

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Design of RCC Systems
Credit: 4	L-T-P: 3-1-0
Pre-requisite Course: Design of RCC Structures	
<p>Syllabus</p> <p>Design of structures: Design loads on system, wind and earthquake loads; Design of Cantilever and Counterfort Retaining Walls; Design of curved beams and deep beams; Design of Ribbed slab, Flat slabs; Design of Shear Walls, Design of domes for axisymmetric loading, uniformly distributed load, ring load and concentrated load at the crown; Design of overhead and underground water tanks; Prestressed concrete: Principle of Pre-stressed Concrete Design, Advantages and disadvantages, Materials and methods of prestressing, losses in prestress, analysis and design of prestressed concrete beam.</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Be able to design RCC systems for simple structures such as water tanks, retaining walls, etc. 2. Be able to apply recommendations of relevant BIS codes for the design of RC structural systems. 3. Understand and apply the principal of pre-stressed concrete design. <p>Text Books</p> <ol style="list-style-type: none"> 1. Pillai & Menon, "Design of RCC Structures (4/e)", McGraw Hill Education. 2. N. Subramanian, "Design of RC Structures", Oxford. <p>References</p> <ol style="list-style-type: none"> 1. P. Dayaratnam, "Design of Reinforced Concrete Structures (4/e)", Oxford & IBH Publishing Co. 2. P. C. Varghese, "Limit State Design of Reinforced Concrete (2/e)", Prentice Hall India Learning Private Limited. 3. P. C. Varghese, "Advanced Reinforced Concrete Design (2/e)", Prentice Hall India Learning Private Limited. 	

UG/PG: UG	Department: Civil Engineering
Course Code: -	Course Name: Design of Steel Structures
Credit: 4	L-T-P: 3-1-0
Pre-requisite Course: Structural Analysis	
<p>Syllabus Structural steel and properties, Design Philosophy-Working stress and limit state; Introduction to stability and buckling concepts, Bolted and Welded connections (simple and eccentric), design of tension, compression and flexural members (including built-up sections): Column bases, Gantry girders and plate girders; Industrial roof; Roof trusses using latest IS codes; Concept of plastic analysis-beams and frames.</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Understand the behavior and properties of structural steel members. 2. Be able to design bolted and welded connections for tension and compression members and beams. 3. Be able to design and analyze of steel structures like girders, trusses and bridges. 4. Be able to implement the concept of elastic and plastic analysis on beams and frames. <p>Text Books</p> <ol style="list-style-type: none"> 1. N. Subramanian, "Design of Steel Structures", Oxford University Press. 2. S. K. Duggal, "Limit State Design of Steel Structures(3/e)", Tata McGraw Hill. 3. K. S. Sai Ram, "Design of Steel Structures (3/e)", Pearson publications. 4. M.R. Shiyekar, "Limit State Design of Steel Structures(3/e)", PHI publications. <p>References</p> <ol style="list-style-type: none"> 1. A. S. Arya and J. L. Ajmani "Design of Steel Structures", Nem Chand & Bros. 2. N.S. Trahair, M.A. Bradford et al., "The Behavior and Design of Steel Structures to EC3", Taylor and Francis. 	

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Structural Design and Drawing
Credit: 1	L-T-P: 0-0-2
Pre-requisite Course: Design of RC Systems	
<u>LIST OF SESSIONS</u>	
Lab #	Name of the Session
1	Design and detailed drawings of flat slab & grid slab
2	Design and detailed drawings of retaining walls, curved beams
3	Design and detailed drawings of domes, water tanks with foundation
4	Design and detailed drawings of pile & pile foundations, pile caps
5	Ductile detailing of RC structural systems, building frames
6	Ductile detailing of prestressed concrete beams, slab bridge
7	Design and Drawings of Bolted and Welded connections
8	Design and Drawings of Beam Column Connections
9	Design and Drawing of tension, compression and flexural members (including built up members)
10	Design and Drawing of Column bases
11	Design and Drawing of Plate Girder.
12	Design and Drawing of Roof trusses.
<p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Understand the basics of design of RCC and Steel structural components. 2. Design and prepare drawings of flat slab, retaining walls, domes, curved beams and foundations. 3. Design and prepare drawings of steel structural components of civil engineering structures. <p>Text Books</p> <ol style="list-style-type: none"> 1. Design of RCC Structures by Jain & Jaykrishana 2. Design of RCC Structures by Krishnaraju 3. Design of RCC Structures by Menon & Pillai 4. Plastic Analysis & Design Of Steel Structures by Wong 5. Design of Steel Structures: N Subramaniam 6. Limit State Design of Steel Structures, S.K.Duggal 7. Design of Steel Structures, P Dayaratnam 	

