

PC17J005 SOIL DYNAMICS & MACHINE FOUNDATION 3-0-0

Module – I

Introduction: Soil mechanics and soil dynamics, problems of dynamic loading on soil structure.

Theory of vibrations: Introduction, definitions, Single degree freedom system, Free and Forced vibrations with and without damping; transient response of single degree freedom system.

Module-II

Wave Propagation in Soil media: Wave propagation in an elastic homogeneous isotropic medium, Rayleigh, Shear and compression waves, waves in elastic half space and its equation.

Coefficient of elastic, uniform and non-uniform compression and shear, effect of vibration on the dissipative properties of soils, determination of dynamic properties of soil, Codal provisions.

Module-III

Dynamic loads, simple design procedures for foundations under reciprocating machines, machines producing impact loads, rotary type machines, Codal provision.

Module-IV

Vibration Isolation: Vibration Isolation Technique; Mechanical isolation, Foundation Isolation, isolation by location, isolation by barriers, active and passive isolation tests.

Reference Books:

1. Soil Dynamics and Machine Foundations, Swami Saran, Galgotia Publications Pvt Ltd.
2. Hand book on Machine Foundations, Srinivasulu.P. & Vaidyanathan.C. McGraw Hill Publications.
3. Soil Dynamics and Design Foundation, S.Prakash & V.K.Puri , McGraw Hill Publications.
4. Geotechnical Engineering, Shashi K Guhati & Manoj Datta, McGraw Hill Ltd.