

**SavitribaiPhule University of Pune**  
**Third Year Civil Engineering (2015 Course)**

**Semester I**

**Course Outcomes**

**301002 Infrastructure Engineering and Construction Techniques**

**Course Outcomes:**

Student shall be able to

1. Understand fundamentals of highway, airport and bridge engineering from the syllabus under Highway Engineering.
2. Gain knowledge of Highway geometrics, pavement design, quality control on field, safety measures etc.
3. Study bridge sub-structure and super-structure components, various hydraulic design forces, IRC loadings.
4. Get knowledge of Airport planning, layout and runway and taxiway components.

**301003 Structural Design-I**

**Course Outcomes:**

Student shall be able to

1. Understand design philosophies according to IS 800:2007 & behavior of structural steel
2. Understand wind load concept as per IS Code
3. Design various structural components of steel structure.
4. Apply relevant IS code provisions to ensure safety & serviceability of structural steel elements.
5. Design bolted & welded connections for tension & Compression members
6. Familiarity with professional & ethical issues & the importance of lifelong learning in structural Engineering.

### **301004 Structural Analysis-II**

#### **Course Outcomes:**

Student shall be able to

1. Apply different approximate methods for analysis of 2D frames subjected to horizontal & vertical loads
2. Analyze non-prismatic beams
3. Analyze indeterminate beams using Flexibility methods
4. Apply Strain energy method for composite sections
5. Analyze the frames subjected to lateral sway using moment distribution method

### **301005 Fluid MechanicsII**

#### **Course Outcomes:**

Student shall be able to

1. Solve problem on Drag and Lift force and boundary layer theory
2. Derive the governing equations of transients in pipes and channels
3. Identify channel type and solve problems on economical depth calculation of channel.
4. Solve problems on gradually varies flow and rapidly varied flow.
5. Differentiate between model and prototype also can solve problems related to it
6. Solve problems on hydraulic pumps and turbines.

## **Semester II**

### **301007 Advanced Surveying**

#### **Course Outcomes:**

Student shall be able to

1. Calculate angles, distances and points of elevation
2. Design the different curve in roads and railways
3. Understands the procedure of triangulation system and base line measurement
4. Understand procedure of Photogrammetric & Field Astronomy
5. Understand the principle of Remote sensing, GIS & GPS
6. Design of Hydrographic and Underground survey

## **301008 Project Management and Engineering Economics**

### **Course Outcomes:**

Student shall be able to

1. Understand the project life cycle and organization.
2. Solve problems related to Network and total duration of the project using different network techniques.
3. Apply effectively the principles of scheduling techniques in projects.
4. Understand legal aspects of contract and their types.
5. Calculate operational cost, owning and hiring cost of the equipment.
6. Understand various acts related to the project.

## **301009 Foundation Engineering**

### **Course Outcomes:**

Student shall be able to

1. Understand the elastic properties of soil
2. Understand and assess the dynamic characteristics of soil
3. Understand the concepts of soil liquefaction
4. Access the soil settlement due to dynamic loading
5. Analyze the effects of vibration on various soil properties
6. Design the appropriate machine foundation

## **301010 Structural Design-II**

### **Course Outcomes:**

Student shall be able to

1. Apply the fundamental concepts of working stress method as per IS 456-2000.and Prestressed concrete method.
2. Apply the fundamental concepts of limit state method on limit state of Serviceability
3. Apply the fundamental concepts of limit state of collapse in flexure and in Shear & Bond as per IS 456-2000.

4. Apply the fundamental concepts of limit state of collapse in Compression and design of footing as per IS 456-2000.
5. Solve the design of circular rectangular water tank.
6. Design of one –way, cantilever slabs, continuous and two way slab

### **301011 Environmental Engineering-I**

#### **Course Outcomes:**

Student shall be able to

1. Identify & calculate the water demand, source of water to meet the future needs
2. Specify certain components of water supply systems and design rising main
3. Analyze the water quality and design the primary treatment units of water treatment plant
4. Design the sedimentation and filter treatment units of water treatment plant
5. Apply the concept of disinfection and distribution system
6. Use concept of municipal solid waste management