

NO.	DESCRIPTION	QUANTITY
1	<p><u>MAIN BRIDGE: FULL MISSION BRIDGE SIMULATOR (CLASS A) 270° VISUAL:</u></p> <p>a. Computers, softwares and hardwares for a main bridge of class "A" full mission bridge simulator to include all bridge navigational, SAR and GMDSS equipment that conform for a CLASS "A" SIMULATOR SPECIFICATIONS to include compass with pelorus and chart table with drawers</p> <p>b. Projector (Specifications)</p> <p>Display Technology Texas Instruments 0.55" XGA DMD Chip</p> <p>Native Resolution Native: 1024 x 768 (XGA) Support Computer signal up to UXGA (1600 x 1200) 60Hz</p> <p>Brightness / Contrast Ratio 3000 ANSI Lumens / 13000 :1</p> <p>Display Colors 1073.4 million colors (10bit)</p> <p>Projection Lens F=2.8 ; f = 7.007mm @ 77 inch (Effective)</p> <p>Image Size 59 ~ 300 inch</p> <p>Projection Distance 0.4m to 10m</p> <p>Throw Ratio (Projection distance/width) 0.626 :1</p> <p>Digital Keystone Correction +/- 40 degree is for system angle of v-keystone. *Preliminary spec</p>	<p>1 complete set</p> <p>9 units</p>

Aspect Ratio	4:3 Native, 16:9 Compatible	
Scan Rate	Horizontal : 15.3 ~ 91.1KHz ; Vertical :24 ~ 85 Hz	
Computer Compatibility	UXGA, SXGA+,SXGA,XGA,SVGA,VGA Compression, VESA standards PC & Macintosh compatible	
Video Compatibility	HDTV (720p, 1080i/p), SDTV (480i/p, 576i/p) Full NTSC, PAL PAL-M, PAL-N, SECAM	
Input / Output Connections	VGA in x 2, HDMI x 1 , S-Video x 1, Composite Video x 1, Audio Input x 1, Audio output (Mini Jack) x 1, VGA Out x 1, RS-232 control interface x 1(9 Pin), USB (Mouse control) x 1 RJ45(LAN Control with Roomview) x 1	
Uniformity	85 %	
Speaker	2W x 1	
Noise	33 dB (STD mode)	
Lamp Type	240 watt user-replaceable lamp	
Lamp Life	3500 Hrs (Bright mode) / 6000 Hrs(ECO+ mode)	
Power Supply	Universal AC 100 ~ 240V± 10%,50/60Hz	
Dimensions(W x D x H)/ Weight	288 x 219 x 87 mm / 2.2kg	

2	<p><u>INSTRUCTOR'S STATION:</u></p> <ul style="list-style-type: none"> a. Computers and softwares for instructor station that conform for a CLASS "A" SIMULATOR SPECIFICATIONS b. Laser A4 printer c. Executive chair 	<p>1 complete set</p> <p>1 Unit 3 pieces</p>
3	<p><u>EXERCISE SEA AREA: Mandatory</u></p> <ul style="list-style-type: none"> a. Singapore b. Manila c. Subic d. Cebu e. Tokyo Bay f. In-land Sea Japan g. Malacca Strait h. English Channel i. Gibraltar Strait j. San Francisco k. Dover Strait l. Port Klang m. New York n. Shanghai o. Open Sea 	<p>15 Sea Areas</p>
4	<p><u>OWN SHIP MODELS: models within the range of the specified DWT</u></p> <ul style="list-style-type: none"> a. Container Ship (three model) <ul style="list-style-type: none"> i. 60,000 to 70,000 DWT (with bow thruster) ii. 90,000 to 95,000 DWT (with bow thruster) iii. 104,000 to 110,000 DWT (with bow & stern thrusters) b. VLCC 120,000 to 140,000 DWT (with bow & stern thruster) c. Bulk Carrier 45,000 to 60,000 DWT (with bow & stern thruster) d. General Cargo Vessel 6,000 to 10,000 DWT (with bow thruster) 	<p>15 models</p>

- e. Car Carrier 25,000 to 30,000 DWT (with bow thruster)
- f. High Speed Catamaran (Speed: 33.5 Knots)
- g. Naval Frigate Vessel
- h. Coast Guard Cutter
- i. Cruise Liner 20,000 to 25,000 DWT (with bow & stern thruster)
- j. Ferry (RO-RO / Passenger) 4,000 to 7,000 DWT (with bow & stern thruster)
- k. Fast Craft (double engine)
- l. Tug Boat (twin screw)
- m. Supply vessel (with bow & stern thruster)

NOTE: Two ship models should be interface with the engine simulator

TARGET SHIP MODELS:

Note; Target ship could be substituted provided that DWT is 5,000 plus or minus of the specified DWT.

