ARCH 4002 ENERGY EFFICIENCY IN BUILDINGS

Credit Points 10

Coordinator Mohammad Reza Razavi (https://directory.westernsydney.edu.au/search/name/Mohammad Reza Razavi/)

Description This subject builds on students' basic knowledge of architecture, construction, and environmental science to introduce principles of architectural sustainability and building science. Students are involved in activities developing essential knowledge of a building's energy efficiency through the application of thermal, lighting, and acoustic design. This enables them to incorporate the construction strategies necessary to achieve indoor environmental quality and improve building users' comfort. The abilities that students develop in this subject will be appealing to organisations looking to expand optimisation and renewable energy strategies.

School Eng, Design & Built Env

Discipline Architecture

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 4 subject

Pre-requisite(s) BLDG 1009
BLDG 1015

Equivalent Subjects CIVL 4003

Learning Outcomes

After successful completion of this Subject, students will be able to:

1. Evaluate the energy performance of the building envelope.
2. Assess appropriate environmental systems' integration for thermal, lighting, and acoustics comfort in architecture.
3. Determine basic parameters of heating, lighting and sound management in buildings using mathematical models.
4. Mitigate GHG emissions and improve human comfort through various passive design strategies in architecture.
5. Analyse geographical context for optimising IEQ-integrated architectural design considering the climatic elements.
6. Recommend renewable energy sources appropriate to a range of building types.

Subject Content

- Heat: Physics of heat, Thermal comfort, Climate, Buildings' thermal behaviour, Thermal design
- Light: Physics of light, Daylight and sunlight, Electric lighting, Lighting design
- Sound: Physics of sound, Noise control, Acoustic design
- Passive design strategies: heating, cooling, ventilation, and daylighting design
- Renewable energies in buildings and architecture

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Essay	1500 words plus diagrams	40	N	Individual
Case Study	2000 words plus diagrams, photos, and drawings	20	N	Group
Final Exam	2 hours	40	N	Individual

Teaching Periods

Autumn (2024)

Parramatta City - Macquarie St

On-site

Subject Contact Mohammad Reza Razavi (https://directory.westernsydney.edu.au/search/name/Mohammad Reza Razavi/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ARCH4002_24-AUT_PC_1#subjects)