Malayan Colleges Laguna
A MAPÚA SCHOOL

REVISION NO.:	00
REVISION DATE:	May 31, 2019

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET D)

NAME:		STUDENT No.:		Date:	

Shipboard Training Particulars	Vessel 1	Vessel 2	Vessel 3
Vessel Name			
Vessel Type			
Propulsion Power (kW)			
Date of Embarkation			
Date of Disembarkation			

Function 1: Marine Engineering at the Operational Level

Questions	Competence	TRB Ref No.	MCL Course Code	Performance Standard	Standards Met?		JUDGMENT	
					YES	NO	C	NYC
1. How do you conduct a proper routine engine room watch? What parameters and machineries are to be checked?	Maintain a safe engineering watch	1.2.4	MARE109 MARE109L MARE110 MARE111L MARE153 MARE153L ECE132-1 ECE132L-1	Proper engine room watch keeping should check the following: 1. ME & AE (Exh. Temp., Piston cooling lube oil temp., JCW outlet temp., Lube oil inlet press. And temp., Air cooler temp., and fuel oil pressure and temp.)				
				2. Boiler pressure and water level				
				3. Different tank levels (Sludge, Bilge, Fuel, etc.)				
				4. all other auxiliary machineries' normal pressure and temperature				
2. After a purifier overhaul, a report should be done. How is proper reporting done on your vessel?	Use English in written and oral form	2.1.2	MARE109 MARE109L MT162-3 ENG030	Must: 1. State the Planned Maintenance System used onboard				
				2. Report the reason for overhauling (regular maintenance or maintenance due to break down of machinery)				
				3. Report the corrective actions done				
				4. Report spare parts used and order if necessary				
				5. Report must be in English language				

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3. Having to communicate to a duty engineer using a hand held VHF radio, how would you use the radio to establish a communication with the duty engineer?	Use internal communication systems	3.1.5	MARE110 MARE111L ENG029 ENG040	Must: 1. Set the radio to the proper channel				
				2. Adjust volume				
				3. Push the button to talk				
				4. Talk clearly				
4. How would you prepare the main engine when given 1 hour notice prior port departure?	Operate main and auxiliary machinery and associated control systems	4.1.2 4.1.3 4.1.4 4.1.5 4.1.6	MARE107 MARE107L MARE110 MARE111L MARE164 MARE164L MARE165 MARE165L MARE166 MARE166L ECE132-1 ECE132L-1 ENG029 ENG040	Must state that: 1. Start lube oil pump				
				2. Engage turning gear and turn for about 2 full revolutions or 10 minutes				
				3. Check sump tank oil level				
				4. Disengage turning gear				
				5. Open main starting valve for main engine				
				6. Blow main engine with open indicator cocks for any water ingress (if applicable to engine)				
				7. Close indicator cocks				
				8. Close T/C drain valves				
				9. Start another D/G				
				10. Transfer controls to the bridge				
				11. Log flow meter counters				
5. What is the correct procedure of blowing down a boiler gauge glass?	Operate main and auxiliary machinery and associated control systems	4.2.31	MARE107 MARE107L MARE109 MARE109L MARE166 MARE166L	Must: 1. Close water side valve and steam side valve 5. Close drain valve 6. Open FIRST water side valve 7. Open last steam side valve				
				2. Open drain valve				
				3. Open water side valve (for flushing); then close again				
				4. Open steam side valve (for flushing); then close again				

