

Part C

Course Syllabus

The course syllabus has been written in learning outcomes format in which the outcome describes what the trainee must do to demonstrate that the specified knowledge or skill has been acquired and the proper attitude has been developed. All the outcomes are understood to be prefixed by the words, “At the end of the session, the trainees should be able to ...”

Topics/Learning Outcomes	Reference/ Bibliography	Teaching Aid
Course Introduction .1 explain the provision in Regulation III/2 of the STCW Convention, 1978, as amended .2 explain the competences under Section A-III/2 of STCW Convention, 1978, as amended .3 explain the expected training outcomes	R1	A1, A2
1. Design features of marine steam turbine .1 differentiate impulse turbine and reaction turbine with respect to their: <ul style="list-style-type: none"> • construction and design • utilization of steam energy • advantages and disadvantages 	R1, B3	A1, A2
2. Operative mechanism of marine turbine .1 explain the function of the following: <ul style="list-style-type: none"> • high pressure turbine • low pressure turbine • astern turbine • astern guardian valve • maneuvering valve 	R1, B1, B2, B3	A1, A2
3. Thermodynamics and heat transmission in marine steam turbine propulsion plant .1 explain the application of thermodynamics and transmission in marine steam turbine propulsion plant .2 interpret the sea water temperature vs main condenser vacuum graph to	R1, B3, B4	A1, A3, A4

Topics/Learning Outcomes	Reference/ Bibliography	Teaching Aid
prepare for the operation of marine steam turbine propulsion plant		
4. Mechanics and hydromechanics of steam .1 explain the application of mechanics and hydromechanics in marine steam turbine propulsion plant	R1, B3, B4	A1, A2
5. Propulsive characteristic of marine steam turbine, including speed, output and fuel consumption .1 compare the propulsive characteristic of marine steam turbine vs. diesel using performance curve graph in terms of: <ul style="list-style-type: none"> • speed • output • fuel consumption 	R1, B5	A1, A3
6. Heat cycle, thermal efficiency and heat balance of marine steam turbine propulsion plant .1 explain the heat cycle, thermal efficiency and heat balance of marine steam turbine propulsion plant using heat balance diagram	R1, B3, B4	A1, A2, A4
7. Operating limits of marine steam turbine propulsion plant .1 explain the operating limits of marine steam turbine propulsion plant with respect to: <ul style="list-style-type: none"> • pressure • temperature • revolution • speed • power output • torque .2 check the operating limits of marine steam turbine propulsion plant during start up and warm up period in accordance with technical specification and agreed work plan .3 analyze the result form the checked parameters and take appropriate actions	R1, R2, B5	A1, A4, A5, A6, A7

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<p>8. Function and mechanism of automatic control for marine steam turbine propulsion plant</p> <p>.1 explain the function and mechanism of the following automatic controls:</p> <ul style="list-style-type: none"> • rpm control • program control • direct control • lever control • nozzle lift control 	R1, B5	A1, A4
<p>9. Operation of marine steam turbine propulsion plant</p> <p>.1 explain the function of each component of marine steam turbine propulsion plant</p> <p>.2 explain the safety precautions in operating the marine steam turbine plant</p> <p>.3 explain the procedures for the following operations of marine steam turbine propulsion plant:</p> <ul style="list-style-type: none"> • arrival • departure <p>.4 operate marine steam turbine for the following operations using simulator:</p> <ul style="list-style-type: none"> • arrival • departure 	R1, R2, B2, B3, B5	A1, A2, A4, A5, A6, A7
<p>10. Plant up and Plant down of main propulsion and auxiliary machinery</p> <p>.1 explain the procedures for plant up and plant down of main steam turbine propulsion plant in accordance with manufacturer's manual</p> <p>.2 plant up and plant down main steam turbine propulsion plant using simulator in accordance with manufacturer's manual</p>	R1, R2	A1, A4, A5, A6, A7
<p>11. Surveillance, performance assessment and maintaining safety of marine steam turbine propulsion plant</p> <p>.1 explain the procedures in conducting surveillance and performance assessment to maintain safe operating condition</p>	R1, B5	A1, A3, A4, A5, A6, A7

Topics/Learning Outcomes	Reference/ Bibliography	Teaching Aid
.2 conduct surveillance and performance assessment using the gathered data .3 analyze the result of surveillance and performance assessment conducted and take appropriate actions in accordance with technical specifications and agreed work plan		