

Course title: ACOUSTICS 2

Course code: 19016113

Year/term: Year 3/term 2

Credit points: 3

Contact time: 3-hour lecture & 0-hour lab

Prerequisite: Acoustics 1

Online teaching platform: Google Meet

Lecturer and student contact via Google Classroom

Course Learning Outcomes

C1. Students will be able to formulate and find the solutions for the equations of motion for simple/damped/forced oscillations.

C2. Students will be able to formulate and find the solutions for the one-dimensional acoustic wave equation based on the properties of plane and spherical waves.

C3. Students will be able to understand the reflection and transmission of plane waves propagating in two and three media.

C4. Students will be able to describe methods to assess the environmental noise for health, safety, performance, and comfort.

Generic learning outcome

G1. Students are responsible for all assigned work on time

G2. Students has a good skill in English communication, especially, the technical communication relates to sound and acoustic engineering

Learning & Teaching Activities

Teaching activities	Learning outcome	Remarks
Lecture	C1, C2, C3, C4, G1, G2	Every week

Assessment

Name	%	Learning outcome	Remarks
Exam	60	C1, C2, C3, C4	Midterm (30%), final (30%)
Quiz & homework	40	C1, C2, C3, C4, G1	5~6 quizzes

Feedback

Activities	Remarks
Grade quiz and announce the score	After every quiz
Grade midterm and final exam, announce the score, and provide model answers	Within one week After midterm and final exam period

Time table

Week no.	Lecture topics
1	Introduction; fundamentals of vibration (simple oscillation)
2	Fundamentals of vibration (damped/force oscillations; mechanical impedance)
3	Acoustic wave equation & simple solutions (plane wave)
4	Acoustic wave equation & simple solutions (plane wave)
5	Reflection & transmission (two media)
6	Reflection & transmission (three media)
7	Reflection & transmission (impedance tube)
8	Room acoustics (room mode)
9	Room acoustics (reverberation time)
10	Impedance tube (lab)
11	Acoustic wave equation & simple solutions (spherical wave)
12	Noise control (assessment)
13	Noise control (assessment)
14	Noise control (special lecture)
15	Noise control (sound transmission class)