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6. How is raw sewage treated by the sewage treatment plant before it is discharged overboard?	Operate main and auxiliary machinery and associated control systems	4.2.44	MARE107 MARE107L MT166	Must identify and explain: 1. Aeration chamber - fed with raw sewage which will be grinded to small particles; Decomposition takes place in this stage with the help of bacteria; Low air pressure is kept flowing to help for proper mixing and decomposition				
				2. Settling tank/chamber - separates liquid from sludge then overflows the liquid to the next stage				
				3. Chlorination & Collection chamber - clean liquid from the settling is disinfected with chlorine (to reduce e-coli to an acceptable level)				
7. How do you transfer fuel oil from bunker tanks to service tanks? Use block diagrams to illustrate your answer	Operate fuel, lubrication, ballast and other pumping systems and associated control systems	5.1.13	MARE106 MARE106L MAR107 MARE107L MT166	Must construct a block diagram containing: 1. Bunker tanks				
				2. Fuel oil transfer pump				
				3. Fuel oil settling tank				
				4. Fuel oil service tank				
				5. Fuel oil purifier				
				6. Filters				
				7. Heaters				
8. How do you start a fuel oil purifier?	Operate fuel, lubrication, ballast and other pumping systems and associated control systems	5.2.3	MARE107 MARE107L MARE110 MARE111L	Must state: 1. Check whole purifying plant (Sump oil level; Release break, if gear type purifier; Visual check of pump, heater and piping)				
				2. Open necessary valves (Suction valve, Discharge valve and Valve to service/settling tank)				
				3. Start fuel oil pump				
				4. Start heater				
				5. Start purifier motor				
				6. Wait until purifier bowl reaches 8000 - 10000 RPM (depends on the set RPM)				
				7. Start purifier operation 8. Check for leaking or any abnormalities				

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9. How would you justify the importance of draining water or sludge from the settling tank?	Operate fuel, lubrication, ballast and other pumping systems and associated control systems	5.2.2	MARE106 MARE106L MARE110 MARE111L	Must state that: 1. Prevent water entering the fuel supply line of the main engine or auxiliary generator that may cause major problems to the engine				

Function 2: Electrical, electronic and control engineering at the operational level (Ref. STCW code p.148-149)								
Questions	**Competence**	**TRB Ref No.**	**MCL Course Code**	**Performance Standard**	**Standards Met?**		**JUDGMENT**	
					YES	**NO**	**C**	**NYC**
10. Site an example of a machinery that uses "speed droop controller". Explain the function of this and the relation to your example	Operate electrical, electronic and control systems	6.8.8	ECE130 ECE130L ECE132-1 ECE132L-1	Must state: 1. Main engine or Auxiliary Engine as example				
				2. Reduces the governor reference speed as fuel position/load increases				
11. Interpret and explain the given electrical diagram	Operate electrical, electronic and control systems	7.1.1	MARE153 MARE153L ECE132-1 ECE132L-1	Must: 1. Distinguish meaning of electrical diagram				
				2. Explain the function and flow of the diagram				
12. How would you explain the function of the PID (Proportional - Integral - Derivative) controller of a steam control valve? You may illustrate your answer	Operate electrical, electronic and control systems	6.9.2	ECE132-1 ECE132L-1	Must: 1. Illustrate with a graph (Temperature vs Time and a Set point)				
				2. Showing the difference in offset for Proportional, Integral, Differential and Combination controls				
13. How does an earth indicator lamp works?	Maintenance and repair of electrical and electronic equipment	7.5.1	MARE153 MARE153L ECE130 ECE130L	Must state: 1. Shows presence of earth fault in the distribution system				
				2. If fault occurs, lamp will show dim light or goes out				

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14. How to test the continuity and insulation of a three phase motor. Illustrate your answer	Maintenance and repair of electrical and electronic equipment	7.5.2	MARE153 MARE153L ECE130 ECE130L	Must state: 1. Use MULTIMETER				
				2. Use MEGGER TESTER				
				Must show: 1. Three phase motor terminal connection				
				2. Continuity				
				3. Insulation				

Function 3: Maintenance and repair at the operational level								
Questions	**Competence**	**TRB Ref No.**	**MCL Course Code**	**Performance Standard**	**Standards Met?**		**JUDGMENT**	
					YES	**NO**	**C**	**NYC**
15. How do you use a torque wrench?	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.8	MARE104-1 MARE104L-1MARE109 MARE109L	Must state: 1. Check the tightening torque of the bolt or nut to be tightened				
				2. Set the torque wrench to the specified torque				
				3. Tighten the bolt or nut until a clicking sound is heard				
				4. Reset the torque wrench to zero after using				
16. How would you first light off an oxyacetylene torch?	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.9	MARE104-3 MARE104L-3 MARE109 MARE109L	Must state: 1. Check gas pressure gauges				
				2. Open acetylene valve slightly to light off				
				3. Open and adjust oxygen valve				
17. How would you prevent leaking from the valve spindle of a globe valve?	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.7.1	MARE106 MARE106L MARE109 MARE109L	Must state: 1. Use of appropriate packing gland seals				
				2. Proper tightness of the gland flange and gland bush				

