Department of Civil Engineering
K. K. Wagh Institute of Engineering Education and Research
Hirabai Haridas Vidyanagari, Amrut Dham, Panchavati, Nashik-422003

SY BTech – Sem I (2022 Pattern)

Subject 2: Mechanics of Structures (CIV222002)

At the end of this course, Students will be able to

CO222002.1 Discuss the concept of stress-strain for elastic, plastic & brittle material and describe different type of stresses in determinate, indeterminate, homogeneous and composite structures

CO222002.2 Sketch loading diagram, Shear Force Diagram (SFD) and Bending Moment Diagram (BMD).

CO222002.3 Interpret bending and shear stresses and its applications for different cross sections

CO222002.4 Apply theory of torsion to determine the stresses in circular shaft and Illustrate principal planes and principal stresses and its diagrammatic representation.

CO222002.5 Analyze axially loaded and eccentrically loaded column.

Subject 3: Fluid Mechanics (CIV222003)

At the end of this course, Students will be able to

CO222003.1 Recall the basic fluid properties and state concepts of buoyancy.

CO222003.2 Identify the various pressure measuring devices and explain the various numbers in dimensional analysis.

CO222003.3 Discuss the equations in fluid kinematics and fluid dynamics

CO222003.4 Describe Laminar and turbulent flow and recognize its characteristics.

CO222003.5 Solve the practical problems involving flow through pipes.

Subject 4: Architectural Planning and Design (CIV222004)

At the end of this course, Students will be able to

CO222004.1: Identify types of building and basic requirements of building components.

CO222004.2 Understand different Legal aspects

CO222004.3 Make use of Architectural Principles and Building bye laws for building construction.

CO222004.4 Plan effectively various types of Residential and Public Building according to their utility, functions with reference to National Building Code.

CO222004.5 Make use of Principles of Planning in Town Planning, Different Villages and Safety aspects.

Subject 5: Project Management (CIV222005)

At the end of this course, Students will be able to

CO222005.1 List the attributes of a successful project manager.

CO222005.2 Carry out financial appraisal of a project through various methods, Measure project cost and benefits and Estimate project cash flow.

CO222005.3 Apply project management knowledge for drawing work breakdown structure and Estimate the break-even point.

CO222005.4 Draw the CPM Network for project scheduling.

CO222005.5 Carry out resource loading and resource leveling.

Subject 6: Literature Study (CIV222006)

At the end of this course, Students will be able to

CO222006.1 Understand formulating a research problem

CO222006.2 Understand the significance of literature survey

Subject 7: Mechanics of Structures Lab (CIV222007)

At the end of this course, Students will be able to

CO222007.1 Estimate the compressive, tensile, flexural strength of various materialsused in constructions like steel, timber, plywood, bricks and tiles

CO222007.2 Apply the acquired knowledge to ensure quality of materials as per specifications prescribed in Indian standard codes.

CO222007.3 Analyse the structural behaviour of materials under various loading configurations.

CO222007.4 Evaluate the test results with the relevance of their field applications

Subject 8: Fluid Mechanics Lab (CIV222008)

At the end of this course, Students will be able to

CO222008.1 Recall the basic fluid properties and state concepts of buoyancy.

CO222008.2 Identify the various pressure measuring devices and explain the various numbers in dimensional analysis.

CO222008.3. Discuss the Bernoulli's equation and uses of venturimeter.

CO222008.4 Describe Laminar and turbulent flow and recognize its characteristics

CO222008.5 Solve the practical problems involving boundary layer theory and flow through pipes.

Subject 9: Architectural Planning and Design Lab (CIV222009)

At the end of this course, Students will be able to

CO222009.1: Identify types of building and basic requirements of building components.

CO222009.2 Understand different Legal aspects

CO222009.3 Make use of Architectural Principles and Building byelaws for building construction.

CO222009.4 Plan effectively various types of Residential and Public Building according to their utility, functions with reference to National Building Code.

CO222009.5 Make use of Principles of Planning in Town Planning, Different Villages and Safety aspects.

Subject 10: Computer Aided Drafting (CIV222010)

At the end of this course, Students will be able to

CO222010.1 List the fundamental drawing commands used in AutoCAD.

CO222010.2 Explain the importance and purpose of managing layers, applying colors, dimensions, text and defining line types in AutoCAD.

CO222010.3 Apply their knowledge to create 2D drawings, edit, and modify basic drawings using various commands in CAD.

Department of Civil Engineering
K. K. Wagh Institute of Engineering Education and Research
Hirabai Haridas Vidyanagari, Amrut Dham, Panchavati, Nashik-422003

Subject 1: Structural Analysis (CIV222011)

At the end of this course, Students will be able to

CO222011.1 Identify determinate and indeterminate structures-static and kinematic for their analysis

CO222011.2 Analyze redundant trusses and perform approximate analysis of multi-story multi-bay frames.