- a. Container Ship (five models)
 - i. 20,000 DWT
 - ii. 69,220 DWT
 - iii. 99,210 DWT
 - iv. 104,800 DWT
 - v. 133,500 DWT
- b. VLCC (two models)
 - i. 126,700 DWT
 - ii. 156,400 DWT
- c. Bulk Carrier (three models)
 - i. 46,580 DWT
 - ii. 75,000 DWT
 - iii. 171,700 DWT
- d. Car Carrier (2 models)
 - i. 21,420 DWT
 - ii. 28,210 DWT

30 models

- e. General Cargo Vessel
- f. Naval Vessel (Frigate)
- g. Coast Guard Cutter
- h. Naval Vessel (Patrol Boat)
- i. Cruise Liner (two models)
 - j. 20,000 DWT
 - iii. 34,920 DWT
- k. Ferry (two models)
 - i. RO-RO / Passenger (1,914 DWT)
 - ii. RO-RO / Passenger (5,200 DWT)
- l. Fast Craft
- m. Catamaran
- n. Fishing vessel
- o. Life boat with people
- p. Tug Boat (two models)
 - i. twin screw
 - ii. single screw
- q. Pilot Boat
- r. Sailing Boat
- s. Line Handling Boat

FLOATING OBJECT

- a. Man Overboard
- b. SART
- c. Oil Rig
- d. Buoys
 - i. Cardinal buoys (N, E, W & S)
 - ii. Isolated Danger buoy