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Environmental Engineering – II
Credit: 3	L-T-P: 3-0-0
Pre-requisite Course: Environmental Engineering – I	
<p>Syllabus Sewage disposal; Layout of Sewerage system; Characteristics of municipal wastewater; Basics of microbiology and biological oxidation. Wastewater Treatment: Treatment scheme; Screening; Grit removal; Sedimentation; Floatation; Activated sludge process; Extended aeration; Trickling filters; RBC, UASB; aerated lagoons; Septic tank; Sludge handling and disposal. Introduction to tertiary treatment. Recycle and reuse of treated sewage. Introduction to natural systems like Stabilization ponds, wetlands etc. Rural wastewater management including introduction to total sanitation campaign.</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. To be able to apply the basic concepts of wastewater generation, collection system, waste water quality and standards. 2. To be able to design sewerage system components. 3. To be able to analyze and evaluate the construction methodologies of sewerage systems. <p>Text Books</p> <ol style="list-style-type: none"> 1. Wastewater Treatment by Metcalf & Eddy, TMH. 2. Manual of Sewage treatment by CPHEEO, Ministry of Urban Dev., GOI 3. Environmental Engineering by Davis and Cornwell, McGraw Hill 4. Wastewater treatment for pollution control and reuse by Soli J. Arceivala and Shyam R. Asolekar, TMH. 	

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Environmental Engineering Lab
Credit: 1	L-T-P: 0-0-2
Pre-requisite Course: PHE Lab	
<u>LIST OF EXPERIMENTS</u>	
Lab #	Name of the Experiment
1	Drawing representative samples from Sewage Treatment Plants (STPs)
2-6	<p>Sampling and analysis of MNIT Jaipur STPs in terms following parameters to assess their performance in terms of primary, secondary, and tertiary treatment:</p> <ul style="list-style-type: none"> • Solids (TSS, TS) • Organics (BOD- both routine and respirometric, COD, TOC) • Nitrogen species (TkN, ammoniacal nitrogen, nitrates) • PO_4^{3-}P • SO_4^{2-}
7-10	<p>Demonstration of air quality monitoring using Respirable dust samplers, continuous monitors, Grimm etc. for the following parameters:</p> <ul style="list-style-type: none"> • PM and its fractions • NO_x • SO_2 • CO
11	Measurement of ambient noise and derive descriptive parameters
<p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Be able to draw and analyze samples from STPs to assess their performance in terms of primary, secondary, and tertiary treatment 2. Be able to perform sampling and analysis of ambient/indoor air pollution for various applications 3. Be able to perform sampling and analysis of ambient/indoor noise pollution and its implications <p>References</p> <ol style="list-style-type: none"> 1. APHA.(1995). Standard methods for the examination of water and wastewater. 17th edition APHA, Washington DC. 2. Sawyer, C. McCarty, P., Parkin, G. (2017). Chemistry for Environmental Engineering and Science. McGraw Hill Education; 5th edition. 	

