 40 | IV | Raster Vs Vector Data | BB | Unit-4 will be completed |
| 41 | V | Introduction to Overlay analysis | BB | |
| 42 | V | Overlay function | BB & LCD | |
| 43 | V | Vector Overlay Operations | BB & LCD | |
| 44 | V | Raster Overlay Operators | BB & LCD | |
| 45 | V | Arithmetic Operators | BB & LCD | |
| 46 | V | Comparison & Logical Operators | BB & LCD | |
| 47 | V | Conditional Expressions & Overlay using Decision Table | BB & LCD | Unit-5 will be completed |
| 48 | VI | Introduction to RS & GIS applications | BB | |
| 49 | VI | Land use/Land cover applications | BB & LCD | |
| 50 | VI | Agricultural applications | BB & LCD | |
| 51 | VI | Forest applications | BB & LCD | |
| 52 | VI | Geological applications | BB & LCD | |
| 53 | VI | Geomorphological applications | BB & LCD | |
| 54 | VI | Urban applications | BB & LCD | |
| 55 | VI | Flood Zone Delineation | BB & LCD | Unit-6 will be completed |

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## SUBJECT : PRESTRESSED CONCRETE

| A.Y 2025-26 | | IV-I | SEM-I | |
|---|---|---|---|---|
| CONTACT NO | UNIT NO | TOPIC | TEACHING (*) METHOLOGY | REMARKS |
| 1 | 1 | **Introduction:** theory and behavior basic concepts | PPT | |
| 2 | 1 | advantages and disadvantages | PPT | |
| 3 | 1 | materials required, high strength concrete- high strength steel | PPT | |
| 4 | 1 | systems and methods of prestressing | PPT | |
| 5 | 1 | pre tensioning and post tensioning of members | PPT | |
| 6 | 1 | Analysis of sections, stress concept | Chalk & Talk | |
| 7 | 1 | strength concept, load balancing concept | Chalk & Talk | |
| 8 | 1 | Effect ofloading on the tensile stresses in tendons | Chalk & Talk | |
| 9 | 1 | Effect of tendon profile on deflections | Chalk & Talk | |
| 10 | 2 | **Losses in pre stress:** Types losses in pre tension and post tension members | Chalk & Talk | |
| 11 | 2 | loss due to elastic deformation | Chalk & Talk | |
| 12 | 2 | loss due to shrinkage | Chalk & Talk | |
| 13 | 2 | loss due creep of concrete | Chalk & Talk | |
| 14 | 2 | loss due to relaxation of stress in steel | Chalk & Talk | |
| 15 | 2 | loss due to anchorage slip | Chalk & Talk | |
| 16 | 2 | loss due to friction | Chalk & Talk | |
| 17 | 2 | total allowed losses for design | Chalk & Talk | |
| 18 | 2 | problems on losses of prestressing | Chalk & Talk | |
| 19 | 2 | problems on losses of prestressing | Chalk & Talk | |
| 20 | 3 | **Design for flexure:** Flexural strength of pre tensioned concrete member | Chalk & Talk | |
| 21 | 3 | problems on flexure | Chalk & Talk | |
| 22 | 3 | time of flexural failure | Chalk & Talk | |
| 23 | 3 | fracture of steel and tension | Chalk & Talk | |
| 24 | 3 | failure of under and over reinforced section | Chalk & Talk | |
| 25 | 3 | strain compatibility method | Chalk & Talk | |
| 26 | 3 | calculationof flexural strength as per IS: 1343 – 2012 | Chalk & Talk | |
| 27 | 3 | problems | Chalk & Talk | |
| 28 | 4 | **Shear and Torsion:** Shear and Torsional resistance of pre stressed concrete members | Chalk & Talk | |
| 29 | 4 | principal stresses | Chalk & Talk | |
| 30 | 4 | problems on principal stresses | Chalk & Talk | |
| 31 | 4 | time of shear cracks | Chalk & Talk | |
| 32 | 4 | web shear cracks | Chalk & Talk | |
| 33 | 4 | flexural cracks | Chalk & Talk | |

