Annexe A: New/Revised Course Content in OBTL+ Format

Course Overview

Expected Implementation in Academic Year (New format)	
Semester/Trimester/Others (specify approx. Start/End date)	
Course Author * Faculty proposing/revising the course	Lee-Chua Lee Hong
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Course Title	Final Year Project
Course Code	EN4911
Academic Units	8
Contact Hours	288
Research Experience Components	Final Year Project (FYP)

Course Requisites (if applicable)

Pre-requisites	Year 4 standing
Co-requisites	
Pre-requisite to	
Mutually exclusive to	
Replacement course to	
Remarks (if any)	

Course Aims

You are required to conduct an independent research-based project in any discipline of Environmental Engineering. You will learn to strategize a research programme to solve technical problems and to be a team player as the project may involve 2 to 3 students. You will also learn to write a full individual technical report and do an oral presentation on your FYP work.

Course's Intended Learning Outcomes (ILOs)

Upon the successful completion of this course, you (student) would be able to:

ILO 1	conduct an independent research-based project
ILO 2	strategize the research programme
ILO 3	solve technical problems
ILO 4	work effectively in teams to meet project deadlines
ILO 5	write a full technical report
ILO 6	present findings clearly and convincingly

Course Content

Not applicable.

Reading and References (if applicable)

Not applicable.

Planned Schedule

Week or Session	Topics or Themes	ILO	Delivery Mode	Activities	Readings
1	Week 1: Project Briefing	a, b	In-person		
2	Week 2-7: Project Planning	a, b, c	In-person		
3	Week 5-25: Project execution	a, b, c	In-person		
4	Week 13: Interim Report	c	In-person		
5	Week 23: Final Report	c	In-person		
6	Week 26: Oral Presentation	d	In-person		

Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
Introduction of Project	You will need to understand the objectives, relevant background and motivation of the project.
Literature Review	You need to review published literature of related topics to your project. The review needs to be critical on what has been achieved and why you are continuing to work on this topic. The review enables you to work out a suitable scope to achieve the objectives of the FYP.
Methodology	This requires you to analyse all factors in the problem and formulate a workable method or approach for the solution, noting dependency of constraints.
Result Analysis and Discussion	You will develop the skills to analyse and interpret the results obtained from the experiments or simulations, and discuss the results and their limitations, and draw conclusions.
Conclusion and Recommendation of Future Work	You will develop the skills to conclude what you have found from the research and to recommend meaningful future works.

Assessment Structure

Assessment Components (includes both continuous and summative assessment)

No.	Component	ILO	Related PLO or Accreditation	Weightage	Description of Assessment Component	Team/Individual	Rubrics	Level of Understanding
1	Continuous Assessment (CA): Others(Continuous Assessment (CA))	1,2,3,4	EAB SLO* a to j	30		Individual	Holistic	Extended Abstract
2	Continuous Assessment (CA): Report/Case study(Final Report)	3,5	EAB SLO* j, l	55		Individual	Holistic	Extended Abstract
3	Continuous Assessment (CA): Presentation(Oral Presentation)	4,6	EAB SLO* j, l	15		Individual	Holistic	Extended Abstract

Description of Assessment Components (if applicable)

* EAB SLO stands for the Engineering Accreditation Board Student Learning Outcomes. The list is below:

Engineering knowledge: Apply the knowledge of mathematics, natural science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems.

Problem Analysis: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

Design/development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

Investigation: Conduct investigations of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions

Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

The engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for the sustainable development.

Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.

Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and economic decision-making, and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Life-long Learning: Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

Formative Feedback

Student is expected to have regular discussions with supervisor on the progress and status of the research project to ensure the objectives are achieved over 2 semesters.

NTU Graduate Attributes/Competency Mapping

This course intends to develop the following graduate attributes and competencies (maximum 5 most relevant)

Attributes/Competency	Level
Communication	Advanced
Critical Thinking	Advanced
Embrace Challenge	Advanced

Course Policy

Policy (Academic Integrity)

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values. As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the academic integrity website for more information. On the use of technological tools (such as Generative AI tools), different courses / assignments have different intended learning outcomes. Students should refer to the specific assignment instructions on their use and requirements and/or consult your instructors on how you can use these tools to help your learning. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Policy (General)

As a student of the course, you are required to abide by both the University Code of Conduct and the Student Code of Conduct. The Codes provide information on the responsibilities of all NTU students, as well as examples of misconduct and details about how students can report suspected misconduct. The university also has the Student Mental Health Policy. The Policy states the University's commitment to providing a supportive environment for the holistic development of students, including the improvement of your mental health and wellbeing. These policies and codes concerning students can be found in the following link:

http://www.ntu.edu.sg/SAO/Pages/Policies-concerning-students.aspx

Policy (Absenteeism)

Policy (Others, if applicable)

This course will adopt NTU's policy on the use of AI for take-home assignments and reports, and project reports and presentation slides. More details could be found via the link https://entuedu.sharepoint.com/sites/Student/dept/ctlp/SitePages/Exploring-the-Impact-of-Generative-Artificial-Intelligence-(GAI)-Tools-on-Education.aspx#1-proper-citations-and-acknowledgements

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