ME 649 Analysis and Identification in Rotor-Bearing-Foundation Systems (3-0-0-6)

Finite element analysis of the torsional and bending critical speeds of simple shafts. Gyroscopic effects: whirl speed analysis (Campbell diagram). Effect of internal/ external damping. Rotors with Timoshenko shaft element. Shaft crack element. Bearing stiffness and damping coefficients. Simple rotor instability. Unbalance response. Flexible foundation models. Identification of bearing and foundation models. Identification of the unbalance in the rotor. Vibration measurements in rotor systems.

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