

## Course syllabus

Department of Civil Engineering, Indian Institute of Technology Madras

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### CE3530 - Introductory Rock Mechanics

**Credit Distribution:** C:9 L:3 T:0 P:0 E:0 O:6 TH:0

**Course Type:** Theory

**Description:** To introduce the basic concept related to mechanics of rock, related design principles and analysis procedures for different rock engineering structures and to interpret their behavior under different loading conditions.

**Course Content:** Physico-mechanical properties of rock, laboratory and field tests. Insitu stress determination. Rock mass classification, Failure criteria for rock and rock masses. Stresses around underground openings. Stability of rock slopes. Foundation on rocks. Methods to improve rock mass responses. Instrumentation and field monitoring, Rock blasting.

**Text Books:** NIL

#### Reference Books

- Introduction to Rock Mechanics by R.E.Goodman, John Wiley & Sons.
- Engineering in Rocks for Slopes, Foundation and Tunnels, Editor T. Ramamurthy, Prentice Hall India Pvt. Ltd.
- Rock mechanics and the design of structures in rock, L. Obert and Wilbur I. Duvall, John Wiley & Sons, Inc.
- Fundamentals of Rock Mechanics, blackwell publication, Fourth Edition by Jaeger, Cook and Zimmerman.
- Rock slope engineering, Duncan C Willey and C.W.Mah, Spon Press, Taylor and Francis.

**Prerequisite:** NIL