

7. MO18-5203 Maritime Economics and Bussiness

Module name	Maritime Economics and Bussiness
Module level, if applicable	Master
Code, if applicable	MO18-5203
Subtitle, if applicable	-
Course, if applicable	Maritime Economics and Bussiness
Semester	2 nd Semester
Person responsible for the module	Silvianita, S.T., M.Sc., Ph.D. Dr. Eng. Yeyes Mulyadi, S.T., M.Sc.
Lecturer	Ir. Wisnu Wardhana, M.Sc., Ph.D Silvianita, S.T., M.Sc., Ph.D. Dr. Eng. Yeyes Mulyadi, S.T., M.Sc.
Language	Indonesian
Relation to curriculum	Mandatory course for master degree program in Ocean Engineering, 2 nd semester.
Type of teaching, contact hours	Lecture, <50 students 100 minutes x 16 weeks per semester
Workload	1. Class, $2 \times 50' = 100$ minutes per week 2. Independent Study, $2 \times 60' = 120$ minutes per week 3. Structured Activities, $2 \times 60' = 120$ minutes per week
Credit points	2 CREDITS ~ 3.2 ECTS CREDITS $\times$ 1.6 ECTS
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.
Recommended prerequisites	-

Learning outcomes and their corresponding PLOs	CLO.1. Able to explain the basic concepts of technical economics CLO.2. Able to compare alternative solutions and choose the best investment. CLO.3. Able to apply the best methods appropriate to evaluate a project. CLO.4. Understand about market research and decision analysis in business	LO.2. Able to bring the spirit of independence and teamwork in completing their duties
Content	This course includes several analysis of economy and business analysis based on engineering project. Understand the basic concepts, theories, formulas, and techniques of economic analysis related to the technical aspects of a production system (operation of systems / equipment / machines), products and services. Able to evaluate the feasibility of several technical proposals in relation to the value dimension (worth) and cost (cost), and able to make economic decisions and understand the economic impacts of a technical application problem in an industry. Following subjects to be provided in this course: 1. Basic concepts of engineering economics 2. Interest, interest formulas and types of interests 3. Investment Type 4. Net Present Value Analysis Procedure 5. Calculation and analysis of rate of return 6. Break-even analysis, sensitivity analysis, and risk analysis 7. Depreciation 8. Capital Recovery Analysis 9. Market research 10. Analytical Hierarchy Process 11. Analytical Network Process	
Study and examination requirements and forms of examination	8. In-class exercise 9. Assignment 10. Mid-term exam 11. Final exam	
Media employed	Offline: LCD, whiteboard, PowerPoint presentation Online: websites (myITS Classroom), Zoom, Microsoft Teams, PowerPoint presentation	

Reading list	<u>1.</u> Leland T. Bank, Anthoy J. Tarquin. "<i>Engineering Economy</i>" Fourth Edition, McGraw-Hill International Edition, 1998. <u>2.</u> Pujawan, N. I., "<i>Ekonomi Teknik</i>", 2nd ed., Guna Widya. 2009. <u>3.</u> Husen, A. "<i>Manajemen Proyek: Perencanaan, Penjadwalan & Pengendalian Proyek</i>". Andi Publisher. 2011. <u>4.</u> William G. Sullivan, Elin M.Wicks, S. Patrick Koelling., "<i>Engineering Economy</i>". 14th Edition Pearson Prentice Hall, 2009.
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	Mata Kuliah <i>Course</i>	Sistem Konversi Energi Laut <i>Ocean Energy Conversion System</i>
	Kode Mata Kuliah <i>Course Code</i>	MO185104 MO1851024
	Semester <i>Semester</i>	1 st
	SKS <i>Credit</i>	3
RP-S2	Dosen Pengampu <i>Lecturer</i>	Prof. Ir. Mukhtasor, M.Eng., Ph.D.; Dr. Eng. Shade Rahmawati S.T., M.T.; Dr. Dendy Satrio, S.ST.

Bahan Kajian	Dalam mata kuliah ini mahasiswa akan mempelajari pokok-pokok bahasan sebagai berikut: 1. Konsep dasar ekonomi teknik 2. Bunga, rumus bunga dan jenis bunga 3. Jenis Investasi 4. Prosedur Analisa Net Present Value 5. Perhitungan dan analisa rate of return 6. Analisa titik impas, analisa sensitivitas, dan analisa resiko 7. Depresiasi 8. Analisa Capital Recovery 9. Riset Pasar 10. Analytical Hierarchy Process 11. Analytical Network Process
Study Materials	<i>The students will get the following materials:</i> 1. <i>Basic concepts of engineering economics</i> 2. <i>Interest, interest formulas and types of interests</i> 3. <i>Investment Type</i> 4. <i>Net Present Value Analysis Procedure</i> 5. <i>Calculation and analysis of rate of return</i> 6. <i>Break-even analysis, sensitivity analysis, and risk analysis</i> 7. <i>Depreciation</i> 8. <i>Capital Recovery Analysis</i> 9. <i>Market research</i> 10. <i>Analytical Hierarchy Process</i> 11. <i>Analytical Network Process</i>