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|---|---|---|---|---|
| 34 | 4 | Design of shear reinforcement as per IS: 1343 – 2012 shear and principal stresses due to torsion | Chalk & Talk | |
| 35 | 4 | problems on design | Chalk & Talk | |
| 36 | 5 | **Deflection:** Deflection and design of anchorage zone factors influencing deflections | Chalk & Talk | |
| 37 | 5 | short term deflections of uncracked members | Chalk & Talk | |
| 38 | 5 | problems on short term deflections | Chalk & Talk | |
| 39 | 5 | prediction of long term deflections due to creep and shrinkage | Chalk & Talk | |
| 40 | 5 | problems on long term deflections | Chalk & Talk | |
| 41 | 5 | check for serviceability limit states. | Chalk & Talk | |
| 42 | 5 | Determination of anchorage zone stresses in post-tensioned beams | Chalk & Talk | |
| 43 | 5 | design of anchorage zone reinforcement | Chalk & Talk | |
| 44 | 5 | check for transfer bond length in pre-tensioned beams | Chalk & Talk | |
| 45 | 5 | magnel's method and problem | Chalk & Talk | |
| 46 | 5 | magnel's method and problem | Chalk & Talk | |
| 47 | 5 | guyon's method and problem | Chalk & Talk | |
| 48 | 5 | guyon's method and problem | Chalk & Talk | |
| 49 | 6 | **Composite sections:** Composite beams and continuous beams | Chalk & Talk | |
| 50 | 6 | analysis of composite beams | Chalk & Talk | |
| 51 | 6 | design of composite beams | Chalk & Talk | |
| 52 | 6 | **Indeterminate Structures:** methods of achieving continuity in continuous beams | Chalk & Talk | |
| 53 | 6 | analysis for secondary moments | Chalk & Talk | |
| 54 | 6 | concordant cable | Chalk & Talk | |
| 55 | 6 | linear transformation | Chalk & Talk | |
| 56 | 6 | problems on concordant cable | Chalk & Talk | |
| 57 | 6 | problems on linear transformation | Chalk & Talk | |
| 58 | 6 | calculation of stresses | Chalk & Talk | |
| 59 | 6 | principles of design | Chalk & Talk | |

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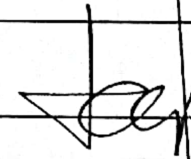
## LESSON PLAN FOR EIA (OE)

| | | | | |
|---|---|---|---|---|
| 1 | I | Introduction to Environmental Impact Assessment | CR | |
| 2 | I | Definition-Back ground (History) of EIA | CR | |
| 3 | I | Guiding Principles and Process of EIA | CR | |
| 4 | I | Types of EIA-Initial Environmental Examination (IEE) | CR | |
| 5 | I | Elements of EIA | CR | |
| 6 | I | Factors affecting EIA during Impact Evaluation and Analysis | CR | |
| 7 | I | Preparation of Environmental Base Maps and Importance | CR | |
| 8 | I | Classification of Environmental Parameters | CR & Student Seminar | Unit-1 will be completed |
| 9 | II | Introduction-Criteria for the Selection of EIA Methodology | CR | |
| 10 | II | Criteria for the Selection of EIA Methodology-EIA Methods | CR | |
| 11 | II | Ad-hoc Method | CR | |
| 12 | II | Matrix Method | CR | |
| 13 | II | Matrix Method | CR & PPT | |
| 14 | II | Network Method | CR | |
| 15 | II | Network Method | CR & PPT | |
| 16 | II | Environmental Media Quality Index Method (EMQIM) | CR | |
| 17 | II | Environmental Media Quality Index Method (EMQIM) | CR & PPT | |
| 18 | II | Overlay Method | CR & PPT | |
| 19 | II | Cost/Benefit Analysis | CR & PPT | |
| 20 | II | Cost/Benefit Analysis | CR & Student Seminar | Unit-2 will be completed |
| 21 | III | Assessment of Impact of Development Activities on Ecosystems | CR | |

