

**Department:** Mining Engineering

**Division:** Mining Exploitation and Rock Mechanics

**Level and Major:** BSc, Mining Exploitation and Rock Mechanics

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**Course Title:** Wave and Vibration

**Number of Credits:** 2

**Prerequisite:** Engineering Mathematics

**Lecturer:** Dr. Hooshang Iraqi Kazaz

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### **Course Goals and Objectives**

Introduction to vibrations and waves

### **Course Topics**

- Introduction, Different types of waves in solids and fluids, Concepts of the wave speed, wave length, frequency, wave number
- Basics of vibrations and different types of vibrations in solid environments, Single, Two and three degree of freedom systems, Resonance phenomena and vibration modes, Basics of vibrations damping
- Elastic waves in solid environments, Different waves, Wave equation and methods to solve it, Phase velocity, group velocity, energy transfers