UNSW SYDNEY | Australia's Global University

Built Environment

SUSD0002
Building Ecology and Life Cycle Thinking

Course Outline – Term 2, 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	Anir Upadhyay
Email	anir.upadhyay@unsw.edu.au

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 and applies a whole-of-life approach to built environment sustainability. It discusses the life cycle of built form from the availability and acquisition of natural resources and raw materials, through processing and manufacture to on-site construction and use, maintenance and refurbishment, and eventual demolition and reuse/recycling or disposal. The environmental impacts at each stage of the life cycle are considered, such as initial and recurrent embodied energy, wastes generated and their management, and ways in which design may minimise or eliminate such impacts.

Aims

The main aim of the course is to develop an awareness of the all-embracing concept of sustainability, generally, and be able to interpret it in relation to the use of natural resources and materials, both in the building and construction industry and more widely in the manufacturing and production sectors. More specific aims are to:

1. Be able to evaluate materials against criteria like embodied energy and provide advice on selecting ‘sustainable materials’ for built environment projects;
2. Be able to investigate the application of material accounting tools such as life cycle assessment (LCA) to evaluate the characteristics of materials used in the built environment;
3. Be able to describe and classify the range of analytic tools and strategies available to help move towards sustainable futures and have had an opportunity to critique them;
4. Impart an understanding of the principles of LCA (including life cycle costing or LCC) and Social LCA and be able to apply the tools in a practical way following a 'hands on' workshop; and
5. Have an ability to appraise and work with local governments’ regulatory planning and development documents associated with materials and the building industry.

Course Learning Outcomes (CLOs)

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

1. Describe and explain building ecology / life cycle thinking mainly from an environmental sustainability perspective.
2. Explain and interpret the principles of quantitative tools such as life cycle assessment (LCA), social LCA and life cycle costing (LCC) in relation to buildings.
3. Analyse and justify the selection of construction materials and products and their environmental implications, particularly embodied energy, durability and flexibility of use.
4. Evaluate and analyse common green rating systems in relation to construction materials and products generally.
5. Critically review and to be able apply statutory controls associated with building materials in practice.

3. ASSESSMENT

Assessment task	Weight	CLOs Assessed
1. Individual Report	40%	1, 2, 3
2. Group Assessment	30%	1, 2, 3, 4, 5
3. Weekly activities	30%	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.