AIRCRAFT TARGET

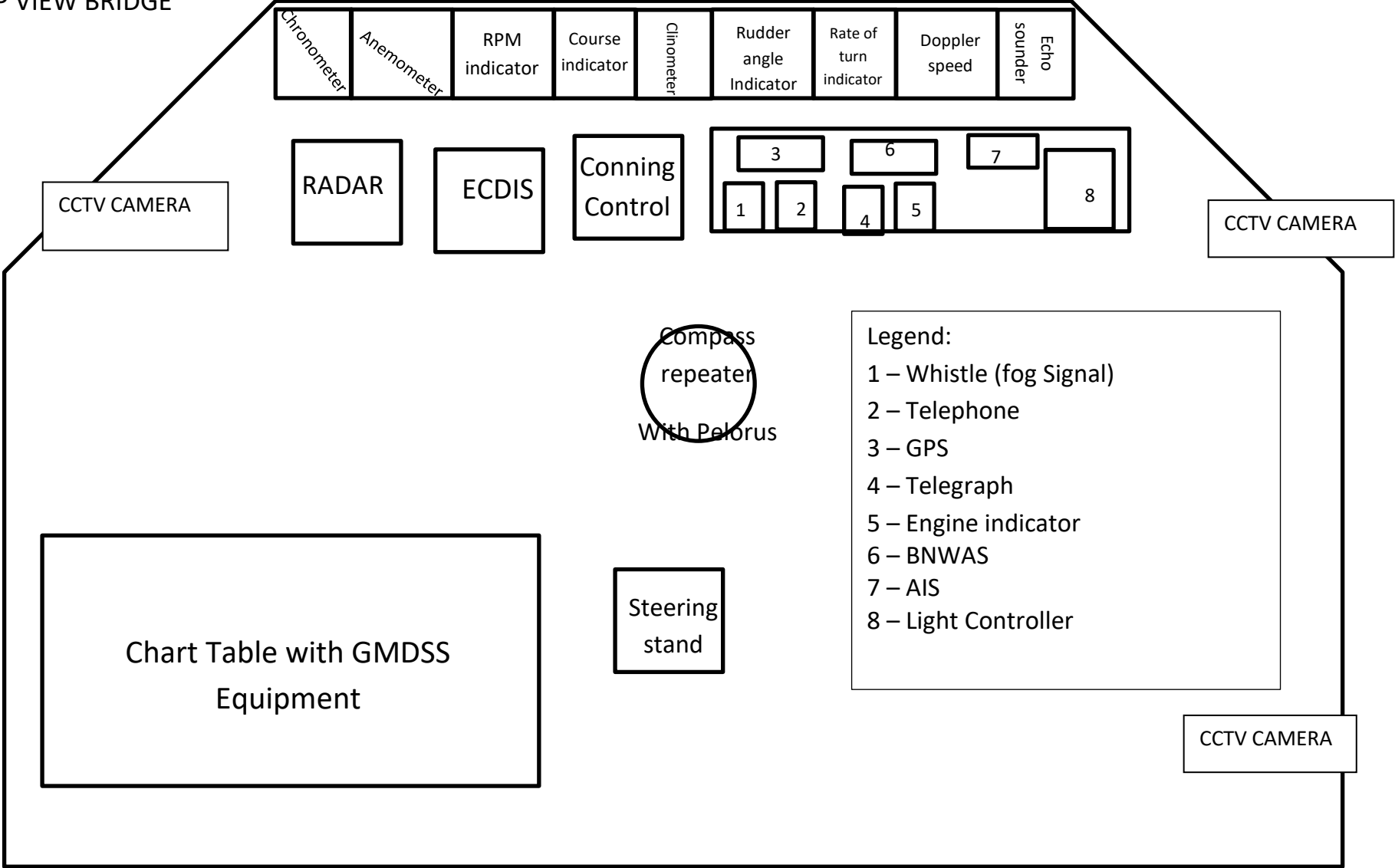
- a. Helicopter

	b. Sea Plane333	
5	<u>SERVER</u>	1 complete set
6	<u>MINI BRIDGES (5 STATIONS):</u> Computers, softwares and hardwares for a mini bridges of class “B” bridge simulator to include all bridge navigational, SAR and GMDSS equipment that conform for a CLASS “B” SIMULATOR SPECIFICATIONS to include three (3) units of 55” LED TV and chart table with drawers for each station. (NOTE: Minimum of three (3) units of 55” LED TV per station)	1 complete set
7	<u>BRIEFING / DE-BRIEFING ROOM:</u> <ol style="list-style-type: none"> 1. Computer and softwares with playback capability 2. Tables (L 6 feet, W 2 feet H 2.5 feet) 3. Chairs with wheel and rotatable 4. Executive Chair 5. Laser A4 Printer 6. LED SMART TV 65" 4K(3840x2160),Android TV ver. 5.1, Built in Wifi, Googlecast, MHL, Google Play Store, Bluetooth, Quadcore, 4 HDMI Terminals, USB x 3 (Photo, Music, Video), SD Card x 1, Audio Out x 1, CI slot x 1, Component/AV in x 1, ANT x 1, Optical out x 1, LAN x 1, RS-232C x 1 	1 complete set 13 pieces 24 pieces 2 pcs 1 unit 2 units
8	Aircon 2HP Split type (inverter) for mini bridges, Instructor Station and briefing/de-briefing room, server area	9 units
9	Aircon 3HP Split type (Inverter) for main bridge	3 units
10	Operational Training Course (for Instructor)	Included
11	Automatic Assessment Capability: a. Parameters can be adjusted by Instructor/Assessor	Included
12	CCTV System with recording and audio (monitored at the Instructor’s station) <ol style="list-style-type: none"> a. Two (3) CCTV Camera at main bridge b. Five (5) CCTV Camera (one each for mini bridge) c. Two (2) CCTV Camera for the Briefing / De-briefing room 	1 set
13	Handheld VHF Radio	4 units

14	Intercom System / Public Address Box (PABx) System with recording	10 units
15	Civil works	Included
16	Installation and commissioning	Included
17	Warranty Period: 24 months	Included

BRIDGE LAY-OUTS

TOP VIEW BRIDGE



- Chronometer
- Anemometer
- RPM indicator
- Course indicator
- Clinometer
- Rudder angle Indicator
- Rate of turn indicator
- Doppler speed
- Echo sounder

- RADAR
- ECDIS
- Conning Control

3
6
7

1
2
4
5

8

Compass
repeater
With Pelorus

Legend:
 1 – Whistle (fog Signal)
 2 – Telephone
 3 – GPS
 4 – Telegraph
 5 – Engine indicator
 6 – BNWAS
 7 – AIS
 8 – Light Controller

