Intermediate Level Practical Tasks:

Electrical

No	Tasks	Performance criteria	Confirmation & date
1	Inspect test and maintain battery bank	Correct installation as per Code of Practice Safety precautions Use of hydrometer, discharge tester Set up correct charge regime Cleanliness, neatness of terminals	
2	Install heavy cables to engine starter motor	Choice of correct cable Use of heavy crimp terminals and tool Correct cable runs Test of installation	
	Install dc refrigerator or similar medium power consumer	Correct selection of cable size Circuit protectors Cable runs Siting of equipment Test of installation – acceptable volt drop	
4	Install gas detector	Reading and understanding of manufacturer's instructions Siting of main unit and gas sensor Power supply Cable runs and terminations Setting up and test of alarm Amendment of vessel electrical drawings	
5	Fault location – dc lighting circuit	Location of vessel isolation switches Location of circuit protection Use of multimeter and test lamp to locate fault Safe rectification of fault	
6	Fault location – engine gauges / alarms	Location of vessel isolation switches Location of circuit protection Use of multimeter and test lamp to locate fault Safe rectification of fault	
7	Install alternator smart regulator	Reading and understanding of manufacturers instructions Cable runs and terminations Setting up and test of charging system Amendment of vessel electrical drawings	
8	Fault location – Alternator	Location of vessel isolation switches Location of circuit protection Use of multimeter and test lamp to locate fault Safe rectification of fault	
9	Install electric winch, windlass or bow thruster	Correct selection of cable size Circuit protectors Cable runs Siting of equipment Test of installation – acceptable volt drop	

10	Specify, position and install navigation lights	Correct lights chosen for vessel Installed in correct positions	
11	Install automatic bilge pump system	Siting of pump and float switch Cabling – protection from water damage Control switching and circuit protection	
12	Check protective bonding system, and record results	Use of conductance meter correct cable sizes	
13	Install shore power distribution system	Safety with ac equipment Siting and choice of inlet fabrication of shore cable RCD and MCB Ring and radial distribution earthing and bonding Test of system (RCD test)	
14	Specify and install battery charger	Specification and siting of unit Correct cable size Cable runs Test of installation – acceptable volt drop	
15	Specify and install inverter	Specification of unit Cable size Circuit protectors Cable runs Siting of equipment Test of installation	
16	Design and install distribution panel	Panel layout Correct choice of protection device and rating Terminations	

Signatories:

Please record details of all who have signed as witnesses to completion of the tasks.

Name
Position
Signature
Company

Name
Position
Signature
Company

Name
Position
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Intermediate Level Practical Tasks:

Electronic

No	Tasks	Performance Criteria	Confirmation & Date
1	Install and prove operation of fixed GPS receiver	Reading and understanding of manufacturers instructions Siting of main unit and antenna Power supply Cable runs and terminations Setting up and test of equipment Amendment of vessel electrical drawings	
2	Interface GPS navigator to Chart plotter	Use of device to read NMEA sentences Basic knowledge of nmea protocol Correct cable Correct earthing of cable screen	
3	Install depth instrument	Reading and understanding of manufacturer's instructions Siting of main unit and transducer Power supply Cable runs and terminations Setting up and test of installation Amendment of vessel electrical drawings	
4	Install Log	Reading and understanding of manufacturers instructions Siting of main unit display and transducer Power supply Cable runs and terminations Setting up and test of equipment Amendment of vessel electrical drawings	
5	Install Wind instrument	Reading and understanding of manufacturers instructions Siting of main unit and mast unit Power supply Cable runs and terminations Setting up and test of installation Amendment of vessel electrical drawings	
6	Install cockpit autopilot	Understanding of installation instructions Mechanical installation Power supply Setting up and test of pilot Amendment of vessel electrical drawings	
7	Installation of a VHF radio antenna and cabling	Positioning Safety at heights Cable protection and security Solder or crimp RF connectors Performance test and record results	
8	Installation and Operation of the VHF radio	Reading and understanding of manufacturer's instructions Siting of unit Power supply Cable runs and terminations Air test of equipment Amendment of vessel electrical	

		drawings	
9	Install autopilot system including linear drive unit	Reading and understanding of manufacturers instructions Siting of control unit, drive boxes, fluxgate compass and feedback unit Power supply Cable runs and terminations Set up and sea trial autopilot Amendment of vessel electrical drawings	
10	Install radar	Reading and understanding of manufacturers instructions Siting of display and antenna Power supply Cable runs and terminations Setting up and test of equipment Amendment of vessel electrical drawings	
11	Install combined instrument, pilot, radar and chartplotter system	Reading and understanding of manufacturers instructions Siting of all units Power supply and data cabling Cable runs and terminations Setting up, sea trial and test of installation Amendment of vessel electrical drawings	
12	Locate fault in single instrument system (eg wind system), and rectify	Testing of instrument or transducer by substitution Test of transducer with multimeter if applicable Power supply	
13	Locate fault in radar and rectify	Knowledge of radar principles Use of multimeter, RF detectors Ability to isolate faulty pcb / component Replacement and test	
14	Test VHF antenna installation	Use of SWR meter and multimeter	
15	Investigate interference problem on communications system	Isolate source of interference Use of test equipment Use of filters and suppressors	
16	Install DSC VHF	Power supply correct Positioning of unit Antenna v SWR checked NMEA data input MMSI installed Functional and internal test Air test	

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