

## Course syllabus

Department of Civil Engineering, Indian Institute of Technology Madras

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### CE5300 - Applied Soil Mechanics

**Credit Distribution:** C:10 L:3 T:1 P:0 E:0 O:6 TH:0

**Course Type:** Theory

**Description:** To expose the students to various geotechnical designs & construction practices.

**Course Content:** “Earth Pressure Theories & Design of Retaining Walls”, “Sheet Pile Walls/Anchored Bulkheads”, “Open Cuts & Deep Excavations, Diaphragm Walls”, “Pre-stressed Ground Anchors, Modern Retaining Systems”, “Theory of Arching in Soils and its Applications in design of tunnels & conduits”, “Slope Stability: Different methods of analysis, Slope Protection and Stabilization”, “Cofferdams and Foundation construction below water”, “Earth Dams and Embankments: Choice of Material, Design of Filters and Drains”

**Text Books:** NIL

#### Reference Books

- Bowles, J. E. (1996). Foundation Analysis and Design, McGraw-Hill, Singapore.
- Budhu, M. (2000) Soil Mechanics and Foundations, John Wiley & Sons Inc., New York, N.Y.
- Clayton, C. R. I., Woods, R. I., Bond, A. J. and Milititsky, J. (2013). Earth Pressure and Earth-Retaining Structures, CRC Press, Boca Raton, Florida.
- Coduto, D. P. (2001). Foundation Design Principles and Practices, Prentice Hall, Upper Saddle River, New Jersey.
- Das, B. M. (2011). Principles of Foundation Engineering, PWS Publishing, Pacific Grove, California.
- Day, Robert W. (2005) Foundation Engineering Handbook, McGraw Hill, New York, N.Y.
- Fang, H. Y. (2004). Foundation Engineering Handbook, CBS Publishers and Distributors, New Delhi.
- Ranjan, G. and Rao, A. S. R. (2000). Basic and Applied Soil Mechanics, New Age International (P) Ltd., New Delhi.
- Shukla, S.K. (2012) Handbook of Geosynthetic Engineering, ICE Publishing, London, UK.
- Terzaghi, K., Peck, R. B. and Mesri, G. (1996). Soil Mechanics in Engineering Practice, John Wiley and Sons, New York.
- All Relevant IS codes and a few selected journal papers.

**Prerequisite:** NIL