

FOUNDATION ENGINEERING

Code: CE501

Contact: 3L + 1T

Credits: 4

Module 1

Earth pressure theories: Plastic equilibrium of soil, Earth pressure at rest, Active & passive earth pressure, Rankine's & Coulomb's earth pressure theories, wedge method of analysis, estimation of earth pressure by graphical construction (Culmann Method). [4]

Module 2

Retaining wall & sheet pile structures: Proportions of retaining walls, stability checks, cantilever and anchored sheet piles, free earth and fixed earth method of analysis of anchored bulk heads [6]

Module 3

Stability of slopes: Analysis of finite and infinite slopes, Swedish And friction circle method, Taylor's stability number, Bishop's method of stability analysis [4]

Module 4

Site investigation & soil exploration: Planning of sub-surface exploration, methods, sampling, samples, Insitu tests: SPT, SCPT, DCPT, Field vane shear, Plate load test [6]

Module 5

Shallow foundations : Safe bearing capacity, Terzaghi's bearing capacity theory, effect of depth of embedment, water table, eccentricity of load, foundation shape on bearing capacity, Bearing capacity as per IS 6403. [6]

Module 6

Settlement analysis of shallow foundation: Immediate and consolidation settlement, correction for rigidity and dimensional effects, settlement in various types of soil, IS-1904 and 8009 recommendations, Allowable bearing capacity [4]

Module 7

Deep foundations: Pile: Types, load transfer mechanism, Determination of load carrying capacities of piles by static and Dynamic formulae, Recommendations of IS 2911, Pile group: Group efficiency, Negative skin friction, pile load test [6]

References

1. Principles of Geotechnical Engineering -B.M. Das Thomson
- 2 Principles of soil Mechanics & Foundation Engineering VNS Moorthy - UBS Publication
- 3 Principles of Foundation Engineering - B.M. Das Thomson
- 4 Foundation Analysis & Design J.E. Bowels Mc Graw Hill
- 5 Basic & Applied Soil Mechanics Gopal Ranjan & A.S.R. Rao Wiley Eastern Ltd