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CPL yang dibebankan MK	Mampu memunculkan semangat kemandirian dan kerjasama tim dalam menyelesaikan tugasnya
PLO	<i>Able to bring the spirit of independence and teamwork in completing their duties</i>
CP-MK	1. Mampu menjelaskan konsep-konsep dasar ekonomi teknik 2. Mampu membandingkan alternative-alternatif solusi dan memilih investasi terbaik 3. Mampu mengaplikasikan metode terbaik yang tepat untuk mengevaluasi suatu proyek 4. Mampu memahami riset pemasaran dan analisis pemilihan dalam bisnis
CLO	1. <i>Able to explain the basic concepts of technical economics</i> 2. <i>Able to compare alternative solutions and choose the best investment.</i> 3. <i>Able to apply the best methods appropriate to evaluate a project.</i> 4. <i>Able to understand about market research and decision analysis in business</i>

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Pertemuan Meeting	Kemampuan Akhir Sub CP-MK Final Ability	Keluasan (materi pembelajaran) Extent (learning material)	Metode Pembelajaran Learning methods	Estimasi Waktu Duration	Bentuk Evaluasi Evaluation Type	Kriteria dan Indikator Penilaian Assessment Criteria and Indicators	Bobot Penilaian Scoring
1,2	Mampu menjelaskan konsep dasar ekonomi teknik <i>Basic concept of engineering economics</i>	Pengertian dasar ekonomi teknik: - Sejarah perkembangan ekonomi teknik, - Pengertian dasar ekonomi teknik, - Komponen dalam ekonomi teknik <i>Basic understanding of technical economics:</i> - The history of the development of technical economics, - Basic understanding of technical economics, - Components in engineering economics	- Paparan teori - Handout - Contoh perhitungan - Diskusi - Theoretical presentation - Handout - Calculation example - Discussion	3 × 50'	- Pertanyaan-pertanyaan langsung di kelas - Tugas - Questions in class - Assignment	1. Ketepatan menjelaskan kepentingan ekonomi teknik. 2. Ketepatan menjelaskan peranan ekonomi teknik dalam pengambilan keputusan 3. Ketepatan dalam menjelaskan konsep biaya dalam ekonomi teknik 1. Accuracy explains the importance of engineering economics. 2. Accuracy explains the role of engineering economics in decision making 3. Accuracy in explain cost concept in engineering economics	10%

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3,4	Mampu menjelaskan bunga, rumus bunga dan jenis bunga <i>Able to explain interest, interest formula, and types of interest</i>	bunga, rumus bunga dan jenis bunga <i>interest, interest formula, and types of interest</i>	- Paparan teori - Handout - Contoh perhitungan - Diskusi <i>Theoretical presentation</i> <i>Handout</i> <i>Calculation example</i> <i>Discussion</i>	3 × 50'	- Pertanyaan langsung di kelas - Tugas - Questions in class - Assignment	1. Ketepatan menjabarkan bunga dan rumus bunga 2. Ketepatan membedakan jenis bunga dan formulasinya 1. <i>Accuracy describes interest and interest formulas</i> 2. <i>Accuracy distinguishes the type of interest and its formulation</i>	10%
5	Mampu menentukan jenis investasi yang menguntungkan <i>able to determine the type of profitable investment</i>	Jenis Investasi <i>Types of Investment</i>	- Paparan teori - Handout - Contoh perhitungan - Diskusi <i>Theoretical presentation</i> <i>Handout</i> <i>Calculation example</i> <i>Discussion</i>	3 × 50'	- Pertanyaan langsung di kelas - Tugas - Questions in class - Assignment	Ketepatan dalam menentukan jenis investasi yang menguntungkan <i>Accuracy in determining the type of profitable investment</i>	5%
6	Mampu menjelaskan dan melakukan prosedur analisa net present value	Prosedur Analisa Net Present Value	- Paparan teori - Handout - Contoh perhitungan - Diskusi	3 × 50'	- Pertanyaan-pertanyaan langsung di kelas - Tugas	Ketepatan dan kedalaman dalam menjelaskan prosedur analisa net present value	5%

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	<i>Able to explain and perform net present value analysis procedures</i>	<i>Net Present Value Analysis Procedure</i>	 <i>Theoretical presentation</i>  <i>Handout</i>  <i>Calculation example</i>  <i>Discussion</i>		 <i>Questions in class</i>  <i>Assignment</i>	<i>Accuracy and depth in explaining the net present value analysis procedure</i>	
7	Mampu menjelaskan dan melakukan prosedur analisa rate of return <i>Able to explain and perform rate of return analysis procedures</i>	Perhitungan dan analisa rate of return <i>Calculation and analysis of rate of return</i>	 Paparan teori  Handout  Contoh perhitungan  Diskusi  <i>Theoretical presentation</i>  <i>Handout</i>  <i>Calculation example</i>  <i>Discussion</i>	3 × 50'	 Pertanyaan-pertanyaan langsung di kelas  Tugas  <i>Questions in class</i>  <i>Assignment</i>	Ketepatan dan kedalaman dalam menjelaskan prosedur analisa rate of return <i>Accuracy and depth in explaining the rate of return analysis procedure</i>	5%
8	Evaluasi Tengah Semester <i>Mid Semester Evaluation</i>						15%
9	Mampu memahami dan melakukan perhitungan break-even analysis, sensitivity analysis and risk analysis	Formula and break-even analysis, sensitivity analysis and risk analysis	 Paparan teori  Handout  Contoh perhitungan  Diskusi		 Pertanyaan-pertanyaan langsung di kelas  Tugas	Ketepatan dan kedalaman dalam memberikan penjelasan tentang analisa titik impas, analisa sensitivitas dan analisa resiko	5%