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18. How do you prepare a pump for overhaul?	Maintenance and repair of shipboard machinery and equipment	9.6.8 9.6.9	MARE106 MARE06L MARE109 MARE109L	Must state: 1. Shut off suction valve				
				2. Shut off discharge valve				
				3. Switch off breaker				
				4. Lock out and tag out breaker				
				5. Drain or vent out pressure from pump				
				6. Disconnect electrical supply of pump				
				7. Prepare spare and manufacturer's manual				
19. How do you maintain your ship's mooring winches?	Maintenance and repair of shipboard machinery and equipment	9.6.19	MARE107 MARE107L MARE109 MARE109L MARE104-1 MARE104L-1	Must state: 1. Change oil				
				2. Greasing of brake lever				
				3. Check fittings and grease necessarily				
				4. Check brake lining for thickness				
				5. Check gear teeth for pitting				
20. How do you maintain your ship's hatch covers?	Maintenance and repair of shipboard machinery and equipment	9.6.21	MARE107 MARE107L MARE109 MARE109L MARE104-1 MARE104L-1	Must state: 1. Examine hatch cover, hatch beams for corrosion, cracks and material failure				
				2. Keep Cleats, hauling wire, rollers, chains and wedges in operational condition at all time				
				3. Keep clean hatch cover tops and all drainage holes to be kept clear				
				4. Look for any broken or missing gasket and replace it				
				5. Before renewing rubber gasket, check and rectify steel to steel fault				
				6. Grease all the moving parts				
				7. Check for any hydraulic system leakage if cover is oil operated				
				8. Oil test to be performed for hydraulic system				
21. How do you conduct a weekly routine maintenance on your firefighting system?	Maintenance and repair of shipboard machinery and equipment	9.7	MARE106 MARE106L MARE109 MARE109L	Must state: 1. Run fire pump (check suction and discharge pressure)				
				2. Exercise fire flaps (close or open flaps; grease if needed)				
				3. Check fire stations (compare inventory sheet with actual equipment)				

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				4. Check galley fire extinguishing system (Check CO2 pressure)				
				5. Check CO2 plant (check for leaking)				
				6. Check automatic closing of fire doors				
22. How do you start an emergency generator?	Maintenance and repair of shipboard machinery and equipment	9.7.4	MARE107 MARE107L MARE109 MARE109L	Must state: 1. Automatic start				
				2. Battery start				
				3. Hydraulic start				
23. How does a low pressure cut out switch in a refrigeration system works?	Maintenance and repair of shipboard machinery and equipment	9.6.6	ECE132-1 ECE132L-1 MARE107 MARE107L MARE109 MARE109L	Must state: 1. Controls the start and stop of compressor upon system demands				
24. How surface blowing of an auxiliary boiler help in maintaining its efficiency?	Maintenance and repair of shipboard machinery and equipment	9.5.3	MARE107 MARE107L MARE109 MARE109L MARE166 MARE166L	Must state: 1. Remove floating impurities from the boiler water				
25. How would you relate the unloading valve of an air compressor to its motor?	Maintenance and repair of shipboard machinery and equipment	9.6.3	MARE107 MARE107L MARE109 MARE109L	Must state: 1. Unloading valve reduces the compressor motor's load below the designed operating values when starting				
26. State the function of the stuffing box. How would a worn out stuffing box affect the main engine?	Maintenance and repair of shipboard machinery and equipment	9.3	MARE164 MARE164L MARE109 MARE109L MARE104-1 MARE104L-1	Must state: 1. To prevent exhaust gases to enter the crankcase				
				2. Prevents blow-by				

