



UNSW
SYDNEY

Australia's
Global
University

Built Environment

ARCH7809 Architectural Environment
& Building Services



Course Outline – Term 3, 2020

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	Ricardo Paolini
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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 introduces students to the performance of the indoor built environment, its design to provide comfort conditions and the associated building services. These include heating, ventilation and air conditioning, lighting, fire safety related services, electric systems, vertical transport and plumbing. In completing the course, the students will master the fundamentals of building envelope design and ventilation strategies to provide thermal comfort and to assess their impact on building energy needs. In addition, the students will gain the ability to carry out dynamic building performance simulations of buildings and services (the latter with a simplified approach). This allows students to undertake the preliminary selection and architectural integration of building services. Design exercises and computer modelling form part of the study.

Aims

The primary aim of this module is to enable the students to design the building energy performance, using a performance-based design approach, beyond the simple compliance. The module will enable the students to interact with other professionals (e.g., mechanical engineer, fire services engineer, sustainability consultant, etc.) in their future career. The second aim, equally important, is to present in a synthetic and effective way the results of building performance simulations so that the results can be verified and reproduced by others (colleagues of the same design studio or other professionals involved in the project development), so as to avoid major issues in late design stages or worse during construction or after the delivery of the building.

Course Learning Outcomes (CLOs)

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

1. Analyse the performance requirements and targets which are relevant to the indoor environment, leading to specifications for building services
2. Design low energy buildings starting from the users' needs of hygrothermal comfort and indoor air quality, in compliance with the National Construction Code
3. Design Zero Energy Buildings with a performance-based approach
4. Integrate basic building services in architectural design, in collaboration with other professionals

3. ASSESSMENT

Assessment task	Weight	CLOs Assessed
1. Assignment - Requirements analysis and design brief (Group).	10%	1, 2, 3, 4
2. Assignment - First simulation. Compliance.	30%	1, 2, 3, 4
3. Assignment - Zero energy building. Beyond compliance.	30%	1, 2, 3, 4
4. Assignment - Integration of building services	30%	1, 2, 3, 4

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.