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

Course Overview

The sections shown on this interface are based on the templates UG OBTL+ or PG OBTL+
If you are revising/duplicating an existing course and do not see the pre-filled contents you expect in the subsequent sections e.g. Course Aims, Intended Learning Outcomes etc. please refer to Data Transformation Status for more information.

Expected Implementation in Academic Year	AY2021-22
Semester/Trimester/Others (specify approx. Start/End date)	Semester 1
Course Author * Faculty proposing/revising the course	Lee-Chua Lee Hong
Course Author Email	clhlee@ntu.edu.sg
Course Title	Engineers in Society
Course Code	EG1001
Academic Units	2
Contact Hours	26
Research Experience Components	Not Applicable

Course Requisites (if applicable)

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

Course Aims

This course aims to provide a general understanding of the society we live in and the engineers' roles and responsibilities towards society's well-being. The course is part of broadening education objective in the engineering curriculum. The course covers a wide range of topics including the history of engineering, engineering ethics and practices, sustainability, and contributions by engineers towards society in the future. The students will have a holistic understanding of the role played by engineers and on their impact in society.

Course's Intended Learning Outcomes (ILOs)

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

ILO 1	Illustrate the role engineers play in the development of Singapore and future challenges
ILO 2	Interpret the significance of professional ethics
ILO 3	Interpret the significance of engineering practice in safety and sustainability, and
ILO 4	Evaluate the contributions of engineers towards society and potential challenges.

Course Content

S/N	Topic	Lecture Hrs	Tutorial Hrs
1	History of engineering	2	2
2	Engineering ethics	4	4
3	Engineering practice in Singapore (WSH)	2	2
4	Engineering practice in Singapore (Sustainability)	2	2
5	Contribution of Engineers in the Future	2	2
6	Impact of Engineers in society (by external speakers)	1	1
	Total:	13	13

Reading and References (if applicable)

References:

1. Johnson Stephen F, Gostelow J Paul and King W Joseph, Engineering and society: challenges of professional practice, Prentice Hall, 2000. (TA157, J73)
2. National Academy of Engineering, The Engineer of 2020: Visions of Engineering in the New Century. (ISBN 978-0-309-09162-6 | DOI 10.17226/10999)
3. Peter M Senge, The Fifth Discipline: The Art & Practice of The Learning Organization, Doubleday, 2006. (ISBN 0-383-51725-4)

Planned Schedule

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
1	History of engineering	1			
2	Lecture: Engineering ethics, Tutorial: Briefing on presentation	2			
3	Lecture: Engineering ethics (examples), Tutorial: Consultation on presentation	2			
4	Lecture: Engineering practice in Singapore (WSH), Tutorial: Presentation – Series 1	Lecture - 3, Tutorial - 1, 2, 3, 4			
5	Lecture: Engineering practice in Singapore (sustainability), Tutorial: Presentation – Series 1	Lecture - 3, Tutorial - 1, 2, 3, 4			
6	Lecture: Contribution of Engineers in the Future, Tutorial: Presentation – Series 1	Lecture - 4 Tutorial - 1, 2, 3, 4			

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
7	Lecture: Impact of Engineers in society (by external speakers), Tutorial: Presentation – Series 2	Lecture - 4 Tutorial - 1, 2, 3, 4			
8	Presentation – Series 2	1, 2, 3, 4			
9	Presentation – Series 2	1, 2, 3, 4			
10	Presentation – Series 3	1, 2, 3, 4			
11	Presentation – Series 3	1, 2, 3, 4			
12	Presentation – Series 3	1, 2, 3, 4			
13	Presentation – if needed	1, 2, 3, 4			

Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
Lecture	Formal lectures on the topics with in-class discussions
Team presentation	This helps you to achieve one or more of the outcomes, as you need to do self-study, research, and then make classroom presentation. (The class is split into 6 presentation teams. Two groups will make presentation with Q&A in each week. You will be grouped into 3-5 students per team.)

