

College of Micronesia – FSM
P.O. Box 159
Kolonia, Pohnpei

Course Outline Cover Page

Course Title
 Applied Marine Engineering

Department and Number
 ME 181

Course Description: To provide the necessary knowledge, but mostly skills to the students to be able to operate the propulsion plant of not over 500 kW, as well as the auxiliary engines and deck machineries of a ship. The skills would include operation of refrigeration units, milling with precision parts for engines and machineries, electrical works as well as repairs, maintenance and operation of outboard motors, valves and pumping arrangements. This course is in line with the requirements of the International Convention on the Standard of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995 (STCW Convention).

Prepared by: Marcellino Jibemai

State: FSM-FMI

	Hours per Week	No. Of Weeks	Total Hours	Semester Credits
Lecture		10	96	6
Laboratory		10	96	2
Practicum		10	108	4
Total Semester Credits:				12

Purpose of Course

Degree Requirement	<u>XX</u>
Degree Elective	_____
Advanced Certificate	_____
Certificate	_____
Remedial	_____
Other (Workshop)	_____

Prerequisite Course(s): ESS/BSS/WKR or EK Class 6

Signature, Chairman, Curriculum Committee

Date Approved by Committee

Signature, President, COM-FSM

Date Approved by the President

General Objective: On successful completion of this course, the students will have been provided with the skills required by a Class 5 Engineer to operate, maintain and take apart and assemble and a propulsion engine of not over 500 kW, as well as the auxiliary engines and deck machineries of a ship. The skills would include operation of refrigeration units, milling with precision parts for engines and machineries, electrical works as well as repairs, maintenance and operation of outboard motors, valves and pumping arrangements.

Outline of Content:

1. Ship Machinery
2. Marine Refrigeration
3. Machining and Fabrication
4. Marine Electricity
5. Outboard Motor Engine
6. Pumps, Valves and Piping

Learning Outcomes: *Upon successful completion of this course the student will be able to:*

1. Describe the major components of a diesel engine and its operation and to be able to carry out periodic preventive maintenance, inspections, repairs and basic troubleshooting as may be required in the maritime or industrial work place.
2. Operate a small marine refrigeration plant and to carry out the necessary checks, maintenance, inspections, basic troubleshooting, and repairs as may be required.
3. Safely operate equipments and tools that are being utilized for machining and fabrications of parts and repairs of ship's structure as well as other appurtenances on board a vessel.
4. Carry out basic repairs of electrical motors and equipments on board a ship and to do preventive maintenance as well testing and inspections in a safe manner and in accordance with normal electrical practices.
5. Operate an outboard engine in a safe manner and to do periodic checks and maintenance in accordance with the user's manual as well as carrying out basic troubleshooting and repairs.
6. Perform periodical maintenance and basic troubleshooting and repairs on various pumps used on board ships including other accessories.

Assessment Criteria: *Learning and assessments will take place in the engineering laboratory , a safe and suitable working place and on board appropriate vessels.*

Delivery strategy

The course provides for delivery for on the job training and assessment utilizing practical demonstration that simulate conditions found on small vessel engineering plant installation of not over 500 kW..

Some areas of content may be common to more than one learning outcome, and therefore integration of training and assessment may be appropriate.

Methods of instruction should include:

1. Laboratory and appropriate work place instruction;
2. Instructor demonstrations;
3. Participation of participants in practical sessions and exercises;
4. Group and individual work
5. Laboratory and appropriate work place instruction;
6. Instructor demonstrations;
7. Participation of participants in practical sessions and exercises;
8. Group and individual work

Resources Requirement: :

- Engineering Shop
- Assorted Tools
- White board
- Engine for practical work
- Electric motors
- Testing equipments
- 12V DC Batteries
- Assorted pumps
- Outboard motor engine
- Marine refrigeration simulator
- Appropriate vessel
- Gas and Electric Welding equipments
- Appropriate safety shoes, hats and clothing

Assessment Strategy

Assessment Method: Learning outcome will be assessed separately. A holistic assessment strategy is proposed that attempts to ensure as much as possible that the assessment replicate conditions that learners may encounter in their workplace.

Practical assessment will be undertaken by observing the ability of learners to correctly applying the techniques and methods used in a work place on board ship.

Condition of Assessment: Assessment will take place on the-job in a safe environment working place and will as much as possible simulate the on board normal practices.

Evaluation: Final Grade for the course will be based on Institute and

Attendance: The COM-FSM-FMI attendance policy will apply.