

ENGR 4011 SUSTAINABILITY AND RISK ENGINEERING

Credit Points 10

Legacy Code 300798

Coordinator Dharma Hagare ([https://directory.westernsydney.edu.au/search/name/Dharma Hagare/](https://directory.westernsydney.edu.au/search/name/Dharma%20Hagare/))

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 HECS Band contribution amount 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.

Item	Length	Percent	Threshold	Individual/ Group Task
Participation	13 x submissions and 13 x quizzes; 1 hour per quiz	15	N	Individual
Report	5,000 words including tables, figures and pictures.	30	N	Group
Final Exam	3 hours	55	N	Individual

Teaching Periods

Sydney City Campus - Term 1

Sydney City

Day

Subject Contact Ankit Agarwal ([https://directory.westernsydney.edu.au/search/name/Ankit Agarwal/](https://directory.westernsydney.edu.au/search/name/Ankit%20Agarwal/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR4011_22-SC1_SC_D#subjects)

Spring

Penrith (Kingswood)

Day

Subject Contact Dharma Hagare ([https://directory.westernsydney.edu.au/search/name/Dharma Hagare/](https://directory.westernsydney.edu.au/search/name/Dharma%20Hagare/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR4011_22-SPR_KW_D#subjects)

Parramatta - Victoria Rd

Day

Subject Contact Dharma Hagare ([https://directory.westernsydney.edu.au/search/name/Dharma Hagare/](https://directory.westernsydney.edu.au/search/name/Dharma%20Hagare/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR4011_22-SPR_PS_D#subjects)

Sydney City Campus - Term 3

Sydney City

Day

Subject Contact Ankit Agarwal ([https://directory.westernsydney.edu.au/search/name/Ankit Agarwal/](https://directory.westernsydney.edu.au/search/name/Ankit%20Agarwal/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR4011_22-SC3_SC_D#subjects)