CCTV CAMERA

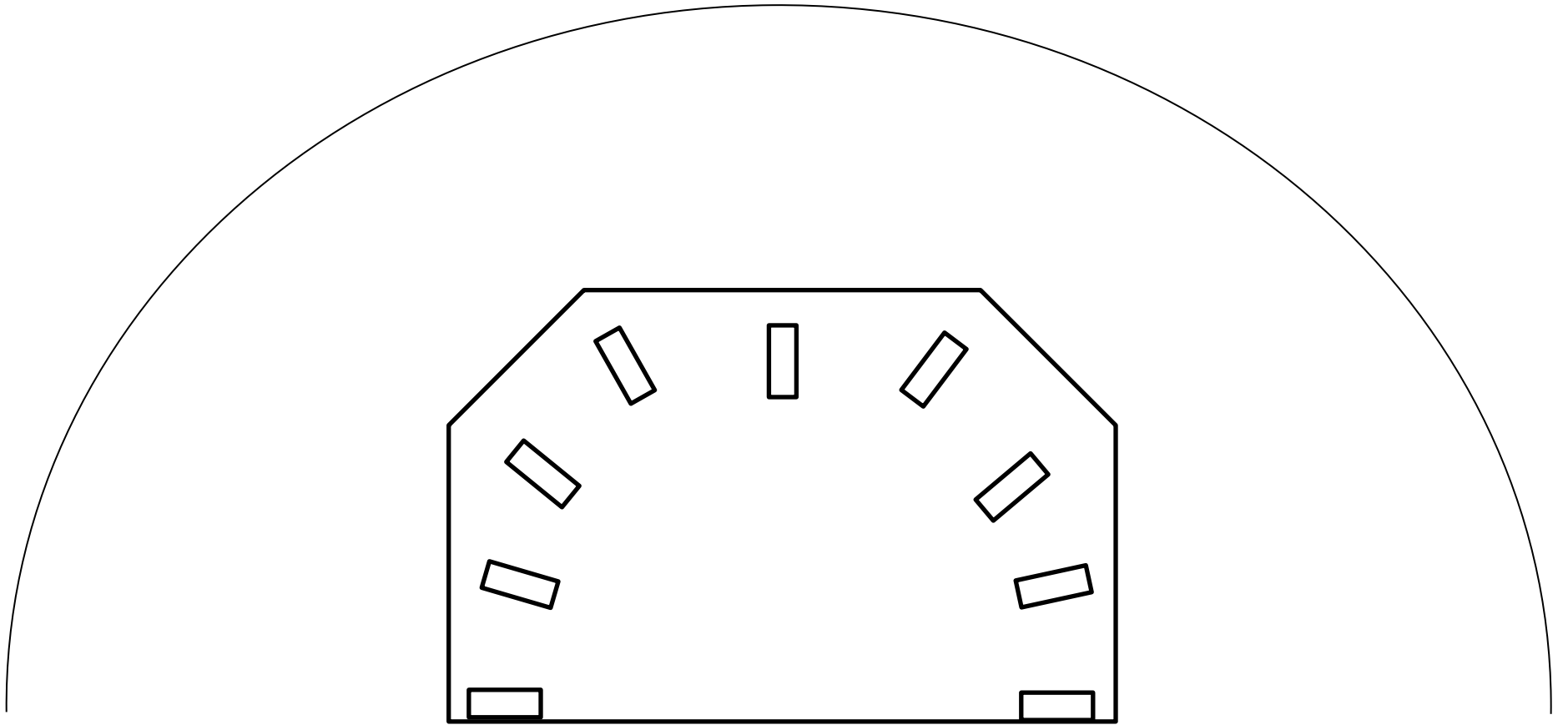
CCTV CAMERA

CCTV CAMERA

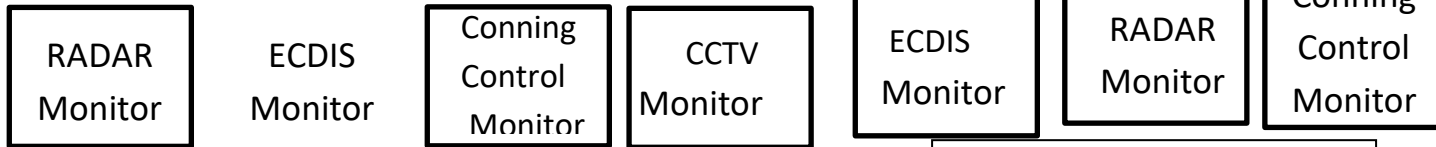
Chart Table with GMDSS
Equipment

Steering
stand

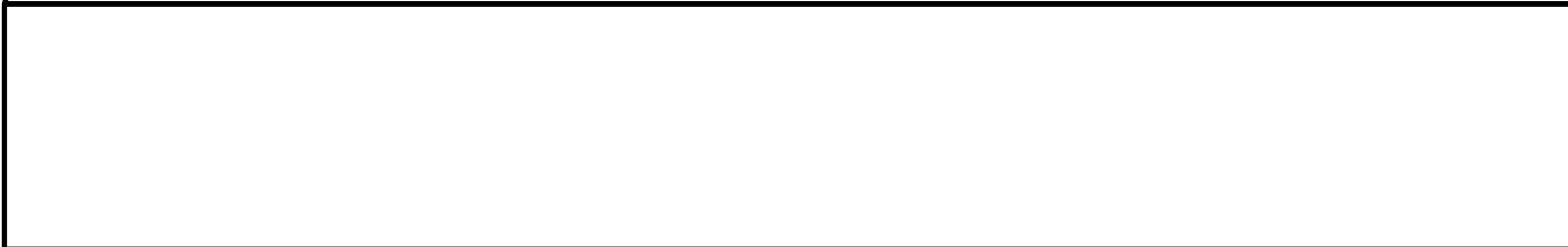
9 Projectors – 270° Seamless View



INSTRUCTOR'S STATION



MONITORING FOR MINI BRIDGE



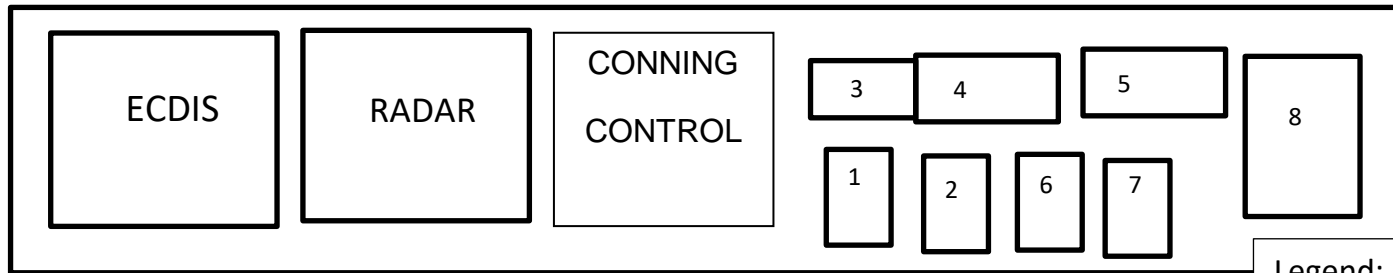
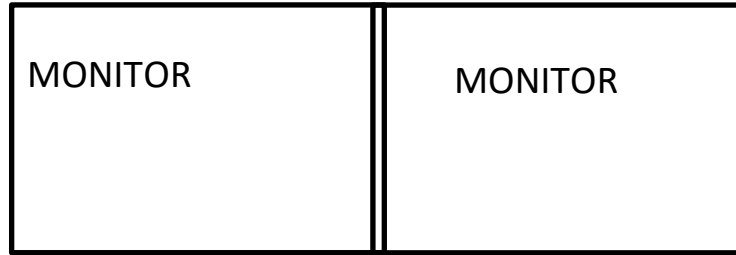
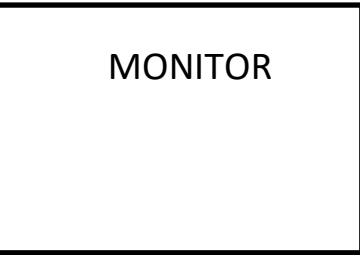
MINI BRIDGES (FIVE STATIONS)

CCTV CAMERA

MONITOR

MONITOR

MONITOR



Legend:

- 1 – Telegraph
- 2 – Engine indicator
- 3 – GPS
- 4 – BNWAS
- 5 – AIS
- 6 – Whistle (Fog Signal)
- 7 – Telephone
- 8 – Light Controller

STEERING STAND

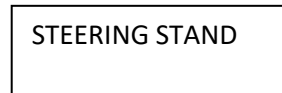


CHART TABLE

GMDSS EQUIPMENT

Sc

Works for Deck Simulator

Installation of New Software and Hardware for The Simulator.