# LESSON PLAN FOR EIA (OE)

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|---|---|---|---|---|
| 22 | III | Assessment of Impact of Development Activities on Ecosystems | CR | |
| 23 | III | Assessment of Impact of Development Activities on Vegetation | CR | |
| 24 | III | Assessment of Impact of Development Activities on Vegetation | CR | |
| 25 | III | Assessment of Impact of Development Activities on Wildlife | CR & PPT | 1st Assignment |
| 26 | III | Mitigation-Causes and Effects of Deforestation-Environmental Impacts of Deforestation | CR | 1st Mid Exams |
| 27 | III | Mitigation-Causes and Effects of Deforestation-Environmental Impacts of Deforestation | CR & Student Seminar | Unit-3 will be completed |
| 28 | IV | Environmental Audit Introduction-Objectives of Environmental Audit | CR | |
| 29 | IV | Types of Environmental Audit | CR | |
| 30 | IV | Audit Protocol | CR | |
| 31 | IV | Stages of Environmental Audit-Onsite Audit Activities | CR | |
| 32 | IV | Stages of Environmental Audit-Onsite Audit Activities | CR & PPT | |
| 33 | IV | Post Audit Activities | CR | |
| 34 | IV | Post Audit Activities | CR & PPT | |
| 35 | IV | Evaluation of Audit Data and Preparation of Audit Report | CR | |
| 36 | IV | Evaluation of Audit Data and Preparation of Audit Report | CR & Student Seminar | Unit-4 will be completed |
| 37 | V | Environmental Legislation Introduction | CR | |
| 38 | V | The Environmental (Protection) Act-1986 | CR | |
| 39 | V | The Environmental (Protection) Act-1986 | CR & PPT | |
| 40 | V | The Water (Prevention & Control of Pollution) Act-1974 | CR | |
| 41 | V | The Water (Prevention & Control of Pollution) Act-1974 | CR & PPT | |
| 42 | V | The Air (Prevention & Control of Pollution) Act-1981 | CR & PPT | |

## LESSON PLAN FOR EIA (OE)

| 43 | V | The Motor Vehicles Act-1988 | CR & PPT | |
| 44 | V | Wildlife (Protection) Act-1972 | CR | Unit-5 will be completed |
| 45 | VI | EIA Report writing Introduction-Case Studies | CR | |
| 46 | VI | Preparation of Environmental Impact Assessment Statement Report for Coal Mining activity | CR | |
| 47 | VI | Preparation of Environmental Impact Assessment Statement Report for Coal Mining activity | CR & PPT | |
| 48 | VI | Preparation of Environmental Impact Assessment Statement Report for Chemical Industry | CR | |
| 49 | VI | Preparation of Environmental Impact Assessment Statement Report for Chemical Industry | CR & PPT | |
| 50 | VI | Preparation of Environmental Impact Assessment Statement Report for Thermal Power Plant | CR | |
| 51 | VI | Preparation of Environmental Impact Assessment Statement Report for Thermal Power Plant | CR & PPT | 2nd Assignment |
| 52 | VI | Final Review of Reports | CR & Student Seminar | Unit-6 will be completed |
| 53 | | Class Test | | 2nd Mid Exams |
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# LESSON PLAN

**Lab Name:** Structural Design Lab Using Software Tools

**Branch:** Civil Engineering

**Year:** 2025-2026

**Semester:** IV/I

**Course Code:** 20CEL411

| S.No. | Lab Lesson Schedule | No. of Hours |
|-------|---------------------|--------------|
| 1 | Simply supported, Cantilever and Fixed Beams analysis with individual loads | 3 |
| 2 | Simply supported, Cantilever and Fixed Beams analysis with multiple loads | 3 |
| 3 | Continuous Beams analysis with multiple loads | 3 |
| 4 | 2-D frame Analysis of single storey | 3 |
| 5 | 2-D frame Analysis of multi storey | 3 |
| 6 | Steel Tabular Truss Analysis (Simple trusses) | 3 |
| 7 | Steel Tabular Truss Analysis (Truss models) | 3 |
| 8 | 3-D Frame Analysis | 3 |
| 9 | 3-D Frame Design | 3 |
| 10 | Simple Tower Analysis | 3 |
| 11 | Simple slab culvert Analysis | 3 |
| 12 | Retaining Wall Analysis | 3 |
| | **Total Contact Hours** | 36 |

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## AR-20 IV/I Sem. (2025-26) LESSON PLAN
### Course Name: REMOTE SENSING and GEOGRAPHIC INFORMATION SYSTEM

