Subject Description Form

Subject Code	CSE40475
Subject Title	Sustainable Development Strategy
Credit Value	3
Level	4
Pre-requisite/ Co-requisite/ Exclusion	Exclusion : CSE475
Objectives	To provide students with an overview and understanding of the theory and current practices in sustainable development. Global perspective and water-energy-climate nexus will be emphasized. This will equip students with a sound knowledge on the methods to evaluate sustainability at global, local, corporate, and individual levels.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. understand the fundamentals of sustainable development strategy; b. understand global energy balance, climate change, ozone depletion, global carbon cycle, carbon footprint, non-renewable and renewable energy; c. apply concept and knowledge to real life scenarios, such as regional energy planning, personal choices of transportation options, corporate social responsibility, personal life style; d. assess and discuss sustainability implications of policy proposals, corporate actions, personal activities, based on which, to come up with sound sustainability strategies; e. learn how to write sustainability report in the format of executive summary
Subject Synopsis/ Indicative Syllabus	1. <u>Sustainable Development Basics</u> The need of global sustainable development; nine planetary boundaries; definition, indicators, and measurements of sustainable development. 2. <u>Issues with Global Sustainability</u> Global energy balance; greenhouse gases and their effects; global warming/climate change and its debates; ozone depletion; ocean acidification; milestones of global sustainability developments; United Nation's Sustainable Development Goals (SDGs); Hong Kong's approach toward sustainability. 3. <u>Global Carbon Cycle and Carbon Footprint</u> Carbon basics, global carbon reservoirs, exchanges, and balances; concept and calculation of life-cycle carbon footprint for various activities and products, such as choice of transportation, secondary energy, commercial products, different life styles. 4. <u>Non-renewable and Renewable Energy</u> Energy basics; household energy consumption; energy planning; different fossil fuels and their carbon footprint; nuclear power; geothermal energy; wind energy; solar power; hydropower; bio-fuels; 5. <u>Water-Energy-Food-Climate Nexus and Future Cities</u> Inter-dependence of energy, water, food, and climate; future cities and its planning strategies.

Teaching/Learning Methodology

Lectures are used to deliver the various topics and case studies and demonstration are used to link the basic knowledge to real life scenarios. Discussion-based format and group projects will be employed to enhance the learning objectives and learning outcomes. This can provide students with an overview and understanding of the current practices in the planning for sustainable development. This will equip students with a sound knowledge on the methods to evaluate and to propose sustainable development strategies at global, local, corporate, and individual levels.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed				
		a	b	c	d	e
1. Project	15%	✓	✓	✓	✓	✓
2. Assignment	15%	✓	✓	✓	✓	✓
3. Examination	70%	✓	✓	✓	✓	
Total	100%					

Students must attain at least grade D in coursework and final examination (whenever applicable) in order to attain a passing grade in the overall result.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The project, assignment and exam will together embrace all the learning outcomes.

The project and assignment require students to apply what they have learnt in the module and their observations in daily life. Participants are required analyzing the problems with critical thinking and discussing with reasons. Feedback will be delivered to them, which will help clarify the concepts and methodology in evaluating sustainable development.

Student Study Effort Expected

Class contact:	Average hours per week
▪ Lectures/ Case Study and demonstration	3 Hrs.
Other student study effort:	
▪ Self Study	6 Hrs.
Total student study effort	9 Hrs.

Reading List and References

- R. T. Wright & D. F. Boorse (2017) Environmental Science: Towards A Sustainable Future, 13th Ed., Pearson Education.
- Sergio C. Capareda (2020) Introduction to Renewable Energy Conversions, CRC Press/Taylor & Francis.
- The 2030 Agenda for Sustainable Development, The United Nations
- Hong Kong 2030: Planning Vision and Strategy – Strategic Environmental Assessment, Planning Department, Hong Kong Government.