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Geotechnical Engineering – II
Credit: 4	L-T-P: 3-1-0
Pre-requisite Course: Geotechnical Engineering – I	
<p>Syllabus</p> <p>Stability of infinite and finite slopes, Swedish slip circle method, Bishop’s method, Stability of slopes of earth dam, Earth pressures theories; Stability analysis of retaining structures; Application for sheet piles and Braced excavation Shallow foundations, Bearing capacity and settlement analysis, contact stress beneath foundations, Plate load test, Standard penetration test, Dynamic and static cone penetration test; Allowable bearing pressure on soils and rocks, Combined footing and Raft foundation, Soil Exploration and sampling: Site investigation report. Pile foundation: Classification; Bearing capacity of piles – dynamic and static formulae, negative skin friction Pile load test, Group capacity of vertical piles; IS code provisions, pile under lateral loading Well foundation and caissons; Depth of well, Bearing capacity and settlement of well, Lateral stability of well foundations, Sinking of wells, Tilts and shifts, (Machine foundations, Dynamic soil properties, Laboratory techniques, Resonant column test to obtain Young’s modulus, Shear modulus and damping characteristics of soils, Cyclic simple shear test, Cyclic triaxial compression test, Field tests: Vertical and horizontal block resonance test, Cyclic plate load test. Reinforced Earth.</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Be able to analyze slope stability for different soil types and loading conditions 2. Be able to Estimate settlements and bearing pressures for given loads and stratigraphy 3. Be able to design piles for different loads and stratigraphy 4. Be able to select appropriate soil exploration methods for a given structure and location. <p>Text Books</p> <ol style="list-style-type: none"> 1. T. William Lambe, Robert V. Whitman, “Soil Mechanics”, John Wiley and Sons, New York. 2. John N. Cernica, “Geotechnical Engineering: Soil Mechanics”, John Wiley and Sons, New York. 3. Rodrigo Salgado, “The Engineering of Foundations”, Tata McGraw Hill Education Limited, New Delhi. 	

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Geotechnical Engineering Lab
Credit: 1	L-T-P: 0-0-2
Pre-requisite Course: Soil Mechanics Lab	
<u>LIST OF EXPERIMENTS</u>	
Lab #	Name of the Session
1	Determination of shear strength parameters of clay using Triaxial test.
2	Determination of shear strength parameters of sand using Triaxial test.
3	Determination of shear strength parameters using Vane shear test.
4	Determination of shear strength parameters using Direct shear box test.
5	Determination of CBR value of soil.
6	Determination of consolidation parameters.
7	Swelling pressure determination.
8	Determination of differential free swell.
9	Determination of allowable bearing pressure using Standard Penetration test.
10	Determination of in-situ bearing capacity of soil using plate load test
<p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Able to estimate the shear strength of natural soils as well as fills experimentally. 2. Able to determine the shear strength, relative density / stiffness, and allowable bearing pressures on field. 3. Able to determine settlement and heave characteristics of soils experimentally. <p>Text Books</p> <ol style="list-style-type: none"> 1. Head, K.H, "Manual of Soil Laboratory Testing", John Wiley and Sons, New York. 2. T. William Lambe, "Soil Testing for Engineers", Wiley Eastern Limited, New Delhi. 3. Joseph E. Bowles, "Engineering Properties of Soil and their Measurement", McGraw Hill Inc., New York. 4. Shamsheer Prakash and P.K. Jain, "Engineering Soil Testing", Nem Chand & Bros, Roorkee. 	

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Hydrology
Credit: 4	L-T-P: 3-1-0
Pre-requisite Course:	
<p>Syllabus Hydrological cycle and hydrologic budget; Elements of geomorphology; Precipitation; Measurement and analysis; Hydrology abstraction - interception, evaporation, infiltration; Rainfall–Runoff relationship; Stream flow; Hydrographs & applications; Frequency analysis; Regression and correlation analysis; Flood Routing, Groundwater, Hydraulics of groundwater.</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Be able to develop probability distributions for various hydrologic processes 2. Be able to develop design storms and estimate infiltration and hydrologic losses based on land use and soil type. 3. Be able to estimate peak discharges and develop unit hydrographs and design hydrographs for small-scale watersheds. 4. Be able to apply current software to the hydrologic design of small-scale rural or urban watersheds. <p>Text Books</p> <ol style="list-style-type: none"> 1. Applied Hydrology, Ven Tee Chow, D. R. Maidment and Larry W. Mays, Tata McGraw-Hill. 2. Engineering Hydrology, K. Subramana, Tata McGraw-Hill <p>References</p> <ol style="list-style-type: none"> 1. Handbook of Hydrology, Ven Tee Chow, D. R. Maidment and Larry W. Mays, Tata McGraw-Hill. 2. Hydrology for Engineers by Linsley, Kohler and Paulhus. 	

