



Applied Studies (APST) 605

Architectural Design: Acoustics (Revision 1)

Status:

Replaced with new revision, see the [course listing](#) for the current revision  

Delivery mode:

[Individualized study online](#) . Delivered via Brightspace.

Credits:

3

Area of study:

Architecture

Prerequisites:

Enrolment in the Graduate Diploma - Architecture program or referral from the Canadian Architectural Certification Board (CACB) for individuals with a professional degree in architecture from a university outside Canada.

Precluded:

[ARCH 526](#) 

Faculty:

[Faculty of Science and Technology](#) 

Notes:

For those students interested in pursuing a career as a registered architect, this course contributes to the [RAIC Syllabus Diploma](#) .

Credit may be transferred for previous work considered equivalent.

Overview

Applied Studies 605: Architectural Design: Acoustics examines both the theoretical and practical aspects of architectural practice in Canada, with a focus on acoustic theory and practice as it pertains to architecture and design. You will explore the physics and perception of sound, the characteristics of sound and vibration in spaces, and their place in the development of holistic design concepts. Qualitative and quantitative methods in acoustic analysis are presented and discussed. You will apply acoustic design criteria, methods, and materials to spaces for various activities and functions, from theatres and concert halls to open-space offices and hospitals. You will also examine issues of acoustic privacy and confidentiality and of sound reinforcement.

Outline

Part 1: Acoustics in Architectural Design, the Physics of Sound, and Physiology of Perceiving Sound and Vibration

- Unit 1: Physics of the Sound and Vibration
- Unit 2: Physiology of Hearing and Sensing Vibration
- Unit 3: Functions of Acoustics Design

Part 2: Principles and Characteristics of Sound Waves in Spaces and Designing Spaces to Meet Acoustic Requirements

- Unit 4: Characteristics of Sound Waves in Spaces
- Unit 5: Designing Spaces for Effective Listening
- Unit 6: Designing Spaces for Sound Isolation, Privacy, and Confidentiality

Part 3: Noise and Vibration Control in Buildings

- Unit 7: Noise Control in Buildings Including Mechanical System Noise
- Unit 8: Principles and Applications of Building Systems Vibration Control

Part 4: Sound Reinforcement Systems

- Unit 9: Public Address and Electronic Sound Amplification Systems, Telecommunications Systems, Converging Technologies, and Acoustic Considerations

Learning outcomes

After completing this course, you should be able to

- describe the physical, physiological, and psychological principles of auditory perception.
- describe the physics of sound waves in general and the characteristics of the sound waves in a variety of spatial design configurations.
- describe the characteristics of spaces designed for effective listening, working, learning, and other functions.
- describe environmental acoustics in terms of acoustic enhancement and environmental noise control.
- identify and describe acoustic separation systems for the design and construction of a given case study.
- relate the scientific principles of acoustic design to the design and construction of comfortable spaces.

Evaluation

To **receive credit** [↗](#) for APST 605, you must achieve a cumulative grade of at least 67%. Your work in this course will be evaluated based on five assignments. Assignments 1, 2, and 3 (worth 20% each) consist of problems and questions drawn from the units. Assignment 4 is a case study and is worth 15% of the total course mark. Assignment 5 will cover the entire course and is worth 25% of your final grade. Your instructor will grade the assignments.

The weighting of the cumulative grade is as follows:

Activity	Weight
Assignment 1	20%
Assignment 2	20%
Assignment 3	20%
Assignment 4	15%
Assignment 5	25%
Total	100%

Materials

Digital course materials

Links to the following course materials will be made available in the course:

Egan, M. D. (2007). *Architectural acoustics*. J. Ross Publishing.

Important links

- › [RAIC Centre for Architecture](#) 
- › [Graduate Diploma in Architecture](#) 
- › [Courses](#) 
- › [Fees and Funding](#) 

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery modes may vary from their

individualized study counterparts.

Opened in Revision 1, July 15, 2025

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