2089	Dynamics and Vibrations

Linear Dynamic Systems with a Single Degree of Freedom Structure and Basic Components. Free vibrations. Response to harmonic, periodic and transient excitations. Response to general and random vibrations (*) Linear Dynamic Systems with Multiple Degrees of Freedom Natural Frequencies and natural modes. Modal analysis and transformation. Transfer Functions. Laplace transform (*). Numerical approaches. Applications in mechanical engineering systems. Modelling of Dynamic Systems Lagrangian Energy Principle and applications in discrete mechanical systems, continuous mechanical systems and dynamic systems with various physical components (mechanical. hydraulic, pneumatic, electrical). Basic principles for vibration control. Concepts for vibration isolation. Transmissibility functions. Damping and damper technology. Vibration absorption and tunned mass absorbers. Application examples.