Course Outcomes

II Year, Sem-I (AY 2019-20)

S.NO	Course Code	Subject	Course Outcomes
1.	19A54301	Complex Variable s, Transforms and Partial Differential equations	1.Solve linear systems of equations.
			2.Relate Algebraic and Transcendental Equations to engineering problems.
			3.Calculate the intermediate value of intervals.
			4.Describe forecasting methods.
			5.Find numerical values for engineering applications using differential equations.
2.	19A01301T	Strength of Materials-I	1. Explain the behaviour of materials under different stress and strain conditions.
			2. Draw bending moment, shear force diagrams of beams under various loadings.
			3. Explain bending stress and shear stress distribution for beams under the different conditions of loading.
			4. Describe Slope, deflections of beams, columns under various loading conditions using different analysis methods
			5. Explain Stresses under the combined action of direct loading and bending moment.
3.	19A01304	Building Materials and Construction	1. Explain the quality of various construction materials and various stages of constructional activities.
			2. Describe the mechanical behavior of construction materials and their microstructural effects.

			3. Describe traditional thermal building insulation materials for given requirements.
			4. Explain various construction related activities.
			5. Describe the material properties, mechanical tests and quality control tests for wood and various finishes in buildings.
4.	19A01304T	Building Materials & Science	1. Explain the behaviour of materials under different stress and strain conditions.
			2. Draw bending moment, shear force diagrams of beams under various loadings.
			3. Explain bending stress and shear stress distribution for beams under the different conditions of loading.
			4. Describe Slope, deflections of beams, columns under various loading conditions using different analysis methods
			5. Explain Stresses under the combined action of direct loading and bending moment.
5.	19A01303T	Surveying-I	1. Explain surveying and Linear measurements.
			2. Explain bearings and its effects.
			3. Illustrate the levelling
			4. Explain theodolite and its uses.
			5. Plot the areas of irregular boundaries.
6.	19A01302T	Fluid Mechanics	1. Explain the properties of fluids.
			2. Describe buoyancy.
			3. Explain the dynamics of fluid flow and flow measurements in pipes.
			4. Describe the flow through orifices, mouthpieces, notches and weirs.
			5. Analyze laminar and turbulent flow in pipes.

II **Year, Sem-I (AY 2019-20)**

S.NO	Course Code	Subject	Course Outcomes	Signature
1.	19A01401	Strength of Materials – II	1. Explain stress and strain relationship. 2. Describe thick and thin cylinders 3. Explain torsion and shafts 4. Explain buckling phenomenon in columns and struts. 5. Summarize unsymmetrical bending.	
2.	19A01402T	Hydraulics & Hydraulic Machinery	1. Describe flow in a pipe, flow measurement through orifices, mouth pieces, notches and weirs 2. Analyse the open channel flows of gradually and rapidly varied flow. 3. Summarise the impact of jet on vanes and turbines. 4. Apply the working principles of Impulse and Reaction turbines 5. Explain the boundary layer theory and dimensional analysis.	
3.	19A01403	Structural Analysis – I	1. Describe various energy theorems and deflection of beams, frames and trusses. 2. Analyze various statically indeterminate structures. 3. Analyze the fixed beams and continuous beams for various loading conditions. 4. Explain shear force and bending moment diagrams of continuous beams and frames by slope deflection method. 5. Explain shear force and bending moment diagrams of continuous beams and frames by moment distribution method.	
4.	19A01404T	Concrete Technology		

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III **Year, Sem-I(AY 2019-20)**

S.NO	Course Code	Subject	Course Outcomes	Signature
1.	15A01501	Design and Drawing of RCC Structures	1. Apply clauses of I.S.456-2000 code design specifications for different structural designs 2. Design the beams with different end conditions for shear, torsion and bond 3. Design one way slabs and two way slabs with different end conditions 4. Design the RCC columns with combined bending and compression 5. Design foundations, stair case and portico.	
2.	15A01502	Estimation, Costing and Valuation	1. Explain the general items of building works. 2. Estimate the details of residential buildings 3. Describe earthwork of roads and canals. 4. Explain types of contracts and documents 5. Outline the types of valuations, rate analysis for different items.	
3.	15A01503	Geotechnical Engineering – I	1. Explain the I.S. classification of soils. 2. Explain properties and factors of permeability, effective stress, seepage through soils. 3. Analyze stress distribution of soils, Newmark's influence chart for irregular area, effects and factors of compaction. 4. Explain the consolidation of soil. 5. Describe shear strength of soil.	
4.	15A01504	Engineering Geology	1. Explain the principles of engineering geology, forming and properties of various rocks and minerals. 2. Describe the classification of rocks, structure and textures and the geological structure of ground.	

			3. Outline the control of groundwater, earthquakes and landslides.	
			4. Explain the various investigations involved in construction site.	
			5. Describe dams, reservoirs and tunnels.	
5.	15A01505	Structural Analysis – II	1. Explain Arches and its behaviour under different loading and support conditions.	
			2. Utilize the slope deflection & Moment Distribution Methodologies for analyzing the continuous beams and portal frames.	
			3. Find bending moments and shear forces in beams and frames under dynamic conditions using Kani's Iteration Process	
			4. Analyze the Structural Beams using Flexibility & Stiffness Matrix Methods.	
			5. Explain the Idealized Stress-Strain diagram, Moment Curvature relationship, Shape factors.	
6.	15A01506	Cost Effective Housing Techniques	1. Outline various policies and authorities related to low cost housing.	
			2. Summarize the different types of housing programmes and related communities	
			3. Describe the prefabrication techniques in outdoor constructions.	
			4. Explain alternative methods of infrastructure of buildings by adoption of low cost techniques.	
			5. Summarize the disaster prone areas.	

