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	
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	Introduction to Meteorology and Oceanography
Course Code	MT1004
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 is a foundation earth science course on meteorology and oceanography. Its objective is to provide you with a basic knowledge of the atmospheric and ocean processes.

Course's Intended Learning Outcomes (ILOs)

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

ILO 1	Describe the fundamental knowledge of the physical processes of the ocean and atmosphere, including the history of voyaging;
ILO 2	Apply the concepts relating to the properties of seawater to describe changes in the ocean;
ILO 3	Apply the knowledge on the atmosphere to describe the ocean currents;
ILO 4	Describe the physics governing ocean current movements and the formation of waves and tides;
ILO 5	Describe changes to the atmosphere
ILO 6	Relate changes of the atmospheric conditions to condensation and cloud formation;
ILO 7	Describe atmosphere in motion;
ILO 8	Describe wind systems and the formation of thunderstorms and tornadoes.

Course Content

S/N	Topic
1.	Introduction to Oceanography. History of oceanography.
2.	Properties of seawater.
3.	Atmosphere and the oceans.
4.	Ocean current and circulation pattern.
5.	Waves and tides.
6.	The earth and its atmosphere.
7.	Energy, energy balance and temperature distribution.
8.	Atmospheric moisture and condensation.
9.	Atmospheric stability and cloud development.
10.	Atmosphere in Motion.
11.	Global wind systems. Thunderstorms and Tornadoes.

Reading and References (if applicable)

1. Ahrens, C. D., **Meteorology Today: An Introduction to Weather Climate and The Environment**, 7th edition, Thomson Learning Inc, 2002
2. Garrison, T., **Essentials of Oceanography**, 3rd edition, Thomson Learning Inc, 2004
3. Sverdrup, K.A., Duxbury, A.B. and Duxbury, A.C., **Fundamentals of Oceanography**, 5th edition, McGraw-Hill Companies Inc, 2006
4. The Life and Times of El Nino (DVD Video: K576577)
5. The Raging Planet – El Nino (DVD Video: H576853)

Planned Schedule

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
1	Introduction to Oceanography. History of oceanography	1		In-person	Lectures
2	Properties of seawater	2		In-person	Lectures & Tutorial
3	Atmosphere and the oceans	3		In-person	Lectures & Tutorial
4	Ocean current and circulation pattern	3, 4		In-person	Lectures & Tutorial
5	Ocean current and circulation pattern	3, 4		In-person	Lectures & Tutorial
6	Waves and Tides, Quiz 1	4		In-person	Lectures & Tutorial
7	Waves and tides	4		In-person	Lectures & Tutorial
8	The earth and its atmosphere.	5		In-person	Lectures & Tutorial
9	Energy, energy balance and temperature distribution.	5, 6		In-person	Tutorial and lectures
10	Atmospheric moisture and condensation.	6		In-person	Lectures & Tutorial
11	Atmospheric stability and cloud development.	6		In-person	Lectures & Tutorial
12	Atmosphere in Motion , Quiz 2	7		In-person	Lectures & Tutorial

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
13	Global wind systems. Thunderstorms and Tornadoes.	8		In-person	Lectures & Tutorial

Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
Lectures	Lectures provide you with the needed background for Outcomes (1) to (8) and to allow you to apply the concepts and knowledge relating to the physical processes of the ocean and atmosphere.
Tutorials	Tutorials comprise mostly qualitative questions to challenge students to acquire more in-depth knowledge of the subjects. Some quantitative questions are included to provide practices for analyses. The tutorial sessions offer you opportunities to discuss practical problems relating to Outcomes (1) to (8).

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	Summative Assessment (EXAM): Final exam(Final Examination)	1 to 8	PLO* A, B, E, F	60	Individual	Holistic	Relational
2	Continuous Assessment (CA): Test/Quiz(Quiz 1)	1 to 4	PLO* A, B, E, F	20	Individual	Analytic	Multistructural
3	Continuous Assessment (CA): Test/Quiz(Quiz 2)	5 to 7	PLO* A, B, E, F	20	Individual	Analytic	Multistructural

Description of Assessment Components (if applicable)

Formative Feedback

Instructors take questions during and at end of lectures, and provide on-the-spot clarifications. You (students) can also confer with instructors at tutorials/discussions, at appointed consultations or via email.

You (students) are assessed on two quizzes. Feedback for both the quizzes will be provided upon the completion of grading. You will also be informed of your performance.

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	Basic
Curiosity	Intermediate
Global Perspective	Basic
Information Literacy	Basic
Embrace Challenge	Basic

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 take responsibility to follow up with the course notes, assignments and course related announcements. You are also expected to participate in class discussions and attend both quizzes.

Policy (Absenteeism)

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)

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