UG/PG: UG	Department: Civil Engineering
Course Code: -	Course Name: Transportation Engineering – II
Credit: 3	L-T-P: 3-0-0
Pre-requisite Course: Transportation Engineering – I	
<p>Syllabus</p> <p>Traffic Engineering: Volumetric traffic studies, Traffic-volume study, traffic-speed study, Origin and Destination studies, Parking studies and accident study, their objectives, methods, analysis and interpretation. Roadway capacity and level of service concept. Geometric improvement of intersections. Street lighting. Impact of traffic on environment. Traffic flow characteristics; Traffic Control & Parking Studies: Traffic & parking problems, requirements & design standards for on street parking, off-street parking. Importance of traffic signs, general principles & types of traffic signs, advantages & disadvantages of traffic signals, signal phases, number and location of signal phases. Signal design by Webster's method. Transport Planning: Various transportation systems, their classification, suitability, merits & demerits. Methodologies of planning transport systems, transport surveys. Trip-generation & distribution. Traffic assignment and model split. Mass transit systems, planning, design and operation.</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Be able to design signals for intersections 2. Be able to plan a suitable transport system for a given scenario 3. Be able to plan and execute traffic volume study <p>Text Books</p> <ol style="list-style-type: none"> 1. Transport Engineering and Transport Planning By L.R. Khadyali 2. Highway Engineering By S.K.Khanna and C.E.G Justo 3. IRC 93, 4. Transportation Engineering by James H Banks 	

UG/PG: UG	Department: Civil Engineering
Course Code: -	Course Name: Environmental System Design
Credit: 1	L-T-P: 0-2-0
Pre-requisite Course: Environmental Engineering – II	
<p>Syllabus Analysis of waste water quality: COD, BOD, TOC, SS, VSS. Systems Lab: Design of water distribution system; analysis of Hardy Cross Method; design of sewerage system; design of water & sewage treatment system including software applications.</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Learn different code provisions of design of water and wastewater conveyance and treatment facilities. 2. Be able to design water and wastewater conveyance system. 3. Be able to design water and wastewater treatment facilities <p>Text Books</p> <ol style="list-style-type: none"> 1. Water Works Engineering: Planning Design and Operation: Qasim, Motley and Zhu 2. CPHEEO Manual on Water Supply and Treatment 3. Waste water Treatment Plant: Design and Operation: Qasim 4. Wastewater Engineering: Treatment and Reuse by Metcalf & Eddy, TMH. 5. Manual of Sewage treatment by CPHEEO, Ministry of Urban Dev., GOI 6. APHA (1995): Standard methods for the examination of water and wastewater. 17th edition APHA, Washington DC. 	

UG/PG: UG	Department: Civil Engineering
Course Code: -	Course Name: Water Resources Engineering
Credit: 3	L-T-P: 3-0-0
Pre-requisite Course: Hydraulics Engineering, Hydrology	
<p>Syllabus</p> <p>Introduction, need for harnessing water resources; Water resources projects and their planning; Irrigation practices; Irrigation-its importance and impact on environmental, assessment of water requirements for crops; Irrigation water Quality, Methods of irrigation; canal and well irrigation; canal irrigation; canal alignment; Participatory irrigation management; Design principles of irrigation canal; Silt theories, management of canal irrigation; Water logging and Drainage, Seepage theories for design of hydraulic structures; Surface and sub-surface considerations including energy dissipation; Salient features of diversion head works; Falls; Regulators; River meandering and river training works, Brief introduction of water conservation and water harvesting technologies; Hydropower; General features and components of a hydropower station</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Understand the basics of water resources planning and management 2. Be able to estimate the crop water requirement, 3. Be able to design unlined canals, falls and regulators. 4. Be able to implement the concepts of water conservation and harvesting <p>Text Books</p> <ol style="list-style-type: none"> 1. Water Resources Engineering by Linsley & Franzini 2. Irrigation Engineering by G.L. Asawa 3. Water Resources & Water Power Engg. By P.N. Modi 4. Theory and Design of Irrigation Structures by Varshney RS, Gupta SC, & Gupta RL 	

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Water Resources Engineering Lab
Credit: 1	L-T-P: 0-0-2
Pre-requisite Course:	

LIST OF EXPERIMENTS

Field Experiments:

