

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

### Course Overview

Expected Implementation in Academic Year (New format)	AY2025-2026
Semester/Trimester/Others (specify approx. Start/End date)	Semester 2
Course Author * Faculty proposing/revising the course	Lee-Chua Lee Hong
Course Author Email	clhlee@ntu.edu.sg
Course Title	SUSTAINABLE BUILT ENVIRONMENT
Course Code	CV5101
Academic Units	3
Contact Hours	39
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 equip you with up-to-date knowledge on the current and emerging environmental issues concerning sustainable built environment. During this course, you will attain an understanding of the environmental challenges facing the construction industry, and discuss building, urban planning, geotechnical, and life cycle assessment concepts from a sustainability perspective. You will also learn how to identify crucial environmental problems and develop potential suggestions to alleviate their adverse effects on the environment, which will be useful for future engineering courses and careers.

## Course's Intended Learning Outcomes (ILOs)

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

ILO 1	Explain different sustainability concepts concerning sustainable built environment
ILO 2	Identify key environmental issues in the areas of building, urban planning, and geotechnical
ILO 3	Evaluate the impact of human actions on environment by using various sustainability evaluation tools, such as life cycle assessment
ILO 4	Assess the viability of potential solutions proposed for a broad range of global environmental issues
ILO 5	Develop technical solutions to reduce the impacts of different environmental problems

## Course Content

1. Built environment and sustainability
2. Life Cycle Assessment
3. Urban planning and sustainable development
4. Geotechnical engineering and sustainability
5. Integrated civil and environmental engineering projects

## Reading and References (if applicable)

1. Christensen, N. The Environment and You. 3rd Edition. Pearson, 2018
2. Allenby, B.R. The Theory and Practice of Sustainable Engineering. Pearson, 2012
3. Mihelcic, J.R. and Zimmerman, J.B. Environmental Engineering: Fundamentals, Sustainability, Design. 3rd Edition. Wiley, 2021

Teaching faculty will provide updated reading materials when it is available.

## Planned Schedule

Week or Session	Topics or Themes	ILO	Delivery Mode	Activities	Readings
1	Built environment and sustainability	1, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
2	Built environment and sustainability	1, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
3	Built environment and sustainability	1, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
4	Built environment and sustainability	1, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
5	Life Cycle Assessment	1, 3, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
6	Life Cycle Assessment	1, 3, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
7	Life Cycle Assessment	1, 3, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
8	Urban planning and sustainable development	1, 2, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
9	Urban planning and sustainable development	1, 2, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
10	Urban planning and sustainable development	1, 2, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
11	Geotechnical engineering and sustainability	1, 2, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
12	Geotechnical engineering and sustainability	1, 2, 4, 5	In-person	Lectures and in-class activities	Lecture Slides
13	Integrated civil and environmental engineering projects	1, 2, 3, 4, 5	In-person	Lectures and in-class activities	Lecture Slides

## Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
LEC	Weekly lectures to provide you with the necessary knowledge to achieve the intended learning outcomes.

## 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): Test/Quiz(CA1: Quiz 1)	1, 3, 4, 5	a, b, c, d, e, f, g, h, i, j, k	20	Quiz 1 will be conducted physically during one of the lecture session	Individual	Analytic	Multistructural
2	Continuous Assessment (CA): Test/Quiz(CA2 : Quiz 2)	1, 2, 4, 5	a, b, c, e, f, g, h, i, j, k	20	Quiz 2 will be conducted physically during one of the lecture session	Individual	Analytic	Multistructural
3	Summative Assessment (EXAM): Final exam(Final exam )	1, 2, 3, 4, 5	a, b, c, d, e, f, g, h, i, j, k	60	Final exam will be conducted physically in an exam hall	Individual	Holistic	Relational

Description of Assessment Components (if applicable)

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Formative Feedback

<p>You will be receiving feedback on your progress via the in-class activities, during which we will solve sample problems together. You will also get the chance to hear others' opinions on different environmental issues throughout the in-class discussions.</p>
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## 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
Communication	Intermediate
Critical Thinking	Advanced
Systems 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)

You are expected to complete all assigned readings, activities, assignments, attend all classes punctually and complete all scheduled assignments by due dates. You are expected to take responsibility to follow up with assignments and course related announcements. You are expected to participate in all project critiques, class discussions and activities.

## Policy (Absenteeism)

In-class activities make up a significant portion of your course grade. Absence from class without a valid reason will affect your participation 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 activities.

## 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](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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