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	<i>Able to understand and do the break-even analysis, sensitivity analysis and risk analysis</i>	<i>Formula and break-even analysis, sensitivity analysis and risk analysis</i>	- Theoretical presentation - Handout - Calculation example - Discussion		- Questions in class - Assignment	<i>Accuracy and depth in providing an explanation of the break-even analysis, sensitivity analysis and risk analysis</i>	
10	Mampu memahami dan melakukan perhitungan depresiasi <i>Able to understand and do the depreciation calculation</i>	Depresiasi, Macam dan jenis metode Depresiasi <i>Depreciation: types and methods</i>	- Paparan teori - Handout - Contoh perhitungan - Diskusi - Theoretical presentation - Handout - Calculation example - Discussion	3 × 50'	- Pertanyaan-pertanyaan langsung di kelas - Tugas - Questions in class - Assignment	Ketepatan dalam melakukan perhitungan depresiasi <i>Depth in understanding and accuracy in doing the depreciation calculation</i>	5%
11	Mampu memahami konsep nilai waktu/time value of money dan melakukan analisa capital recovery <i>Able to understand the concept of time value / time value of money and analyses capital recovery</i>	Konsep nilai waktu/time value of money dan melakukan analisa capital recovery <i>the concept of time value / time value of money and capital recovery analysis</i>	- Paparan teori - Handout - Contoh perhitungan - Diskusi - Theoretical presentation - Handout - Calculation example - Discussion	3 × 50'	- Pertanyaan-pertanyaan langsung di kelas - Tugas - Questions in class - Assignment	Ketepatan dalam menjelaskan dan melakukan Analisis Capital Recovery <i>Accuracy in explaining and do the Capital Recovery Analysis</i>	5%

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12	Mampu memahami konsep dan prosedur dalam melakukan riset pasar <i>Able to understand the concept and steps to do the market research</i>	Market research: Prosedur, metode, dan proses pengolahan data <i>Market Research: procedure, methods, data processing</i>	- Paparan teori - Handout - Contoh - Diskusi <i>Theoretical presentation</i> <i>Handout</i> <i>Example</i> <i>Discussion</i>	3 × 50'	- Pertanyaan-pertanyaan langsung di kelas - Tugas - Questions in class - Assignment	Ketepatan dalam menjelaskan dan melakukan riset pasar <i>Accuracy in explaining and do the market research</i>	5%
13	Mampu memahami konsep dan prosedur analytical hierarchy process dalam pengambilan keputusan <i>Able to understand the concept and steps to do the market research</i>	Analytical hierarchy process: Pengenalan dan prosedur <i>Market Research: procedure, methods, data processing</i>	- Paparan teori - Handout - Contoh - Diskusi <i>Theoretical presentation</i> <i>Handout</i> <i>Example</i> <i>Discussion</i>		- Pertanyaan-pertanyaan langsung di kelas - Tugas - Questions in class - Assignment	Ketepatan dalam menjelaskan dan melakukan analytical hierarchy process dalam pengambilan keputusan <i>Accuracy in explaining and do the market research</i>	5%

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14,15	<u>Mampu memahami konsep dan prosedur analytical network process dalam pengambilan keputusan</u> <i>Able to understand the concept and steps to do the market research</i>	Analytical network process: Pengenalan dan prosedur Perbedaan dengan Analytical hierarchy process <i>Market Research: procedure, methods, data processing</i>	📄 Paparan teori 📄 Handout 📄 Contoh 📄 Diskusi 📄 Theoretical presentation 📄 Handout 📄 Example 📄 Discussion		📄 Pertanyaan-pertanyaan langsung di kelas 📄 Tugas 📄 Questions in class 📄 Assignment	Ketepatan dalam menjelaskan dan melakukan analytical network process dalam pengambilan keputusan <i>Accuracy in explaining and do the market research</i>	10%
16	Evaluasi Akhir Semester <i>Final Semester Evaluation</i>						15%

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PUSTAKA/*REFERENCES*:

Main:

10. Mukhtasor (2015), Mengenal Energi Laut, ICEES (Indonesian Counterpart for Energy and Environmental Solutions)
11. Lynn, Paul A (2014), Electricity from Wave and Tide: An Introduction to Ocean energy, John Wiley & Sons Ltd, Chennai India
12. Constans, J., (1979), Marine Sources of Energy, Pergamon Press, New York