| Contact Hour (Cumulative) | Unit No. | Topic | Teaching Methodology | Remarks |
|---|---|---|---|---|
| 1 | I | Introduction to Remote Sensing | BB & Interactive | |
| 2 | I | Components of Remote Sensing | BB & LCD | |
| 3 | I | Electro Magnetic Radiation-Basic Wave Theory | BB & Student Seminar | |
| 4 | I | Electro Magnetic Radiation-Quantum Wave Theory | BB & Student Seminar | |
| 5 | I | Electro Magnetic Spectrum | BB & Student Seminar | |
| 6 | I | EMR interaction with Atmosphere | BB & LCD | |
| 7 | I | Scattering and Absorption | BB & LCD | |
| 8 | I | EMR interaction with Earth Surface Materials | BB & LCD | |
| 9 | I | EMR interaction with Vegetation | BB & LCD | |
| 10 | I | EMR interaction with Soil & Water | BB & LCD | |
| 11 | I | Atmospheric Windows & Its significance | BB & LCD | Unit-1 will be completed |
| 12 | II | Introduction to Platforms | BB & LCD | |
| 13 | II | Ground Borne & Air Borne | BB & LCD | |
| 14 | II | Space Borne Platforms | BB & LCD | |
| 15 | II | Sensors-types-Classification | BB | |
| 16 | II | Active Sensors | BB & LCD | |
| 17 | II | Passive Sensors | BB & LCD | |
| 18 | II | Introduction to Resolutions-Spectral resolution | BB & LCD | |
| 19 | II | Radiometric and Temporal Resolutions | BB & LCD | |
| 20 | II | Image data Characteristics | BB & LCD | |
| 21 | II | Image Data Formats-BIL, BIP and BSQ | BB & LCD | Unit-2 will be completed |
| 22 | III | Introduction to Image Analysis | BB & LCD | |
| 23 | III | Elements of Visual Interpretation | BB & LCD | |
| 24 | III | Digital Image Processing | BB | |
| 25 | III | Image Enhancement Techniques- Linear | BB & LCD | |
| 26 | III | Non Linear Enhancement Techniques | BB & LCD | |
| 27 | III | Introduction to image Classification | BB | |
| 28 | III | Supervised Classification | BB & LCD | |
| 29 | III | Un Supervised Classification | BB & LCD | Unit-3 will be completed |

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Lab Name: Geographic Information System

Branch: Civil Engineering                                    Year: 2025-2026

Semester: IV/I

Course Code: 20CEL411

| S.No | Lab Lesson Schedule | No. of Hours |
|------|---------------------|--------------|
| 1 | Preprocess of image / toposheet (which includes Georeferencing, Projection and Subset) | 3 |
| 2 | Digitization of Features from the Toposheet | 3 |
| 3 | Topology of digitized of features | 3 |
| 4 | Study of features estimation | 3 |
| 5 | Creation of Thematic maps | 3 |
| 6 | Layout Preparation | 3 |
| 7 | Digital Elevation Model | 3 |
| 8 | Calculation of volumes for Hills and Tanks | 3 |
| 9 | Database creation for Road Network analysis | 3 |
| 10 | Delineation of watershed boundary | 3 |
| 11 | Mosaic of a dataset | 3 |
| 12 | Clip/Subset of a dataset | 3 |
| | **Total Contact Hour** | 36 |

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# ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
## (AN AUTOMOMOUS)
## DEPARTMENT OF CIVIL ENGINEERING
### IV B. TECH I SEMESTER, QUANTITY SURVEYING AND VALUATION -SECTION - " B", 2025 - 2026
## LESSON PLAN

