Koneru Lakshmaiah Education Foundation
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Department of Civil Engineering
Program: M. Tech – (Geo Technical Engineering)
Academic Year: 2022-2024

Course Code	Course Name	Description of Course Outcome
22CE5161	Advanced Soil Mechanics	Analyze effective stress for different field conditions.
		Calculate settlement of soils using one dimensional and three-dimensional consolidation theories.
		Estimates shear strength of saturated and partially saturated soils.
		Develop stress path diagrams for different load conditions.
		Analyze soil properties by conducting various laboratory/ field tests.
22CE5162	Sub-Surface Investigations	Analyze effective stress for different field conditions.
		Calculate settlement of soils using one dimensional and three dimensional consolidation theories.
		Estimate shear strength of saturated and partially saturated soils.
		Develop stress path diagrams for different load conditions.
		Analyze the various sub-surface investigations by conducting various field or laboratory tests.
22CE5163	Geo-Environmental Engineering	Consider possible susceptibility of soil properties to environmental effects.
		Identify contaminant transport mechanisms in soils
		Estimate environmental influences on engineering properties of soil to be used in design.
		Apply environmental changes to soil stabilization and landfill engineering
		Analyze Geoenvironmental engineering characteristics by conducting various laboratory tests.
22CE5164	Ground Improvement Techniques	Identify difficult ground conditions in engineering practice.
		Identify different ground improvement techniques.
		Select Site specific method of improvement and its design
		Promote wider use of techno – economical construction techniques such as Reinforced soil structures, Gabion walls, Crib walls and fabric form work.
		Analyze different ground improvement techniques by conducting various laboratory/ field tests or software tools
22CE5265	Soil Dynamics & Geotechnical Earthquake	Apply theory of vibrations to solve dynamic soil problems
		Calculate the dynamic properties of soils using laboratory and field tests
		Analyze and design behavior of a machine foundation resting on the surface, embedded foundation and foundations on piles by elastic half space concept.

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	Engineering	Analyze and design vibration isolation systems
		Analyze the various soil dynamic properties by conducting various laboratory and field test.
22CE5266	Geosynthetics & Design of Retaining wall	Able to compute the various parameters of the geo-synthetics , demonstrate the different testing techniques of of geo-synthetics
		Able to design soil reinforced retaining walls as per BS-8006 and FHWA regulations
		Able to compute soil reinforcement for steep slopes
		Able to demonstrate application of geo-synthetics in drainage ,filtration ,pavement design and in landfills
		Designing of the retaining wall
22CE5267	Design of Earth & Earth Retaining Structures	Analyze Earth pressure theories for different field conditions.
		Designing the earth retaining structures at different conditions.
		Designing the sheet piles and cofferdam.
		Analyze and design the stability of slopes .
		Analyze the various earth retaining characteristics by conducting filed/lab/ software tools or spread sheets.
22CE5268	Advanced Foundation Engineering	Select different types of foundations based on site conditions.
		Analyze bearing capacity and settlement of foundations
		Design shallow and deep foundations.
		Analyze and suggest remedial measures against foundation failures.
		Analyze different foundation techniques by conducting various laboratory/ field tests/software tools
22CE51M1	Soil structure interaction	Analyze the basic soil models.
		Analyzing beam and winkler foundations
		Estimate shear Beams on Elastic continuum
		Analyzing path Pile on Winkler foundation.
		Understand the fundamentals of Finite element method.
22CE51M2	Finite Element Methods	Analyze Principles of discretization, element stiffness and mass formulation based on different techniques.
		Analyze Displacement formulation for different shapes
		Analyze the settlement analysis in different mediums
		Understand about the stability of slopes
22CE51N1	Stability Analysis of Slopes	Analyzing the different types of soil and slopes conditions.
		Analyzing the stability of slopes by using the contaminated soil filling.
		Analyzing the slopes using different geo synthetics materials by filling soil.
22CE51N2	Design of Highways and Airfield pavements	Understand different types of pavements
		Design flexible pavements as per codal provisions
		Design rigid pavements as per codal provisions
		Design joints, pavement overlay and analyze pavement condition in all weather conditions
22CE52O1	Rock Mechanics and Tunneling	Conduct laboratory and field testing for a given project / construction
		Choose appropriate methods to improve stability of rock mass
		Estimate foundation capacity of rock mass.
		Analyze the different rock properties by conducting various filed/laboratory tests..
	Offshore Geotechnical	Analyze index and engineering properties of marine clays.
		Adopt suitable investigation method and sampling techniques for these marine deposits

22CE52O2	engineering	Analyze loads on offshore structures and select appropriate foundation for these structures.
		Implement required ground improvement technique for these structures
22CE51P1	RS & GIS Applications in Civil Engineering	Understanding and Applying the Basics of Remote Sensing
		Understanding and analysing the Basic elements of image interpretation
		Understanding and analysing about the GIS
		Understanding and analysing about Land use /Land cover studies
22CE52P2	Constitutive Modeling in Geo-techniques	Analysing the soil fundamental and modelling.
		Determining the soil plasticity characteristics
		Analyzing the soil Elastic and plastic characterizes
		Analyzing the clay model: critical state line, shear strength, stress-dilatancy, index properties, and prediction of conventional soil tests. Applications

Academic Professor I/C

HOD-CE

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