



UNSW
SYDNEY

Australia's
Global
University

Built Environment

ARCH1361
Architectural Science and
Building Environment 2



Disclaimer

Information within this document is subject to change. The full and most accurate course outline will be available in Moodle closer to the start of the term in which the course is offered.

1. COURSE STAFF

Course Contact	Jonathan Fox
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2. COURSE DETAILS

Credit Points	6 units of credit (uoc)
Workload	Approx. 150 hours including class contact hours, weekly individual and group online learning activities, readings, class preparation, and assessment activities.
Teaching Times and Location	Find details in timetable http://www.timetable.unsw.edu.au

Description

This course builds on student's prior knowledge of architectural science and building environment with a focus on the principles and application of acoustics, lighting and comfort to achieve indoor environmental quality (IEQ) and enhanced environmental performance. The course contextualises the science of acoustics, lighting and comfort within architectural design with an emphasis on environmental data collection, analysis and application to optimise IEQ and environmental performance. The role of architectural design in mitigating indoor and outdoor thermal comfort impacts is explored through real-world case-studies and parametric modelling. The significance of daylighting and artificial lighting design in IEQ and building environmental performance is investigated through the utilisation of numerical techniques and software applications. The appraisal and design of acoustic strategies to satisfy regulatory controls and optimise IEQ is supported through the application of acoustic principles to student's individual studio designs. At the completion of the course students will be able to identify, evaluate and apply strategies to optimise IEQ integrated with architectural design compliant with the regulatory standards applicable to environmental performance.

Aims

This course aims to expand and consolidate student's prior understanding of the effects of building design on internal and external environmental quality (EQ). EQ is commonly discussed and quantified through the physical parameters of lighting, acoustics, thermal comfort and air quality. These parameters are intrinsically related to occupant satisfaction, building energy use and the sustainability of the built environment. The course aims to foster students' appreciation of the significance of environmental design and to equip students with the knowledge to apply environmental strategies to achieve enhanced EQ in architectural design.

Course Learning Outcomes (CLOs)

At the successful completion of this course, you will be able to:

1. Demonstrate an intermediate level comprehension of the scientific principles of acoustics, daylighting and lighting and thermal comfort relevant to architectural design.
2. Identify, evaluate using simple numerical techniques and software applications and apply acoustic, lighting and comfort strategies to optimise IEQ and building environmental performance of their architectural designs.
3. Collect, analyse and interpret environmental data for the use in optimising the IEQ and building environmental performance of their architectural designs
4. Identify and demonstrate compliance with Australian building codes and standards applicable to acoustics, lighting and comfort relevant to their architectural designs.
5. Communicate effectively with specialist consultants tasked with the design of IEQ and building environmental performance to achieve the desired architectural design.

3. ASSESSMENT

Assessment task	Weight	CLOs Assessed
1. Assignment 1: Acoustics	20%	1, 2, 3, 4
2. Assignment 2: Comfort	20%	1, 2, 3, 4
3. Assignment 3: Assessment Lighting	20%	1, 2, 3, 4
4. Assignment 4: Application to Architectural Design	40%	1, 2, 3, 4, 5

4. COURSE IMPROVEMENT AND FEEDBACK

Feedback from students is an integral part of improving courses and teaching approaches. One of the primary mechanisms of feedback is myExperience, which we strongly urge all students to complete at the end of term. Course convenors use the feedback to make ongoing improvements to the course. This is communicated in Moodle in the myFeedback Matters page.