| HOUR | TOPIC | UNIT | TEACHING METHODOLOGY | CUMULATIVE HOURS |
|---|---|---|---|---|
| 1 | General Items of Work in Building: Standard Units | I | CR / BB | 1 |
| 2 | Principles of working out quantities for detailed estimate | I | CR / BB | 2 |
| 3 | Principles of working out quantities for Abstract estimate | I | CR / BB / PPT | 3 |
| 4 | Types of Estimations | I | CR / BB / PPT | 4 |
| 5 | Example Problems on Preliminary estimate | I | CR / BB / PPT | 5 |
| 6 | Example Problems on Rough estimate | I | CR / BB / PPT | 6 |
| 7 | Example Problems on Total estimate | I | CR / BB / PPT | 7 |
| 8 | Detailed Estimates of Buildings | I | CR / BB / PPT | 8 |
| 9 | Problems on Detailed Estimates of Single Roomed Building | I | CR / BB | 9 |
| 10 | Problems on Detailed Estimates of Single Roomed Building | I | CR / BB | 10 |
| 11 | Problems on Detailed Estimates of Double Roomed Building | I | CR / BB | 11 |
| 12 | Problems on Detailed Estimates of Double Roomed Building | I | CR / BB | 12 |
| 13 | Problems on Detailed Estimates of Residential Building | I | CR / BB | 13 |
| 14 | Problems on Detailed Estimates of Residential Building with | I | CR / BB | 14 |
| 15 | Problems on Detailed Estimates of Residential Building with | I | CR / BB | 15 |
| 16 | Earthwork for Roads and canals: Lead and Lift - Types of methods | II | CR / BB / PPT | 16 |
| 17 | Mid Sectional Area Method | II | CR / BB / PPT | 17 |
| 18 | Problems on Mid sectional Area method | II | CR / BB | 18 |
| 19 | Mean Sectional Area Method | II | CR / BB | 19 |
| 20 | Problems on Mean sectional Area method | II | CR / BB / PPT | 20 |
| 21 | Simpson's rule method | II | CR / BB / PPT | 21 |
| 22 | Problems on Simpson's rule method | II | CR / BB / PPT | 22 |
| 23 | Practicing and Solving the Problems | II | CR / BB / PPT | 23 |
| 24 | Problems solving | II | CR / BB / PPT | 24 |
| 25 | Problems solving | II | CR / BB / PPT | 25 |
| 26 | Rate Analysis: Standard Specifications for different items of building construction | III | CR / BB / PPT | 26 |
| 27 | Workingout data for Brick Masonry | III | CR / BB / PPT | 27 |
| 28 | Problems on brick Masonry | III | CR / BB / PPT | 28 |

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## DEPARTMENT OF CIVIL ENGINEERING
### IV B. TECH I SEMESTER, QUANTITY SURVEYING AND VALUATION -SECTION - " B", 2025 - 2026
## LESSON PLAN

| HOUR | TOPIC | UNIT | TEACHING METHODOLOGY | CUMULATIVE HOURS |
|------|-------|------|----------------------|------------------|
| 29 | Workingout data forR.R. Masonry | III | CR / BB / PPT | 29 |
| 30 | Problems on R.R. Masonry | III | CR / BB / PPT | 30 |
| 31 | Workingout data for Plastering | III | CR / BB / PPT | 31 |
| 32 | Problems on Plastering | III | CR / BB / PPT | 32 |
| 33 | Workingout data for Plain Concrete | III | CR / BB / PPT | 33 |
| 34 | Problems on Plain Concrete | III | CR / BB / PPT | 34 |
| 35 | Workingout data for R.C.C. and Distempering | III | CR / BB / PPT | 35 |
| 36 | Problems on R.C.C. and Distempering | III | CR / BB / PPT | 36 |
| 37 | Reinforcement Bar Bending Schedule: Footing, pedestal | IV | CR / BB / PPT | 37 |
| 38 | Problems on Column | IV | CR / BB / PPT | 38 |
| 39 | Problems on Plinth Beam | IV | CR / BB / PPT | 39 |
| 40 | Problems on Plinth Beam | IV | CR / BB / PPT | 40 |
| 41 | Problems on Slab Beam and Slab | IV | CR / BB / PPT | 41 |
| 42 | Problems on Slab Beam and Slab | IV | CR / BB / PPT | 42 |
| 43 | Bar requirement schedules | IV | CR / BB / PPT | 43 |
| 44 | Problem solving on bar bending Schedule | IV | CR / BB / PPT | 44 |
| 45 | Problem solving on bar bending Schedule | IV | CR / BB / PPT | 45 |
| 46 | Contracts - Types of contracts & Tenders | V | CR / BB / PPT | 46 |
| 47 | tender Schedule | V | CR / BB / PPT | 47 |
| 48 | BIM - Basics of BIM, Advantages and Disadvantages of BIM | V | CR / BB / PPT | 48 |
| 49 | Objects of BIM | V | CR / BB / PPT | 49 |
| 50 | Valuation - Valuation of Buildings - Depreciation | VI | CR / BB / PPT | 50 |
| 51 | Types of depreciation of Industrial building | VI | CR / BB / PPT | 51 |
| 52 | Types of depreciation of Commercial building | VI | CR / BB / PPT | 52 |
| 53 | Problem solving on Depreciation of Commercial buildings | VI | CR / BB / PPT | 53 |
| 54 | Types of depreciation of Private building | VI | CR / BB / PPT | 54 |
| 55 | Problem solving on Depreciation of Private buildings | VI | CR / BB / PPT | 55 |

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