

## 24. MO18-5311 Mechanics & Electrical System for Ocean Energy Conversion

<b>Module name</b>	<b>Mechanics &amp; Electrical System for Ocean Energy Conversion</b>
<b>Module level, if applicable</b>	Master
<b>Code, if applicable</b>	MO18-5311
<b>Subtitle, if applicable</b>	-
<b>Course, if applicable</b>	Mechanics & Electrical System for Ocean Energy Conversion
<b>Semester</b>	3 <sup>rd</sup> Semester
<b>Person responsible for the module</b>	
<b>Lecturer</b>	
<b>Language</b>	Indonesian
<b>Relation to curriculum</b>	Elective course for master degree program in Ocean Engineering
<b>Type of teaching, contact hours</b>	Lecture, <50 students 150 minutes x 16 weeks per semester
<b>Workload</b>	4. Class, $3 \times 50' = 150$ minutes per week 5. Independent Study, $3 \times 60' = 180$ minutes per week 6. Structured Activities, $3 \times 60' = 180$ minutes per week
<b>Credit points</b>	3 CREDITS ~ 4.8 ECTS CREDITS $\times$ 1.6 ECTS
<b>Requirements according to the examination regulations</b>	A student must have attended at least 80% of the lectures to sit in the exams.
<b>Recommended prerequisites</b>	-

<b>Learning outcomes and their corresponding PLOs</b>	<p>CLO.1. Able to understand, explain and conduct assessment on marine operation system</p> <p>CLO.2. Able to understand the concept of marine operations and services which is process of lifting, towing, load out, and installation of jacket platform, also berthing.</p> <p>CLO.3. Able to implement the concept and modeling also analysis of a marine operation</p> <p>CLO.4. Able to understand and explain the integrated management system in offshore structure and operations.</p>	<p>LO.8. Able to identify, formulize and solved the science and technology problems related to ocean engineering through the accurate and innovative theoretical, experimental or computational approach</p>
<b>Content</b>	<p>The course of Operation Research Models teaches the students to the basic principles, types of activities and characteristics of marine operations by considering the management system. The material is divided into subjects covering: offshore structural integrated management systems, types and characteristics of marine operations and services. This course is fundamental for ocean engineer to manage ocean resources as effective and efficient as possible.</p> <ul style="list-style-type: none"> <li>■ Marine Management System</li> <li>■ Offshore structural integrity management system</li> <li>■ Design criteria &amp; Procedures Operation Requirement</li> <li>■ Marine Operation System and Services</li> <li>■ Load-out process and analysis</li> <li>■ Ballasting system of floating platform</li> <li>■ Towing operation: stability and maneuvering, wet and dry transport system</li> <li>■ Offshore installation: lifting analysis, process launching, pipe-laying, jacking mechanism, mooring analysis.</li> <li>■ Offshore removal system and operation</li> <li>■ Ship and port safety management system: transport system, Oil and gas handling safety system.</li> </ul>	
<b>Study and examination requirements and forms of examination</b>	<p>25. In-class exercise</p> <p>26. Assignment</p> <p>27. Mid-term exam</p> <p>28. Final exam</p>	
<b>Media employed</b>	<p>Offline: LCD, whiteboard, PowerPoint presentation</p> <p>Online: websites (myITS Classroom), Zoom, Microsoft Teams, PowerPoint presentation.</p>	

<b>Reading list</b>	<ol style="list-style-type: none"> <li><u>1.</u> Gerwick, Ben C. "Construction of Marine and Offshore Structures, 3<sup>rd</sup> edition", CRC Press, Taylor and Francis Group, 2007</li> <li><u>2.</u> Subrata K. Chakrabarti: Handbook of Ocean Engineering, Elsevier, London, 2005.</li> <li><u>3.</u> Nielsen, F.G.: "Marine Operations. Lecture Notes" (Jan. 2006)</li> <li><u>4.</u> Berg, T. E.: "Marine Operations - Subsea Vehicles. Lecture Notes "</li> <li><u>5.</u> Institute of Energy, Guidelines for the Management of Safety Critical Elements, 2007.</li> </ol>
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