

Course Description Form

| Basic Course Specifications | | | | |
|--|---|---|--|--|
| Course Title | : Marine Diesel Engines II | | | |
| Course Code | : MM322 | | | |
| Program on which the course is given | : <input checked="" type="checkbox"/> Bachelor | <input type="checkbox"/> Diploma | <input type="checkbox"/> Master | <input type="checkbox"/> Pre- PhD |
| Academic year | : | | | |
| Specialization (units of study) | : Theoretical 15 (hrs.) | Simulator (hrs.) | Practical 45 (hrs.) | |
| Pre-Requisites | : MM 221T (Marine Diesel Engines (1)) | | | |
| Overall Course Objectives | | | | |
| <ul style="list-style-type: none"> This syllabus covers the requirements of STCW 78 convention chapter III section AIII/I. This fundamental element provides the detailed knowledge to support the training outcomes related to Marine Diesel Engines at the operational level. | | | | |
| Intended Learning Outcomes | | | | |
| Knowledge and Understanding | | | | |
| <p>At the end of the course, students should be able to:</p> <p>a.1 Knowing the function of the diesel engines as ship propulsion systems and electric power generation.</p> <p>a.2 Understanding the difference between four stroke and two stroke engines and their application.</p> <p>a.3 To be familiar with the systems serving the diesel engines</p> <p>a.4 Knowing how to prepare main engines for running, warming up, surveillance and stopping.</p> | | | | |
| Intellectual Skills | | | | |
| <p>By the end of the program the students should have acquired the following attitudes and ethical concept:-</p> <p>b.1 Express respect to staff members and senior colleagues.</p> <p>b.2 Be committed to institutional regulations and discipline.</p> <p>b.3 Recognize value of student and scientific support received from his/her academic adviser</p> <p>b.4 Apply principals of ethics for maritime profession in every aspect of his practical life.</p> <p>b.5 Be dedicated to fulfill given assignment and tasks with perfection.</p> <p>b.6 Express loyalty for his/her affiliation to the collage of maritime transport and technology and the AASTMT whenever the situation necessitate.</p> | | | | |
| Professional and Practical skills | | | | |
| <p>At the end of the course, students should be able to:</p> <p>c.1 Watching main and auxiliary diesel engines during sailing (watch keeping)</p> <p>c.2 Ready to behave correctly when troubles occur during the engine watch.</p> <p>c.3 Attain skills to carry out maintenance like testing / adjusting fuel injectors, checking and readjusting valve clearance, measuring crank web deflection.</p> <p>c.4 Able to measure fuel consumption and calculate specific fuel consumption for main propulsion engines.</p> <p>c.5 To be familiar with the abbreviations used in engine room and colors of different pipes and their meaning.</p> | | | | |
| General and Transferable skills | | | | |
| <p>At the end of the course, students should be able to:</p> <p>d.1 Having the skill to run the stand-by equipment's in case of emergencies.</p> <p>d.2 Gaining different skills from the ships engine room crew, instructors and engineering officers in dealing with different circumstances.</p> | | | | |

| Course content | | | | | |
|----------------|--|-------|-------------|-----------|-----------|
| Lect. # | Topic | Hrs.# | Theoretical | Practical | Simulator |
| 1 | • Familiarization (Diesel propulsion plant data and M/E performance and layout of engine room) | 3 | 1 | 2 | |
| 2 | • Cooling system | 3 | 1 | 2 | |
| 3 | • Fuel oil system | 3 | 1 | 2 | |
| 4 | • Lub. Oil system | 3 | 1 | 2 | |
| 5 | • Air starting system | 2.5 | 0.5 | 2 | |
| 6 | • Cooling F.W & Fuel oil | 3 | 1 | 2 | |
| 7 | • Lub. Oil | 3 | 1 | 2 | |
| 8 | • Main engine parts | 3 | 1 | 2 | |
| 9 | • Auxiliary diesel engines (specifications, performance and operation) | 3 | 1 | 2 | |
| 10 | • Exhaust gas system | 2.5 | 0.5 | 2 | |
| 11 | • Scavenge air system | 2.5 | 0.5 | 2 | |
| 12 | • Reduction / Reversing gear | 3 | 1 | 2 | |
| 13 | • Engine performance and power calculation | 3 | 1 | 2 | |
| 14 | • Injection pump | 4 | 1 | 3 | |
| 15 | • Air compressors | 3 | 1 | 2 | |
| 16 | • Maintenance of main Engines | 10.5 | 0.5 | 10 | |
| 17 | • Tappet clearance and web deflection | 2.5 | 0.5 | 2 | |
| 18 | • M/E troubles and their remedies | 2.5 | 0.5 | 2 | |
| 19 | • General revision | 0.5 | 0.5 | | |
| 20 | • Assessment | 1 | 1 | | |