1. Measurement of rainfall using Rain-gauges (recording & non-recording type) and mean rainfall determination by Thiessen Polygon & Iso-hyetal methods.
2. Measurement of evaporation using Pan evaporimeter.
3. Study on soil moisture using Lysimeter/soil moisture sensors.
4. Determination of Infiltration capacity of soil using Double Ring Infiltrometer
5. Measurement of soil suction potential using Tensiometer and estimation of soil moisture with given θ - ψ curves.
6. Overview of the miscellaneous instruments available at Water Resources Engineering lab: Sunshine recorder, Pressure plate apparatus, Water level indicator, Current meter, Hygrometer, Soil moisture sampler, Planimeter, etc.

Software/Tools based experiments:

7. Irrigation scheduling using CROPWAT.
8. Analysis of river/canal system using HEC-RAS.
9. Working with GIS systems using ArcGIS/QGIS: concept of layers, shape files, DEM, geo-referencing, contouring, Thiessen polygons, interpolation.
10. Estimation of flow of water in unsaturated systems using HYDRUS-1D.
11. Rainfall runoff modelling using EPA-SWMM.

Minor project

- A minor project in a group of 3 students based on the problems in Hydrology and Water Resources Engineering and preparation of a project report.

Course Outcomes

1. Be able to conduct experiments related to Hydrology & Water Resources Engg
2. Be able to formulate the problems in Hydrology and Water Resources.
3. Be able to design various components of Water Resources Systems.
4. Be able to work on Water Resources Systems projects and prepare project report.

Recommended Readings

1. Departmental Lab Manual
2. CropWat for windows: User guide
www.researchgate.net/publication/312903822_CropWat_for_Windows_User_guide
3. Hydraulic Engineering Centre River Analysis Centre (HEC-RAS) User Manual
www.hec.usace.army.mil/confluence/rasdocs/rasum/latest
4. The HYDRUS-1D Software Package for Simulating the One-Dimensional Movement of Water, Heat, and Multiple Solutes in Variably-Saturated Media.
www.pc-progress.com/Downloads/Pgm_hydrus1D/HYDRUS1D-4.17.pdf
5. Storm Water Management Model User's Manual Version 5.1.
www.epa.gov/sites/default/files/2019-02/documents/epaswmm5_1_manual_master_8-2-15.pdf

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Estimation and Costing
Credit: 4	L-T-P: 3-1-0
Pre-requisite Course: None	
<p>Syllabus</p> <p>Estimation Fundamentals: Importance of estimation, Drawings and specifications used in estimation, Role and qualities of an estimator, Process/flow of estimation, Units and measurement of items of work, Types of estimates, Specifications, Methods of Estimation, Items of work for estimates; Estimation of Buildings and BOQ preparation: Methods, Detailed estimate of a building covering substructure and super structure works like earth work, RCC work, steel work, wall, floor finishes etc. Estimation of steel framed building; Estimation of Roads: Earthwork calculations, Balanced cut and fill, Carriage calculations for earth work, Detailed estimate of bitumen and CC road; Analysis of rates: Material estimation, Abstract of materials, Material cost, Labour cost, Equipment cost, Contingencies, Overhead and profit, Miscellaneous charges, Schedule of rates, Market rates, Non-scheduled items, Cost indices for building material and labour; Tenders and Contracts: Types of tenders, Tender Notice, Earnest money, Security money, Types of contracts, Traditional and modern contracts; Work measurement and Payment: Methods of measurements, IS 1200, Measurement book use, Payment process and mode of payment, Valuation: Standard terminology for valuation, Factors affecting value of property, Methods of valuation, Valuation of buildings, Depreciation; Introduction to estimation of mechanical-electrical-plumbing work, Introduction to estimating software.</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Be able to prepare abstract estimate and detailed estimate of buildings 2. Be able to estimate quantity of earth work for roads and canals 3. Be able to prepare Notice inviting tender document and create various tender documents for bidding 4. Be able to identify and prepare specifications and carry out rate analysis of civil works/items 5. Be able to carry out valuation of building for different specifications, types, and age <p>Text Books</p> <ol style="list-style-type: none"> 1. Estimating and Costing in Civil Engineering by B. N. Dutta, UBS Publishers & Distributors Pvt. Ltd. New Delhi. 2. Estimating costing and valuation in Civil Engg., Principle and applications by M Chakraborty, Authors Publication, Kolkata. 3. CPWD Works Manual <p>Reference Books</p> <ol style="list-style-type: none"> 1. Estimating in Building Construction by Frank R. Dagostino 2. Managing the Construction Process Estimating, Scheduling and Project Control by Frederick E. Gould Pearson Education 	

