



Republic of the Philippines
OFFICE OF THE PRESIDENT
COMMISSION ON HIGHER EDUCATION



DEPARTMENT OF TRANSPORTATION
MARITIME INDUSTRY AUTHORITY

**Evaluation Instrument - Requirements for Facilities and Equipment
(Bachelor of Science in Marine Engineering)**

Name of Applicant HEI:	Address:
	Academic Year Programs to be offered:
Evaluated by:	Date of Evaluation:

Quantity Required	Requirements	Self-Assessment (To be accomplished by Applicant HEI)		Documentary Review (To be accomplished by Designated EIT)		Remarks	Inspection (To be accomplished by Designated EIT)		Remarks
		Complied	Not Complied	Complied	Not Complied		Complied	Not Complied	
CLASSROOM	The standard lecture room shall be a minimum of 48 square meters, no side shall be less than 6 meters for a class of 40 students. Classroom must be well-lighted and well-ventilated. It should contain the following: <ul style="list-style-type: none"> • Tables and chairs or armed chairs • Whiteboards or chalkboards • Multimedia equipment • Instructor's table or podium 								

JOINT CHED-MARINA MEMORANDUM CIRCULAR NO. 32, SERIES OF 2017

Quantity Required	Requirements	Self-Assessment (To be accomplished by Applicant HEI)		Documentary Review (To be accomplished by Designated EIT)		Remarks	Inspection (To be accomplished by Designated EIT)		Remarks
		Complied	Not Complied	Complied	Not Complied		Complied	Not Complied	
LABORATORY ROOMS (All laboratory rooms must be equipped with medicine cabinet for first aid)									
	ERS (Engine Room Simulator) with separate briefing/debriefing room equipped with monitor for “playback” of practical exercises and audio-visual devices for appropriate observation of students activity								
	Machinery Room that can house the main engine and other auxiliary machineries								
	Separate laboratory Room that can house the following equipment: <ul style="list-style-type: none">• Refrigeration system,• Automation• electrical equipment								
	Machine Shop Room with Lockers for Storing Personal Belongings, Washing facility and Scrap Disposal Containers								
	Drawing Room equipped with drawing tables								
Engine Room Simulator that can simulate the complete operations of main engine and its associated auxiliary machineries including Boiler system.									
It shall consist of One (1) Instructor’s station and at least three (3) workstations									

Quantity Required	Requirements	Self-Assessment (To be accomplished by Applicant HEI)		Documentary Review (To be accomplished by Designated EIT)		Remarks	Inspection (To be accomplished by Designated EIT)		Remarks
		Complied	Not Complied	Complied	Not Complied		Complied	Not Complied	
COURSE: MACH 1, MACH 2, AND MACH 3									
6 sets	Work benches fitted with vise on each end								
6 sets 1 torch / cubicle	Gas welding equipment accessories and PPE								
6 sets 1 machine / cubicle	Electric, arc welding equipment, accessories and PPE								
3 units	Pedestal grinder								
3 units	Drilling machine (approx. 10 mm min diameter drill capacity								
6 units	Electric power hand drill with at least 10 mm diameter drilling capacity								
6 units	Electric power hand grinder/cutter								
6 sets	Metal cutting shear (snip)								
6 pcs	Anvil								
6 pcs	Inside and outside steel vernier caliper								
6 pcs	Inside and outside micrometers								
6 pcs	Depth gauge caliper								
6 sets	Dial micrometer with magnetic base								
6 pcs	Steel ruler								
6 pcs	Flat chisel								
6 pcs	Cross-cut chisel								
6 pcs	Diamond point chisel								
6 pcs	Round nose chisel								
6 pcs	Center punch, 60 mm								
6 pcs	Center punch, 90 mm								
6 pcs	Hacksaw								



Quantity Required	Requirements	Self-Assessment (To be accomplished by Applicant HEI)		Documentary Review (To be accomplished by Designated EIT)		Remarks	Inspection (To be accomplished by Designated EIT)		Remarks
		Complied	Not Complied	Complied	Not Complied		Complied	Not Complied	
6 pcs	Tap and dies								
6 pcs	Die nuts								
6 sets	Wrench, socket type, 10mm to 24mm								
6 sets	Wrench, open type (metric), 10 mm to 24mm								
6 pcs	Double-cut rough files								
6 pcs	Second-cut smooth files								
6 pcs	Single-cut smooth files								
6 pcs	Second cut files								
6 pcs	Machinist's combination set								
6 pcs	Try square (steel)								
6 pcs	Protractor (steel)								
6 pcs	Dividers (steel)								
6 pcs	Sledge hammer (various sizes, steel/wooden)								
6 pcs	Ball peen hammer								
6 pcs	Straight peen hammer (various sizes)								
6 pcs	Tongs (various sizes)								
6 pcs	Pliers, mechanical (various sizes)								
6 pcs	Screw driver, Philips (various sizes)								
6 pcs	Screw driver, Flat (various sizes)								
6 pcs	Vise grip								
6 pcs	Feeler gauge								
6 pcs	Pitch gauge								
6 pcs	Drill bit, 13-25 mm, tapered shank								
6 pcs	Drill bit, 15-30 mm, cylinder shank								
6 pcs	Drift punch								



