

**TO:** The Engineering Faculty

**FROM:** The Faculty of the School of Mechanical Engineering

**DATE:** August 23, 2000

**RE:** ME 513 Course Description Changes

The Faculty of the School of Mechanical Engineering has approved the following editorial changes in course description effective Spring Semester 2001. This action is now submitted to the Engineering Faculty with a recommendation for approval.

**FROM:**

**ME 513 Engineering Acoustics** Sem. 1. Class 3, cr. 3 (el.). Prerequisite: senior standing or consent of instructor.

The simple oscillator. Wave motion in strings, bars, and membranes. Free, forced, and transient response. Applications to vibration isolation. Fourier series and integrals. Subjective response to sound. The acoustic wave equation. Acoustic intensity and energy density. One-dimensional acoustic problems: duct acoustics. Simple sources: monopole, dipole, quadrapole. Room acoustics. Professors Bernhard and Bolton.

**TO:**

**ME 513 Engineering Acoustics** Sem. 1. Class 3, cr. 3. Prerequisite: senior standing or consent of instructor.

The simple oscillator. Lumped acoustical elements. Electro-mechanical-acoustical analogies. Wave motion in strings and membranes. Introduction to linear acoustics through derivation of the wave equation and simple solutions. Plane and spherical waves. Acoustic intensity. Plane wave transmission through fluid layers and simple barriers. Sound absorption. Modeling of acoustical sources: monopoles, dipoles, quadrupoles. Mechanisms of sound generation and directionality. Sound propagation in one-dimensional systems: e.g., ducts and mufflers. Introduction to room acoustics. Professors Bolton and Mongeau.

**REASON:** The updated description more accurately describes the current content of the course. The changes are largely editorial with some slight changes in emphasis because of the evolution of the course. Also, due to administrative responsibilities of Professor Bernhard, Professor Mongeau is the other faculty member who now teaches ME 513. The elective course designation "(el.)" will also be deleted because it is inconsistent with the rest of the Undergraduate Catalog.

APPROVED FOR THE FACULTY  
OF THE SCHOOLS OF ENGINEERING  
BY THE COMMITTEE ON  
FACULTY RELATIONS

*E. Daniel Hirtleman / QDJ*

E.D. Hirtleman, Head  
School of Mechanical Engineering

CFR Minutes # 929

Date 10/11/00

Chairman CFR C.D. Sutton