ENGG4102

Humanitarian Engineering Project

Term 3, 2022

Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Andrew Dansie	a.dansie@unsw.edu.au	Please arrange time to meet	H20 Room 306	+61 2 9385 6176

School Contact Information

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Engineering Student Services Engineering Student Services Engineering Student Services The Student Support Services progression checks, cl eprNucleus

Course Details

Units of Credit 6

Summary of the Course

This course provides students with the opportunity to undertake a design project related to Humanitarian Engineering. The course will be problem based, with context aligned with clearly identified needs for a marginalised community, either locally or internationally. The course is intended to be predominantly team-based with groups working on humanitarian related challenges, as approved by the course coordinator.

Projects could include any or all of the following components as appropriate to the identified problem:

- background review of needs, context
- development of potential solutions, including review of existing data, research and technologies as appropriate

Learning Outcome	EA Stage 1 Competencies
1. Critically analyse engineering problems in new and challenging contexts and develop creative solutions applying engineering discipline knowledge.	PE1.3, PE1.4, PE1.5
2. Apply appropriate technology and engineering system design principles to humanitarian engineering contexts incorporating social, economic and environmental factors	PE1.6, PE2.2
3. Apply systematic engineering approaches to the management of an engineering project.	PE2.4
4. Effective communication and collaboration skills in the context of cross-cultural community and multi-disciplinary work.	PE3.2, PE3.4, PE3.6
5. Show respect for ethical practice and social responsibility.	PE3.1
6. Demonstrate the ability to engage in independent and reflective learning.	PE3.3, PE3.5

Teaching Strategies

Experiential and problem based learning will be the feature of this course. As a fourth year course, the focus will be on design and research skills, collaboration within groups and/or external partners (including community and/or industry)

Teaching will focus on providing students with support to investigate, analyse and evaluate complex problem in a humanitarian engineering context.

Academics involved in this course are expected to have some experience in humanitarian engineering either through field experience, research or teaching. Industry mentors may be appointed to further assist with this.

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Project journal (1 of 2)	5%	30/09/2022 05:00 PM	1, 2, 3, 4, 5, 6
2. Project journal (2 of 2)	10%	24/11/2022 05:00 PM	1, 2, 3, 4, 5, 6
3. Mid Project Presentation	25%	28/10/2022 11:59 PM	1, 2, 3, 4, 5, 6
4. Project Interview	15%	18/11/2022 11:59 PM	4, 6
5. Project report	45%	18/11/2022 05:00 PM	3, 4, 5, 6

Assessment 1: Project journal (1 of 2)

Due date: 30/09/2022 05:00 PM

Weekly journal documenting learning and observations, meeting minutes and personal reflections. Week 3 submission is worth 5% of course grade.

Mock interview based on ENGG4102 project with expert interview panel. Demonstration of clear project management skills, sustained involvement during term and reflective learning on humanitarian engineering.

This is not a Turnitin assignment

Assessment 5: Project report

Due date: 18/11/2022 05:00 PM

The final report is a summary of the group's outcomes for the project. The report should be prepared and/or edited as a group and provide a holistic summary of the project aims, background, results and conclusions. The contribution of each student to the report will be assessed by peers and the academic mentor.

	Assessment	Project journal (1 of 2)
Week 4: 3 October - 7 October	Lecture	External partner consultation, finalise presentation based on preliminary research and plan for final submissions.
	Workshop	Prototype design and development.
Week 6: 17 October - 21 October	Lecture	No classes in Week 6
	Workshop	No workshop in Week 6
Week 7: 24 October - 28 October	Lecture	Gather feedback from presentation. Continue with project.
	Workshop	Prototype design, development and testing.
	Assessment	Mid Project Presentation: This is a group presentation given face to face on campus
Week 8: 31 October - 4 November	Lecture	Complete final project stages and draft report.
	Workshop	Prototype design, development and testing.
Week 9: 7 November - 11 November	Lecture	Prepare for interviews, seek feedback on report drafts.
	Workshop	Prootype finalisation and manual preparation.
Week 10: 14 November - 18 November	Lecture	Sustainability and appropriateness of solution.
	Workshop	Interviews (assessment item)
	Assessment	Project Interview
	Assessment	Project report
Study Week: 21 November - 24 November	Assessment	Project journal (2 of 2)

Resources

Prescribed Resources

As provided on Moodle

Course Evaluation and Development

Feedback on the course is gathered periodically using various means, including the UNSW myExperience process, informal discussion in the final class for the course, and the School's Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

In this course, recent improvements resulting from student feedback include adjusting the project journal to more easily capture student learnings.

Laboratory Workshop Information

Students will need to cpmplete Makers Space induction and training as part of this course, inforrmation to be provided in Week 1.

Academic Information

Final Examinations:

Final exams in T3 2022 will be held online between 25th November - 8th December 2022 inclusive, and supplementary exams between 9th - 13th January 2023 inclusive. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

ACADEMIC ADVICE

Appendix: Engineers Australia (EA) Professional Engineer Competency Standard

Program Intended Learning Outcomes	
Knowledge and skill base	
PE1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering	

Knowledge and skill base