Quantity Required	Requirements	Self-Assessment (To be accomplished by Applicant HEI)		Documentary Review (To be accomplished by Designated EIT)		Remarks	Inspection (To be accomplished by Designated EIT)		Remarks
		Complied	Not Complied	Complied	Not Complied		Complied	Not Complied	
6 sets	Minimum of 150 mm swing over bed lathe machine with accessories								
1 set	Shaper (350mm travel) with accessories								
1 set	Milling machine (horizontal, vertical or universal) with cutting tools and accessories								
1 set	Hydraulic pipe bender with accessories								
3 sets	Pipe wrench various sizes								
3 sets	Grease gun								
6 sets	Oil applicator								
3 sets	Wire gauge								
3 sets	Surface gauge								
3 sets	Blow torch								
3 sets	Reamer handset, assorted								
3 sets	Torque wrench								
3 sets	Pipe cutter								
3 sets	Threading tools								
COURSE: MARINE DIESEL									
1 set (non-operational Marine diesel engine with auxiliaries)	Marine Diesel engine-complete for dismantling with the following components: <ul style="list-style-type: none"> • Cylinder line • Fuel valve/injector • Cylinder relief valve • Air-starting valve/starting mechanism (not all have ASV) 								



Quantity Required	Requirements	Self-Assessment (To be accomplished by Applicant HEI)		Documentary Review (To be accomplished by Designated EIT)		Remarks	Inspection (To be accomplished by Designated EIT)		Remarks
		Complied	Not Complied	Complied	Not Complied		Complied	Not Complied	
	<ul style="list-style-type: none"> • Crankcase relief valve • Fuel pump • Cylinder head • Turbocharger • Bearing shells • Piston and connecting rod • Engine governor • Starting system • Fuel and lube oil filters 								
1 set (operational and functional)	Marine Diesel Engine								
COURSE: AUXILIARY MACHINERY (operational or not operational, for dismantling)									
1 set	Reciprocating displacement pump								
1 set	Gear pump								
1 set	Rotary vane pump								
1 set	Screw displacement pump								
1 set	Centrifugal pump								
1 set	Reciprocating air driven pump								
1 set each	Other parts/components: <ul style="list-style-type: none"> • Gland • Packing gland • Mechanical Seal • Drain Cock • globe valve 								



Quantity Required	Requirements	Self-Assessment (To be accomplished by Applicant HEI)		Documentary Review (To be accomplished by Designated EIT)		Remarks	Inspection (To be accomplished by Designated EIT)		Remarks
		Complied	Not Complied	Complied	Not Complied		Complied	Not Complied	
	<ul style="list-style-type: none"> • gate valve • relief valve • quick closing valve • change-over valve chest • mud box (strainer) • steam trap • shell and tube cooler • plate-type cooler 								
1 set	Reciprocating air compressor (2 stage or higher) with the following components: <ul style="list-style-type: none"> • Cylinder cover • Piston • relief valve • fusible plug • suction and delivering valve • water-space safety valve • bursting disc 								
1 set	Centrifugal separator/Purifier with special tools for dismantling and assembling (operational or not operational)								
COURSE: POWER PLANT 2- STEAM PLANT									
1 set (Operational and Functional)	Boiler for demonstration of operation only								



Quantity Required	Requirements	Self-Assessment (To be accomplished by Applicant HEI)		Documentary Review (To be accomplished by Designated EIT)		Remarks	Inspection (To be accomplished by Designated EIT)		Remarks
		Complied	Not Complied	Complied	Not Complied		Complied	Not Complied	
1 set	Boiler water test kit								
1 set	Boiler safety valves (for dismantling)								
COURSE: REFRIGERATION									
1 set (Working model or training module to demonstrate the refrigeration processes and operation)	Marine Refrigeration with main components								
1 set	Expansion valve								
1 set	Open Type Refrigerating Compressor (Complete)								
1 set	Oil separator								
1 set	Thermostat								
1 set	Pressure switch								
1 set	Vacuum pump with service manifold (gas analyzer)								
1 set	Refrigerant charger								
COURSE: ELECTROTECHNOLOGY									
3 sets (2 sets AC and 1 set DC)	Electrical Training module for AC/DC Circuits								



