14. Ocean Dynamics

Module Name	:	Ocean Dynamics
Module Level	:	Bachelor
Code, if applicable	:	23H06120503
Subtitle, if applicable	:	-
Courses, if applicable	:	Ocean Dynamics
Semester(s) in which the module is taught	:	III (Third Semester)
Module coordinator(s)	:	Dr. Sakka, M.Si.
Lecturer(s)	:	Dr. Sakka, M.Si., Dr. Muhammad Alimuddin, Eng.
Language	:	Bahasa (Indonesian language)
Relation to curriculum	:	Compulsory course in the second year for Bachelor Degree in Geophysics
Type of teaching, contact hours	:	This course is delivered through Lectures (i.e., Project/Case-based learning), complemented by structured assignments (paper review, project/case evaluation) and independent study. Contact hours consist of 150 minutes lectures per week, plus 180 minutes per week for each of the following: structured assignments and independent study
Workload	:	Total workload is 135 hours per semester, consisting of 38 hours for lectures, and 48.5 hours each for structured assignments and independent study
Credit points	:	3 SKS (4.8 ECTS)
Requirements according to the examination regulations	:	Students are eligible to attend the examination if their absences are less than 20% of the lectures
Recommended prerequisites	:	-
Module objectives/intended learning outcomes	:	After completion of this module, students will be able to: CLO 1. Students are able to analyze and model processes occurring in marine areas, such as waves, currents, sediment transport, and tidal propagation; The following is the mapping of the ILO and the CLO of this course:

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<tr><td></td><td></td><td>
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<tr><td></td><td>ILO 8</td><td>ILO 9</td><td>ILO 11</td></tr>
<tr><td>CLO 1</td><td>✓</td><td>✓</td><td>✓</td></tr>
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<tr><td>Content</td><td>:</td><td>1. Ocean Wave Theory
2. Ocean Wave Prediction
3. Ocean Wave Modeling
4. Ocean Wave Run-up
5. Ocean Currents</td></tr>
<tr><td>Study and examination requirements</td><td></td><td>Participants are marked based on their performance in theory: Case Study (60%), Written examination (40%)

Students are marked based on their percentage of points obtained and based on the following grade scale:
<table>
<tr><th>Percentage of Achievement</th><th>Grade</th><th>Conversion Value</th></tr>
<tr><td>85 – 100</td><td>A</td><td>4.00</td></tr>
<tr><td>80 - <85</td><td>A-</td><td>3.75</td></tr>
<tr><td>75 - < 80</td><td>B+</td><td>3.5</td></tr>
<tr><td>70 - < 75</td><td>B</td><td>3.0</td></tr>
<tr><td>65 - < 70</td><td>B-</td><td>2.75</td></tr>
<tr><td>60 - < 65</td><td>C+</td><td>2.5</td></tr>
<tr><td>50 - < 60</td><td>C</td><td>2.00</td></tr>
<tr><td>40 - < 50</td><td>D</td><td>1.00</td></tr>
<tr><td>< 40</td><td>E</td><td>0.00</td></tr>
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</td></tr>
<tr><td>Exams and assessment formats</td><td></td><td>Assessment in this course consists of case study, a written examination. The case study is conducted individually and requires students to apply theoretical concepts to analyze and make a research proposal, presented in the form of a written report. The written examination (closed-book, written) evaluates students' understanding of fundamental concepts covered by CLO 1.</td></tr>
<tr><td>Reading list</td><td></td><td>Main References:</td></tr>
</table>

		1. Baart, S., Ebbens, R., Nammuni-Krohn, J., & Verhagen, H. J. (2010). Toe rock stability for rubble mound breakwaters. Proceedings of the 32nd International Conference on Coastal Engineering (ICCE 2010), Shanghai, China. 2. Horikawa, K. (1988). Nearshore dynamics and coastal processes. Tokyo, Japan: University of Tokyo Press. 3. Komar, P. D. (1983). CRC handbook of coastal processes and erosion. Boca Raton, FL: CRC Press, Inc. 4. USACE (U.S. Army Corps of Engineers). (1984). Shore protection manual. Washington, DC: Department of the Army, U.S. Army Corps of Engineers. 5. USACE (U.S. Army Corps of Engineers). (2003a). Meteorology and wave climate (Part II). Washington, DC: Department of the Army, U.S. Army Corps of Engineers. 6. USACE (U.S. Army Corps of Engineers). (2003b). Coastal sediment processes (Part III). Washington, DC: Department of the Army, U.S. Army Corps of Engineers.