Assessment Structure

Assessment Components (includes both continuous and summative assessment)

No.	Component	ILO	Related PLO or Accreditation	Weightage	Team/Individual	Rubrics	Level of Understanding
1	Continuous Assessment (CA): Test/Quiz(Continuous Assessment (CA1): Online Quiz**)	1, 2, 3, 4	EAB SLOs* (f), (g), (h) and (l)	30	Individual	Holistic	Relational
2	Continuous Assessment (CA): Presentation(Continuous Assessment (CA2): Presentation)	1, 2, 3, 4	EAB SLOs (f), (g), (h), (i), (j) and (l)	70	Team	Holistic	Relational

Description of Assessment Components (if applicable)

* EAB Student Learning Outcomes (12 points)

(f) The Engineers 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.
(g) 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.
(h) Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
(i) Individual and Team Work: Function effectively as an individual, and as a team member.
(j) Communication: Communicate effectively in writing effective reports and making effective presentations.
(l) 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.

** To pass this course, students are required to take this compulsory Online Quiz which is tentatively scheduled in Week 10. A make-up Online Quiz will be tentatively scheduled in Week 13 for those students who did not attempt with valid reasons.

Formative Feedback

Upon finishing your presentation with Q&A, you will receive feedback on whether you have covered sufficiently with facts/contents, challenges faced/caused/overcome, and going forward with takeaways.

NTU Graduate Attributes/Competency Mapping

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

Attributes/Competency	Level
Care for Environment	Intermediate
Care for Society	Intermediate
Collaboration	Basic
Ethical Reasoning	Advanced
Critical Thinking	Intermediate

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)

Students are expected to make presentations on all assigned projects and attend all tutorial classes punctually. Students are expected to participate in the Q&A sessions of all the presentations.

Policy (Absenteeism)

The course requires you to attend all tutorial classes to participate in the Q&A sessions of all the presentations. Absence from class without a valid reason will affect your overall course grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies. There will be no make-up opportunities for in-class presentation activities.

Policy (Others, if applicable)

Last Updated Date: 25-06-2024 07:43:27

Last Updated By: Yang, En-Hua

RUBRICS OF EG1001 ENGINEERS IN SOCIETY

Appendix 1: Assessment Rubric

	Performance Level/Criteria			
Performance Indicators/ Course LO Tested	**Below expectations: 1**	**Average, meet expectation: 2**	**Good: 3**	**Outstanding: 4**
Apply workplace safety measures for protection of people and property/ LO 3	Unable to apply concepts applicable for workplace safety measures	Able to apply concepts applicable for workplace safety measures for one or two situations	Able to apply concepts applicable for workplace safety measures for some situations	Able to apply concepts applicable for workplace safety measures for most situations
Recognise the needs and the importance of life-long learning/ LO 1, 4	Unable to recognise the needs and importance of life-long learning	Able to recognise the needs and importance of life-long learning one or two situations	Able to recognise the needs and importance of life-long learning for some situations	Able to recognise the needs and importance of life-long learning for most situations
Adopt systems thinking for sustainable development/LO 3	Unable to adopt systems thinking for sustainable development	Able to adopt systems thinking for sustainable development for one or two situations	Able to adopt systems thinking for sustainable development for some situations	Able to adopt systems thinking for sustainable development for most situations
Comprehend engineering codes of ethics/ LO 2	Unable to comprehend the engineering codes of ethics	Able to comprehend one or two aspects of engineering codes of ethics	Able to comprehend some aspects of engineering codes of ethics	Able to comprehend the complete spectrum of engineering codes of ethics
Apply engineering codes of ethics to avoid conflicts/ LO 2	Unable to apply engineering codes of ethics to working life of an engineer	Able to apply engineering codes of ethics to one or two situations in the working life of an engineer	Able to apply engineering codes of ethics to some situations in the working life of an engineer	Able to apply engineering codes of ethics to all situations in the working life of an engineer

Appendix 2: Presentation

Criteria	Outstanding (8-10)	Good (5.5-7.5)	Average (3-5)	Below Expectation (0-2.5)	Remarks
Team (60%)					
Content (50%)					See Appendix 1
Teamwork (10%)					Good coordination between the team members; Good transitions and connections between slides; Well pace and finish on time.
Individual (40%)					
Presentation Skill (20%)					Captivating, lively and engaging; smooth delivery and in sync with other team members.
Question and Answer (10%)					Able to understand and answer all questions; Handling of questions convey confidence and full knowledge of work presented.
Participation (10%)					Every session you participate in counts towards your CA scores.