III **Year, Sem-II (AY 2019-20)**

S.NO	Course Code	Subject	Course Outcomes	Signature
1.	15A01601	Concrete Technology	Explain the types of cements and their manufacturing process.	
			Explain testing of fresh and hardened concrete.	
			Summarize the special concretes.	
			Describe the elasticity, creep and shrinkage of the concrete.	
			Apply the ACI and IS 10262 methods to design the mix proportions of concrete.	
2.	15A01602	Design and Drawing of Steel Structures	Apply the IS code of practice for the design of steel structural elements	
			Design compression and tension members.	
			Explain the behavior and modes of failure in tension members under different end connections.	
			Design tension members, bolted connections, welded connections, compression members and beams.	
			Design welded connections for both axial and eccentric forces	
3.	15A01603	Geotechnical Engineering – II	Describe the geological features and construction of underground openings in rock and/or soil.	
			Explain the behavior of soils in slopes and behind retaining structures.	
			Analyze lateral earth pressures under at-rest, active and passive conditions.	
			Evaluate the Bearing capacity of foundation	
			Explain pile load and insitu tests.	
4.	15A01604	Transportation Engineering - I	Describe Highway Engineering, Historical Development.	
			Explain the Highway alignment and components of a railway line.	

			Summarize Air port Engineering.	
			Explain Traffic signal ands signaling systems for Highway	
			Describe At-Grade Intersection and Grade separated intersection	
5.	15A01605	Water Resources Engineering – I	Describe hydrology.	
			Analyse the hydrographs.	
			Explains the types of irrigation systems.	
			Explains the channels and the silt theories involved in the channel design.	
			Summarize the different aspects of hydraulic structures.	
6.	15A01607	Disaster Management & Mitigation	Summarize the disasters and their effects on environment	
			Explain the types of Environmental hazards and disasters	
			Describe the Endogenous hazards	
			Explain the Exogenous hazards and soil Erosion	
			Summarize disaster management through engineering applications	

IV **Year, Sem-I (AY 2019-20)**

S.NO	Course Code	Subject	Course Outcomes	Signature
1.	15A01701	Finite Element Methods	1. Describe Finite Element Method, Constitutive relation between stresses, Strains and Energy Principles. 2. Solve 1D & 2D Structural Problems using FEM. 3. Generate element stiffness and nodal force matrices for triangular and rectangular elements. 4. Formulate the isoparametric constant strain triangular and quadrilateral elements with 4 and 8 Nodes. 5. Solve structural Integral functions using Numerical Solution Techniques.	
2.	15A01702	Transportation Engineering - II	1. Describe Railway engineering system. 2. Explain the alignment of new railway line. 3. Describe the Air port Engineering 4. Explain the alignment of Runway and Taxiway 5. Describe Harbours, Ports and docks.	
3.	15A01703	Environmental Engineering	1. Explain the sources of water and their demand per day including quality analysis. 2. Summarize the water treatment and design methods 3. Explain the daily needsof sanitation, hygiene maintenance and decomposition of sewage. 4. Describe the maintenance of waste water treatment plants. 5. Summarize solid waste, noise and air pollution	
4.	15A01704	Water Resources Engineering – II	1. Describe canal structures and their functions. 2. Describe the discharge, depth, velocity and river training works of a stream.	

			3. Summarize the various types of dams and their uses.	
			4. Explain gravity dam and earth dam.	
			5. Explain spillways and the implementation of turbines in hydroelectric plants.	
5.	15A01707	Air Pollution and Quality Control	1. Explain the parameters of air pollution	
			2. Explain the properties of air pollutants.	
			3. Describe the chemical components, reactions and factors responsible for air pollution.	
			4. Implement the methods for monitoring and modeling spatial and temporal patterns.	
			5. Assess the environmental impacts of atmospheric pollution.	
6.	15A01710	Rehabilitation and Retrofitting of Structures	1. Summarize the mechanical behavior of reinforced concrete along with defects and deterioration in buildings.	
			2. Describe the process of corrosion in concrete and its effects.	
			3. Interpret the results for concrete structures using non-destructive testing.	
			4. List repair materials and their methods of applications.	
			5. Summarize the Structural health monitoring for damage detection in reinforced concrete structures.	

IV Year, Sem-I (AY 2019-20)

S.NO	Course Code	Subject	Course Outcomes	Signature
1.	15A01802	Advanced Structural Engineering	1. Design a flat slab system. 2. Design bunkers. 3. Design a chimney for the given requirements. 4. Design watertanks for the given specifications. 5. Design retaining wall and counterfort retaining wall	
2.	15A01804	Environmental Impact Assessment &Management	1. Explains the elements, factors and classification of EIA 2. Describe the methodologies of EIA 3. Explain the impacts of EIA in Soil and Surface water 4. Explain the impacts of EIA on vegetation and wild life 5. Summarize environmental objectives, types and audits	

Faculty Incharge **HOD**