

Year & Sem	Course Code: CE4505	Course Name: Structural Dynamics	No. of Credits: 4	L	T&PS	P
				2	2	0

UNIT-I: Concepts of Dynamics And Vibrations;

Discrete and continuous systems, Free Body Diagramme, D-Alembert's Principle, Energy principle, governing Equation of Motion for Free and forced Vibration, damped and Undamped Vibration.

UNIT-II: Free Vibration

Response for Damped and Undamped free vibration systems, critically damped, under damped, over damped vibration systems and applications.

UNIT-III: Forced Vibration

Response for damped and Undamped forced vibrations for harmonic, Periodic, Impulse and earthquake loading.

UNIT-IV:

Numerical Methods for free and forced Vibration Analysis, Central difference method, New marks method.

UNIT-V:

Governing equation of motion for Multi Degree freedom system, Response of Multi degree freedom Systems.

UNIT-VI:

earthquake response spectrum, earthquake force calculation by equivalent static method of analysis and Response spectrum method of analysis, Ductile detailing, Strong Column- Weak Beam, Strong Beam-Weak Column. Ductile design of building as per IS 13920:1993.

References/Text Books:

1. Anil K Chopra, "Dynamics of Structures- Theory and applications to Earthquake Engineering" 3rd edition, person India.
2. Pankaj Agarwal and Manish Shrikande "Earthquake Resistant Design of structures" Pearson India Publication, New Delhi.
3. Maria and Paz, "Structural Dynamics- Theory and computation" 4th Edition, Springer Publisher.
4. IS 1893 (Part-1)-2002, "Earthquake resistant Design of Structures -Buildings" Bureau of Indian standards, New Delhi

Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations.

Year & Sem: E3S1	Course Code: CE3111	Course Name: Estimation & Costing	No. of Credits: 4	L	T&PS	P
				2	2	0