Quantity Required	Requirements	Self-Assessment (To be accomplished by Applicant HEI)		Documentary Review (To be accomplished by Designated EIT)		Remarks	Inspection (To be accomplished by Designated EIT)		Remarks
		Complied	Not Complied	Complied	Not Complied		Complied	Not Complied	
	(can simulate faults for troubleshooting)								
4 sets (2 sets analog and 2 sets digital)	Electronic Training module (can connect circuits for diodes, transistors, thyristors and other semiconductor components)								
3 sets	Motor Control Module (can connect 3-phase AC direct on-line, reversible and wye-delta motor starters, and can produce or insert faults for troubleshooting)								
1 set	6-leads out 3-phase induction motor								
1 set	3-leads out 3-phase induction motor								
3 sets	Operational 3-phase alternator with synchronizing equipment of main switch board or ERS category 1 or 4								
6 sets	Digital Multi-tester								
6 sets	Analog Multi-tester								



Quantity Required	Requirements	Self-Assessment (To be accomplished by Applicant HEI)		Documentary Review (To be accomplished by Designated EIT)		Remarks	Inspection (To be accomplished by Designated EIT)		Remarks
		Complied	Not Complied	Complied	Not Complied		Complied	Not Complied	
6 sets	Insulation resistance tester								
6 sets	Analog clamp meter								
6 sets	Digital clamp meter								
6 sets	Live line tester								
COURSE: AUTOMATION									
1 set or ERS that can simulate the complete operation of Process Control system	Process Control Simulator that contains process to be controlled, process transmitter/ sensor, controller (PID, PI, PD), correcting elements/ final control elements (with set point and process value pointers/indicators)								
1 set each	Differential pressure transmitters (Pneumatic and Electric)								
1 set	Pressostat								
1 set	Thermistor								
1 set	Thermocouple								
1 set	100-ohm resistance bulb								
1 set	U-tube manometer								

NOTE: The listed equipment is minimal for reference of MHEI's. Additional equipment is required based on the Course Specifications of the courses included in the BSMarE program. MHEI's are required to demonstrate how Course Outcomes are evaluated and assessed.



CLASSIFICATION OF MACHINERY SIMULATORS

FULL MISSION SIMULATOR	A full mission simulator capable of simulating all machinery operations in engine control room and machinery spaces, by the use of operational panels in machinery spaces.
MULTI TASK SIMULATOR	A multi task simulator capable of simulating several machinery operations in engine control room and machinery spaces, but with limited use of operational panels in machinery spaces.
LIMITED TASK SIMULATOR	A limited task simulator capable of simulating some machinery operations in engine control room for procedural training.
SPECIAL TASK SIMULATOR	A special task simulator capable of simulating operation and/or maintenance of particular machinery equipment, and/or defined engineering scenarios.

COMPETENCES ADDRESSED BY THE ENGINE ROOM SIMULATOR

STCW REFERENCE	COMPETENCE	CLASSIFICATION			
		FULL MISSION	MULTI TASK	LIMITED TASK	SPECIAL TASK
Table A-III/1.1	Maintain safe engineering watch	✓	✓		✓
Table A-III/1.3	Use internal communication systems	✓	✓		✓
Table A-III/1.4	Operate main and auxiliary machinery and associated controls	✓	✓	✓	✓
Table A-III/1.5	Operate fuel, lubrication, ballast and other pumping systems and associated control systems	✓	✓	✓	✓
Table A-III/1.6	Operate electrical, electronic and control systems	✓	✓	✓	✓
Table A-III/1.7	Maintenance and repair of electrical and electronic equipment				✓
Table A-III/1.11	Maintain seaworthiness of the ship	✓	✓		✓



Self-Assessment:			
_____ Name and Signature		_____ Date	

Recommendation on Documentary Review:			
<input type="checkbox"/> Approval	<input type="checkbox"/> Disapproval	<input type="checkbox"/> Further Actions	
Prepared by:			
_____ Member of the EIT Date: _____	_____ Member of the EIT Date: _____	_____ Member of the EIT Date: _____	_____ Member of the EIT Date: _____
_____ Lead Evaluator of the EIT Date: _____			
Reviewed by:		Approved by:	
_____ Lead Evaluator (Not Member of the Designated EIT) Date: _____	_____ Executive Director Date: _____		