CO222011.3 Solve problems on indeterminate beams and portal frames using slope deflection method.

CO222011.4 Analyze beams and portal frames using moment distribution method.

CO222011.5 Appraise analysis of beams and portal frames by stiffness method

Subject 2: Surveying (CIV222012)

At the end of this course, Students will be able to

CO222012.1 Recognize the importance of the fundamental principles of surveying and basic knowledge of surveying during engineering and surveying activity; operations to the various civil engineering projects.

CO222012.2 Apply the knowledge of leveling for calculation of the Reduced levels of various points.

CO222012.3 Use the angle measuring instruments (Theodolite) for setting out various civil engineering works.

CO222012.4 Apply the knowledge of tacheometric surveying for preparation of contour map.

CO222012.5 Calculate data required for setting out of the different curves in the field.

Subject 3: Concrete Technology (CIV222013)

At the end of this course, Students will be able to

CO222013.1 Discuss concrete as a construction material and get acquainted with the ingredients of concrete like cement, sand, aggregates and admixtures.

CO222013.2 Describe various concreting techniques, special concretes and concrete handling equipment.

CO222013.3 Identify and Evaluate the properties of fresh concrete.

CO222013.4 Understand the deteriorations in concrete and categorize different methods and techniques for repairing it.

CO222013.5 Perform concrete mix design of normal concrete grade.

Subject 4: Remote Sensing & GIS (CIV222014)

At the end of this course, Students will be able to

CO222014.1 Define fundamentals and principles of RS techniques and photogrammetry.

CO222014.2 Explain fundamentals and applications of GIS.

CO222014.3 Demonstrate the knowledge of remote sensing and sensor characteristics.

CO222014.4 Distinguish working of various spaces-based positioning systems.

CO222014.5 Acquire skills of data processing and its applications using GIS.

Subject 5: Earth Sciences (CIV222015)

At the end of this course, Students will be able to

CO222015.1 Get knowledge about the basic concepts of engineering geology.

CO222015.2 Estimate the importance of mass wasting processes and assessment and Importance of various geological hazards.

CO222015.3 Differentiate and judge between favourable and unfavourable geological conditions for the buildings, roads, dams, tunnels.

CO222015.4 Acquaintance with various types of geological nature at the foundations of dams, tunnels etc. and can evaluate the best site.

CO222015.5 **K**now various tectonic processes that hamper the design of civil engineering projects and its implications on environment and sustainability.

Subject 6: Softwares in Civil Engineering (CIV222016)

At the end of this course, Students will be able to

CO222016.1 Understand the basics of Excel.

CO222016.2 Understand the basics BIM, Primavera and MS Project.

CO222016.3 Understand the analysis and design of structural elements using Etabs and Staad Pro

CO222016.4 Understand the analysis and design the foundation using Safe and plaxis

CO222016.5 Develop the architectural plan by using Autocad

Subject 7: Surveying Lab (CIV222017)

At the end of this course, Students will be able to

CO222017.1 Recognize the importance of the fundamental principles of surveying and basic knowledge of surveying during engineering and surveying activity; operations to the various civil engineering projects.

CO222017.2 Apply the knowledge of leveling for calculation of the Reduced levels of various points.

CO222017.3 Use the angle measuring instruments (Theodolite) for setting out various civil engineering works.

CO222017.4 Apply the knowledge of tacheometric surveying for preparation of contour map.

CO222017.5 Calculate data required for setting out of the different curves in the field.

Subject 8: Concrete Technology Lab (CIV222018)

At the end of this course, Students will be able to

CO222018.1 Discuss concrete as a construction material and get acquainted with the ingredients of concrete like cement, sand, aggregates and admixtures

CO222018.2 Describe various concreting techniques, special concretes and concrete handling equipments

CO222018.3 Discuss and Evaluate the properties of fresh concrete.

CO222018.4 Understand the deteriorations in concrete and categorize different methods and techniques for repairing it.

CO222018.5 Perform concrete mix design of normal concrete grade.

Subject 9: Remote Sensing & GIS Lab (CIV222019)

At the end of this course, Students will be able to

CO222019.1 Identify the land use and land cover classification.

CO222019.2 Understand the various methods of visual image interpretation.

CO222019.3 Explain the function of various tools of QGIS software.

CO222019.4 Prepare the thematic maps of different features.

Subject 10: Project Based Learning (CIV222020)

At the end of this course, Students will be able to

CO222020.1 To identify the social needs and real life problems in civil engineering

CO222020.2 To generate ideas and decide the most optimized alternative in practice

CO222020.3 To utilize various tools to solve the identified problem