UG/PG: UG	Department: Civil Engineering
Course Code: -	Course Name: Construction Project Management
Credit: 3	L-T-P: 3-0-0
Pre-requisite Course:	
<p>Syllabus</p> <p>Project Management Concept, Roles of construction managers; Knowledge areas of Project management, Construction contracts and project delivery methods; Project Finance Models, Fundamental concepts of equipment economics and equipment management, introduction to economic analysis, equipment selection. Construction plans, work breakdown structure (WBS), construction job-site layout, construction procurements and inventory, Time estimates, PERT, CPM, linear scheduling, project scheduling, monitoring, updating, cost functions, time –cost trade off, resource planning levelling and allocation, resource-based networks, project cost and schedule of values, Earned Value Management; Concepts of Risk management, safety management, and quality management; Project monitoring and reporting; Concept of lean construction, Introduction to 3D modelling and automation in Construction</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Understand various construction management concepts. 2. Be able to apply different techniques of project scheduling, construction management and monitoring. 3. Be able to prepare construction management plans. 4. Gain knowledge about developing entrepreneurship skills. <p>Text Books</p> <ol style="list-style-type: none"> 1. Construction Management and Planning by Sengupta and Guha TMH Publications 2. Construction project management by Kumar Neeraj Jha Pearson Publications 3. Construction planning equipment and methods by Peurifoy TMH publications <p>Reference Books</p> <ol style="list-style-type: none"> 1. Construction management fundamentals Knutson MGH publications 2. IS 15883: 2009 Construction Project Management 3. PMBOK – PMI, USA 	

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Construction Management Lab
Credit: 1	L-T-P: 0-0-2
Pre-requisite Course:	
<u>LIST OF ASSIGNMENTS</u>	
Lab #	Name of the Lab Assignments
1	Development of detailed WBS of a Project sample
2	Development of a Bar chart and other simplified chart for project progress reporting using Excel
3	Development of a CPM/PERT/PDM Network for a given project using Project management Software
4	Development of Critical path and estimation of Floats/Slacks using Software
5	Development of Resource profile using software
6	Development of Cost curve using Software
7	Development of Resource levelling using Software
8	Development of Various information sheets/reports for a project
9	Development of Earned Value analysis report for a project
10	Demonstration of Safety Equipment
11	Development of Early and latest project profiles
12	Demonstration of 3D modelling/Automation application in construction
Course Outcomes	
<ol style="list-style-type: none"> 1. To be able to apply scheduling software for project management 2. To develop the skills associated with the planning and execution of project 3. To demonstrate the project progress and monitoring through specialized tools 	
Text Books	
<ol style="list-style-type: none"> 1. Construction management fundamentals Knutson MGH publications 2. IS 15883: 2009 Construction Project Management 3. PMBOK – PMI, USA 	

UG/PG: UG	Department: Civil Engineering
Course Code:	Course Name: Civil Engineering Practical Applications
Credit: 1	L-T-P: 0-0-2
Pre-requisite Course:	
<p>Objective</p> <p>In this course, the students are expected to explore their surroundings (e.g., in their home town or near their living area) and identify a real life problem related to Civil Engineering, that needs to be solved for the betterment of the people in the neighbourhood. The student has to study the problem in detail, applying the principles learnt in the various courses throughout their period of study at MNIT Jaipur. This may ultimately lead to the formulation of a project idea, which he/she may take up in the minor project in the next (VII) semester.</p> <p>Course Outcomes</p> <ol style="list-style-type: none"> 1. Be able to identify engineering problems facing the society 2. Be able to apply engineering principles to formulate an idea of an engineering project based on observations about a real life problem 3. Be able to present observations intelligently and to convey one's idea about a project formulation 	