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Function 4: Controlling the operation of the ship and care for persons on board at the operational level (Ref. STCW code p.151-153)								
Questions	**Competence**	**TRB Ref No.**	**MCL Course Code**	**Performance Standard**	**Standards Met?**		**JUDGMENT**	
					YES	**NO**	**C**	**NYC**
27. In your observation as a cadet, what proactive measures have your company undertaken to protect the marine environment? How would you relate that to your role as a future merchant marine engine officer?	Ensure compliance with pollution-prevention requirements	5.2.1 14.1	MT166	Explains the concept of initiating measures to enhance compliance with marine environmental protection by information dissemination through poster issuances to the fleet, promotion of such awareness through Computer Based Training videos, frequent dialogues on environmental issues by ship managers or superintendents with the crew. Relates self with the experience on such initiatives by expressing his support and commitment to the cause of propagating the importance and awareness of environmental protection to the future generation of global maritime professionals.				
28. What actions should you take to ensure the watertight integrity of the vessel during the voyage? Why is it important to maintain the ship's water tightness?	Maintain seaworthiness of the ship	15.3.1 15.3.2 15.3.3	MT 101 MT101L	Explains the importance of closing all watertight doors, all hatch covers batten down properly, manholes closed and secured, natural ventilation windows and doors shut and sounding ports positively covered, before sailing and during the voyage, especially in heavy weather.				
29. How will you combat fire using fire- fighting system?	Prevent, control and fight fires on board	16.4.6 16.4.10 16.4.11	MT130P	Understands the purpose of fixed fire- fighting system like CO2 and portable fire- fighting system. In case of isolation, muster list of crew and evacuate to a safe place free from suffocation and heat of fire.				
30. How do you carry out the proper donning of the immersion suit? Please state the sequence	Operate life-saving appliances	14.5.9	MT130P-1	Demonstrate proper donning of immersion suit within 1 minute				

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31. How do you comply with the MARPOL 72/78 regulations? What practices have you learned from your experience on board that indicates your ship's adherence to this regulation?	Apply medical first aid on board ship	19.1.2 19.1.3 19.2.1 19.2.2	MT166	MARPOL 73/78 – came into as a consequence of the sensational grounding case of the MT Torrey Canyon.				
32. How does your company comply with the requirements of the MLC 2006 convention? Cite examples of your compliance.	Monitor compliance with legislative requirements	19.1.4	MT167	Maritime Labor Convention 2006- came into being to provide a structured guideline in protecting the seafarer's rights.				
33. How are the work routines on board ship, managed by your superiors? (i.e. Master, Chief Officer, Chief Engineer or Second Engineer)	Application of leadership and team-working skills.	10.1 10.2	MT162-2	Prioritizes resources in accordance with the urgency of the tasks at hand (whether it is top priority, urgent and normal); and allocates human resources for each job task based on their availability.				
34. How are the work routines on board ship, managed by your superiors? (I.e. Master, Chief Officer, Chief Engineer or Second Engineer)	Application of leadership and team working skills.	10.1 10.2	MT162-2	Plans and coordinate work with the department heads by filling out the required work permits as per the ship's safety management system				

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35. *Scenario:* During your fire patrol watch, you discovered that the galley is burning due to an unattended hot pan with oil in it. How would you deal the situation based on what you have learned from your Basic Training? What would the sequence of your actions be?	Contribute to the safety of personnel and ship	16.1.1 16.1.2 16.1.3 16.1.4 16.1.5 16.2.1 16.2.2 16.3.1 16.3.2 16.3.3 16.4.1 16.4.2 16.4.7 16.4.8	MT130-P	Demonstrates familiarity with the onboard firefighting procedures by: -Reporting the fire immediately to the Bridge -Shutting off the ventilations and doors to isolate further ingress of air and -Wait for the firefighting team to arrive. In the event of a small fire that can be put off with a portable fire extinguisher: -Reports the fire to the Bridge and -Extinguishes the fire using the appropriate extinguishing agent for oil fire (which in this case is a Dry Powder). -Uses a fire blanket to smother the fire if it is readily accessible.				

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