

# Department of Civil Engineering

## Course Outcomes [CO'S]

### CLASS: THIRD YEAR [2019 COURSE]

#### 1 301001: Hydrology and Water Resource Engineering

- C01: Understand government organizations, apply & analyze precipitation & its abstractions.
- C02: Understand, apply & analyze runoff, runoff hydrographs and gauging of streams.
- C03 :Understand, apply & analyze floods, hydrologic routing & Q-GIS software in hydrology.
- C04 :Understand, apply & analyze reservoir planning, capacity of reservoir & reservoir economics.
- C05 :Understand water logging & water management, apply & analyze ground water hydrology
- C06 :Understand irrigation, piped distribution network and canal revenue, apply and analyze crop water requirement

#### 2 301002: Water Supply Engineering

- C01 :Define identify, describe reliability of water sources, estimate water requirement for various sectors
- C02: Ascertain and interpret water treatment method required to be adopted with respect to source and raw water characteristics
- C03 :Design various components of water treatment plant and distribution system.
- C04 :Understand and compare contemporary issues and advanced treatment operations and process available in the market, including packaged water treatment plants.
- C05: Design elevated service reservoir capacity and understand the rainwater harvesting.
- C06 :Understand the requirement of water treatment plant for infrastructure and Government scheme

#### 3 301003: Design of Steel Structures

- C01: Demonstrate knowledge about the types of steel structures, steel code provisions and design of the adequate steel section subjected to tensile force.
- C02: Determine the adequate steel section subjected to compression load and design of built up columns along with lacing and battening.
- C03 :Design eccentrically loaded column for section strength and column bases for axial load and uniaxial bending.
- C04: Design of laterally restrained and unrestrained beam with and without flange plate using rolled steel section.
- C05: Analyze the industrial truss for dead, live and wind load and design of gantry girder for moving load.
- C 06 :Understand the role of components of welded plate girder and design cross section for welded plate girder including stiffeners and its connections.

#### 4 301004: Engineering Economics and Financial Management

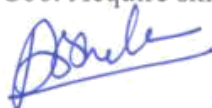
- C01: Understand basics of construction economics.
- C02: Develop an understanding of financial management in civil engineering projects.
- C03: Prepare and analyze the contract account.
- C04: Decide on right source of fund for construction projects.
- C05: Understand working capital and its estimation for civil engineering projects.
- C06 :Illustrate the importance of tax planning & understand role of financial regulatory bodies

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- 5 **301005 b: Elective I: Research Methodology and IPR**  
C01 :Understand a research problem for civil engineering domain.  
C02 :Analyze the available literature for given research problem and illustrate different techniques of literature survey thereby gap identification.  
C03: Recognize the importance of data collection and investigate the statistical and reliability methods of preliminary data analysis.  
C04 :Explain the important concept of interpretation and develop technical writing and presentation skills.  
C05 :Comprehend the various forms of the intellectual property, its relevance and business impact in the changing global business environment.  
C06 :Realize the importance of patents, trademark and copyright and follow research ethics
- 6 **301011 b: Audit Course I: Sustainable Energy Systems**  
C01 :To demonstrate an overview of the main sources of renewable energy.  
C02: To understand benefits of renewable and sustainable energy systems
- 7 **301012: Waste Water Engineering**  
C01: Recall sanitation infrastructure, quantification and characterization of wastewater, natural purification of streams  
C02 :Design preliminary and primary unit operations in waste water treatment plant  
C03 :Understand theory and mechanism of aerobic biological treatment system and to design activated sludge process  
C04 :Understand and design suspended and attached growth wastewater treatment systems  
C05 :Explain and apply concept of contaminant removal by anaerobic, tertiary and emerging wastewater treatment systems  
C06:Compare various sludge management systems and explain the potential of recycle and reuse of wastewater treatment
- 8 **301013: Design of Reinforced Concrete Structures**  
C01: Apply relevant IS provisions to ensure safety and serviceability of structures, understand the design philosophies and behavior of materials: steel & concrete.  
C02 :Recognize mode of failure as per LSM and evaluate moment of resistance for singly, doubly rectangular, and flanged sections.  
C03: Design & detailing of rectangular one way and two-way slab with different boundary conditions  
C04: Design & detailing of dog legged and open well staircase  
C05: Design & detailing of singly/doubly rectangular/flanged beams for flexure, shear, bond and torsion.  
C06 :Design & detailing of short columns subjected to axial load, uni-axial/bi-axial bending and their footings.
- 9 **301014: Remote Sensing and Geographic Information System**  
C01: Articulate fundamentals and principles of RS techniques.  
C02 :Demonstrate the knowledge of remote sensing and sensor characteristics.  
C03 :Distinguish working of various spaces-based positioning systems.  
C04 :Analyze the RS data and image processing to utilize in civil engineering  
C05 :Explain fundamentals and applications of RS and GIS  
C06: Acquire skills of data processing and its applications using GIS



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- 10 301015 e: Elective II: Architecture and Town Planning**  
C01: Apply the principles of architectural planning and landscaping for improving quality of life  
C02 :Understand the confronting issues of the area and apply the acts.  
C03 :Evaluate and defend the proposals.  
C04 :Appraise the existing condition and to develop the area for betterment.
- 11 301016: Internship**  
C01: To develop professional competence through industry internship  
C02 :To-apply academic knowledge in a personal and professional environment  
C03 :To build the professional network and expose students to future employees  
C04 :Apply professional and societal ethics in their day to day life  
C05 :To become a responsible professional having social, economic and administrative considerations  
C06 :To make own career goals and personal aspirations
- 12 301021 b: Audit Course II: Industrial Safety**  
C01 Analyze the safety problem with its solution.

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