ENGR 4011 SUSTAINABILITY AND RISK ENGINEERING

Credit Points 10

Legacy Code 300798

Coordinator Dharma Hagare (https://directory.westernsydney.edu.au/search/name/Dharma Hagare/)

Description Analysis of sustainability with engineering perspectives is increasingly becoming important in the modern world. Also, often the risk analysis is required to be carried for true sustainable solutions. Engineers with in-depth understanding of different tools that can be used for both sustainability and risk analysis will have significant edge in their future career. The students will discuss and understand various engineering issues including renewable/alternative energy systems, energy/resource efficiency, sustainable/green buildings, sustainable transport and infrastructure, sustainable water management, environmental management systems, sustainability reporting, life cycle analysis, probability/reliability theory, risk assessment models and, overall system analysis.

School Eng, Design & Built Env

Discipline Other Engineering And Related Technologies

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) CIVL 2002 AND CIVL 4017

Restrictions

Successful completion of 200 credit points.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Apply engineering knowledge for sustainable analysis and sustainable design of engineering systems.
2. Choose appropriate tools/ methods for sustainability and risk analysis of engineering systems.
3. Conduct thorough energy/ water/ materials audit for a given engineering system.
4. Determine appropriate water, energy, transport and infrastructure system based on sustainability and risk management criteria.
5. Carry-out comprehensive life cycle analysis of engineering systems.
6. Conduct overall system analysis of engineering systems considering sustainability and risk criteria.

Subject Content

mass balance/ flow analysis
heat/energy flow/conservation/loss analysis
renewable/ alternative energy systems
energy/resource efficiency
sustainable/green buildings
sustainable transport and infrastructure
sustainable water management
environmental management systems
sustainability reporting/ framework
life cycle analysis
probability/ reliability theory
risk assessment models
integrated system analysis.

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	Mandatory
Participation	13 x submissions and 13 x quizzes; 1 hour per quiz	15	N	Individual	N
Report	5,000 words including tables, figures and pictures	30	N	Group	N
Report	1,000 words including tables, figures and pictures	5	N	Group	N
Final Exam	3 hours	50	N	Individual	N

Teaching Periods

Sydney City Campus - Term 2 (2025)

Sydney City

On-site

Subject Contact Eileen An (https://directory.westernsydney.edu.au/search/name/Eileen An/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR4011_25-SC2_SC_1#subjects)