RENCANA PEMBELAJARAN SEMESTER (RPS)
PROGRAM STUDI ELEKTRO PELAYARAN
POLITEKNIK PELAYARAN SURABAYA

1	Course Name	: Basic understanding of the operation of mechanical engineering system
2	Course Code	: E.15
3	Semester	: II (two)
4	Weight (credits)	: 1 SKS; 1 (Practice)
5	Function	: Electrical, Electronic And Machining Control At Operational Level
6	Learning Outcomes	: This course provides basic knowledge about types, configuration and efficiency of ship propulsion plants; main propulsion plant configuration and efficiency; ship propellers and propulsors; engine room and ship piping systems; construction and operation of ship main engines: diesel engines, steam and gas turbines, steam boilers and ship electric propulsion motors; construction and operation of ship auxiliary machinery including among others: pumps, valves, filters, pipelines, compressors, purifiers, heat exchangers, pneumatic and hydraulic systems, cleaning machinery, steering gear, shafts, bow thrusters and stabilizers; construction and operation of steering gears, rudder propellers, azipods and cycloid propulsors; construction and operation of cargo handling machinery of general cargo ships, containers, tankers, LNG carriers and chemical carriers - construction and operation of cargo winches, deck cranes, capstans, mooring winches, hatch cowers and watertight doorStandard of Competence : Plan and conduct a passage and determine position
7	Study Materials	: 1. Cargo Handling Systems 2. Deck Machinery 3. Hotel System

Learning Session	Function and Competence Code	Basic Competence	Topics	Time Allotment (hours)		Teaching Methods	Indicators	References	Assessment Methods
				T	P				
1	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Cargo Handling Systems	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of cargo handling machinery of general cargo ships, reefer containers, tankers, LNG	T20, T22, T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
2	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Cargo Handling Systems	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of cargo handling machinery of reefer containers	T20, T22, T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
3	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Cargo Handling Systems	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of cargo handling machinery of tankers	T20, T22, T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
4	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Cargo Handling Systems	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of cargo handling machinery of LNG	T20, T22, T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
5	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Deck Machinery	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of cargo winches	T20, T22, T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment

6	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Deck Machinery	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of deck cranes	T20, T22, T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
7	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Deck Machinery	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of mooring winches & windlass	T20, T22, T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
8	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Deck Machinery	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of hatch covers and watertight doors	T20, T22, T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
9	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Hotel System	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of ship refrigeration system, of provision room, HVAC systems, galley equipment, laundry system, toilet systems, water supply and dosing systems	T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
10	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Hotel System	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of ship refrigeration system of provision room	T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment

11	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Hotel System	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of ship refrigeration system of HVAC systems,	T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
12	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Hotel System	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of ship refrigeration system of galley equipment	T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
13	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Hotel System	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of ship refrigeration system of laundry system & toilet systems	T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment
14	1.1.1	Able to Basic understanding of the operation of mechanical engineering system	Hotel System	60’	120’	• Lecturing • Discussion • Practice	Describes and explains construction and operation of ship refrigeration system of water supply and dosing systems	T23, T24, T25, T28, T42, T43, T48, T49, T64, T68, T80, T93	Written test, tasks, homework, practice assessment

Appraisal:

Appraisal components of the course include: student attendance, task completion, midterm test and final test, weighed as follows:

1. Final Test : 40%
2. Midterm Test : 30%
3. Task Completions : 10%
4. Student Attendance : 20%

References:

T20	Gorski Z., Construction and operation of marine cleaning machinery. Trademar. Gdynia 2009
T22	Gorski Z, Construction and operation of marine pumps. Trademar. Gdynia 2010
T23	Gorski Z, Construction and operation of marine steering gears, controllable pitch propellers and stem tubes. Trademar. Gdynia 2009
T24	Gorski Z, Construction and working of marine compressors. Blowers and fans. Fundacia RCZwoju Akademii Morskiej W Gdyni. Gdynia 2006
T25	Gorski Z., Contruction and working of marine heat exchangers. Fundacja Rozwoju Akademii Morskisi W Gdyni. Gdynia 2007
T28	Hannah-Hillier, J., Applied mechanics. Harlow, Longman 1995. (ISBN 0582 25632.1)
T42	Jackson L. and Morton T. D., General engineering knowledge for marine engineers. 5 th ed. London, Thomas Reed Publications Ltd 1990 (ISBN 0947 637.761)
T43	Joel, R., Basic engineering thermodynamics in SI units.4 th ed. Harlow,Longman, 1996 (ISBN 0582 41626 4)
T48	Kossowski K., introduction to the theory of marine turbines Foundation for the Promotion of Marine Industry. Gdansk 2005
T49	Kossowski K., Ship Turbine Power Plants Foundation for the Promotion of Marine Industry. Gdansk 2005
T64	Milton J.H., Leach R. M., Marine steam boilers. Butterworth Marine Engineering Series. London-Boston 1980
T68	Oil Companies International Marine Forum. Mooring equipment guidelines. London, Witherby 1997
T80	Shapiro H., Cranes and derricks. United States of America : McGraw-Hill, 1980
T93	Walsh P. P., Flether P., Gas turbine performance. Blackwell Publishing. Oxford 2004

Surabaya, Februari 2017

Ketua Jurusan/Prodi Elektro Pelayaran

YOHAN WIBISONO. M. Pd

Penata Tk. I (III/d)

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