

19CE4602B - ADVANCED FOUNDATION ENGINEERING

Course Category:	Program Elective	Credits:	3
Course Type:	Theory	Lecture-Tutorial-Practical:	3-0-0
Prerequisites:	19CE3403- Geotechnical Engineering 19CE4501B – Foundation Engineering	Continuous Evaluation:	30
		Semester End Evaluation:	70
		Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to:

CO1	Evaluate the bearing capacity in layered soil.	K4
CO2	Conduct the settlement analysis.	K3
CO3	Design mat foundation in different conditions.	K6
CO4	Design the best suitable earth retaining structure.	K6
CO5	Analyse pile foundation.	K4

Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		2	2			3							3	2
CO2		2				3							3	2
CO3		2	2			3							3	2
CO4		2	2			3							3	2
CO5		2				3							3	2

1- Low

2-Medium

3-High

Course Content

UNIT-1	BEARING CAPACITY OF FOUNDATIONS: Using general bearing capacity equation, Meyerhof's, Brinch Hansen's and Vesic's methods.	CO1
UNIT-2	BEARING CAPACITY OF LAYERED SOILS: Strong layer over weak layer, Weak layer on strong layer, bearing capacity of foundations on a top of slope, Bearing capacity of foundations at the edge of the slope.	CO2
UNIT-3	SETTLEMENT ANALYSIS: Immediate settlement of footings resting on granular soils, Schmertmann & Hartman method, De Beer and Martens method.	CO3
UNIT-4	SETTLEMENT IN CLAYS: Immediate settlement, Janbu's method, correction for consolidation settlement using Skempton and Bjerrum's method, Correction for construction period	CO4
UNIT-5	MAT FOUNDATIONS: Purpose and types of isolated and combined footings, Mats/ Rafts, Proportioning of footings.	CO5

Learning Resources

Text Books	1. Principles of Foundation Engineering, BM Das, CENTAG Learning 2. Soil Mechanics and Foundation Engineering, VNS Murthy, CBS Publishers
Reference Books	1. Foundation Analysis and Design, J.E. Bowles, John Wiley Foundation Design, W.C. Teng, Prentice Hall Publishers.
e-Resources & other digital material	1. https://nptel.ac.in/courses/105108069/ 2. http://jntuk-coeerd.in/