| Teaching & learning methods | | | | |
|--|--|--|--|--|
| Explanation of the lesson contents – discussing and asking questions to interact with students – audio-visual presentation – practical work-problem solving. | | | | |
| Facilities required for Teaching & learning methods | | | | |
| <input type="checkbox"/> Projector | <input type="checkbox"/> Overhead Slide | <input type="checkbox"/> Books & Guided sea training book | <input type="checkbox"/> Video | <input type="checkbox"/> Engine equipment |
| Students Assessment Methods | | | | |
| Assessment submission Schedule | | | | |
| Assessment#1 Written-Oral-Practical | | | (2 nd trip summary submit by end of 2 nd trip) | |
| Assessment#2 Written-Oral-Practical | | | (4 th trip summary submit by began of 5 th trip) | |
| Assessment#3 Oral | | | (course summary submit by two weeks after final exam date) | |

| Grading Method | | |
|---|--------------------------|---|
| Attendance | <input type="checkbox"/> | 10 Marks |
| Mid Term Examination | <input type="checkbox"/> | 20 Marks |
| Presentations | <input type="checkbox"/> | 5 Marks |
| Assignments | | None |
| Projects | | None |
| Participation | <input type="checkbox"/> | 5 Marks |
| Oral Examination | <input type="checkbox"/> | 20 Marks |
| Final Examination | <input type="checkbox"/> | 40 Marks |
| | | Total 100% |
| *Assessment criteria shall meet the standards of the STCW 78 convention "as amended"; and in the light of the related IMO model courses | | |
| List of References | | |
| Course Notes | | |
| Description | : | Guided sea training book & Lecturer notes |
| Essential Books | | |
| Description | : | <ul style="list-style-type: none"> Taylor, D.A. Introduction to Marine Engineering. 2nd edition London, Butterworth 1990 (ISBN 07-50-6253-9) |
| Recommended Books | | |
| Description | : | <ul style="list-style-type: none"> Diesel engines and their marine application by M.ElShazly |
| Periodicals and publications | | |
| Description | : | <ul style="list-style-type: none"> Service manuals of training ship |
| IMO Reference | | |
| Description | : | <ul style="list-style-type: none"> International Convention on Standards of Training, Certification and Watch Keeping for Seafarers (STCW78) as amended. |

Matrix of knowledge and skills of the Educational Course

| | | | |
|----------------------------|---|---|--|
| University/ Academy | : | AASTMT | Course name: Marine Diesel Engines II |
| College/ Institute | : | Sea Training Institute | Course code: MM322 |
| Department | : | Engineering Guided Sea Training Department. | |

| Week | Course Contents | Knowledge | Intellectual Skills | Professional Skills | General Skills |
|------|--|-----------|---------------------|---------------------|----------------|
| 1 | Familiarization (Diesel propulsion plant data and M/E performance and layout of engine room) | a.1-a.2 | b.1-b.2 | c.5 | |
| 2 | Cooling systems | a.3 | | c.5 | |
| 3 | Fuel oil system | a.3 | | c.3 | |
| 4 | Lub. Oil system | a.3 | | c.5 | |
| 5 | Air starting system | a.3 | | c.5 | |
| 6 | Cooling F.W Fuel oil | a.3 | | c.5 | |
| 7 | Lub. Oil | a.3 | | c.5 | |
| 8 | Main engine parts | a.1-a.2 | | c.3 | d.2 |
| 9 | Auxiliary diesel engines (specifications, performance and operation) | a.1 | | | |
| 10 | Exhaust gas system | a.3 | | c.5 | |
| 11 | Scavenge air system | a.3 | | c.5 | |
| 12 | Reduction / Reversing gear | a.1 | | | d.1 |
| 13 | Engine performance and power calculation | | | c.1-c.4 | d.2 |
| 14 | Injection pump | | | c.3 | |
| 15 | Air compressors | a.1 | | | |
| 16 | Maintenance of main Engines | | | c.2 | d.1-d.2 |
| 17 | Tappet clearance and web deflection | | | c.3 | |
| 18 | M/E troubles and their remedies | | | c.2 | d.1 |
| 19 | General revision | | | | |

Instructor

Dean