2. Repainting of interior wall of full mission simulator room and 5 Mini-Bridges.
3. Installation of all airconditioner.
4. Repair of ceiling.
5. Replace all lighting bulbs into LED bulbs.

FULL MISSION ENGINE ROOM SIMULATOR

Technical Specification

SOFTWARE CONFIGURATION

Instructor Scope of Work Applications

Simulation Applications – 1 fixed license

ERS Models available on Instructor Station

Engine ERS MAN B&W or SULZER engine for VLCC type ship

Engine ERS MaK 8M453C Corvette or any engine Naval vessel with gas turbine engine

Full Mission Simulation Models

Engine ERS MAN B&W or SULZER engine for VLCC type ship.

Engine ERS MaK 8M453C Corvette or any engine Naval vessel with gas turbine engine.

VIRTUAL SIMULATION APPLICATIONS

Instructor Virtual Simulation Applications

Main Engine VR View

Aux Engines VR View

HFO Separator 1 and 2 VR View

LO Separator VR View

DO Separator VR View

Start Air System VR View

ASSESSMENT SYSTEM

Calculates total score

Instructor can define parameters for overall scoring

RECORDING

Auto start of recording at exercise start

Replay from any point in time

Recordings of unlimited lengths can be saved and stored for later use

Both simulation speed and replay speed can be changed in the range 0.1-10 times real time

SIMULATION MODELS

Engine ERS MAN B&W or SULZER engine for VLCC type ship

Simulated Engine Room Systems - Sea & LT/HT fresh water systems Incl. FW generator, Electrical power plant, Diesel-, shaft- generator and turbo generators, Start & service air compressors, Incl. Compressor intermediate coolers and emergency compressor, Electrical power and pump management, Battery charging system, Steam plant, Incl. D-type oil fired boiler and exhaust boiler, Diesel/heavy fuel oil systems, incl. Tanks, separators, viscosimeters, Lubricating oil systems, Incl. Separator, Stern tube systems, Propeller servo LO system, CPP bow Thruster, Steering gear/autopilot incl. Double acting IMO type steering gear and ship course control, Turbo charger systems, Main engine control system, incl. Bridge, ECR and local control, Main engine control air system, FO high pressure system, incl. VIT system, Cylinder indication diagrams, Piston ring monitoring, Main Engine Load Diagram, Main Engine bearing system, Air ventilation system, Bilge wells & bilge separator, Air conditioning plant, Sewage treatment plant, Incinerator plant, Ballast system, Refrigeration system, Ship loading system, Mooring Winches, CO2

scavenging air box fire extinguish system, Remote CO2 release, Water mist, emergency stops and quick closing valves, Fire alarm monitoring system including area detectors, Emission Control System (water emulsification & P-max-reduction/ SCR/Scrubbing), CCTV Engine Room, Auxiliary Engine Room and Funnel smoke content.

Engine ERS MaK 8M453C Corvette or any engine Naval vessel with gas turbine engine

Simulated Engine Room Systems - Fuel Oil Supply System - Fuel Oil Service Tanks, Fuel Oil Settling Tanks, Fuel Oil Transfer Systems, HFO Purifier System, DO Purifier system, LO Purifier System, Main Sea Water System, ME Power, ME Fresh Water System, ME Lubrication Oil System, ME Turbocharger System, ME Sea Water System, Gear LO System, Propeller Servo LO System, Stern Tube LO System, Ship Propulsion System, Ship gas turbine propulsion system, Ship Load, Start Air and Air Compressor, Fresh Water Generator, Bilge Wells, Bilge Separator, Refrigeration System, Electric Power Plant, Diesel Generator no. 1, Diesel Generator no. 2, Electrical Consumers, Steam Generator Plant, Exhaust Boiler, Oil Fired Boiler, PowerChief Generator Control, PowerChief Pump/Compressor Control, AutoChief Indicator Panel, AutoChief Control Panel, Bridge Control Panel, Pen Recorder.

ENGINE CONTROL ROOM EQUIPMENT

Engine Control Room Console

Pump-/ Compressors & Power Management Console – Includes – 1-Console, 1- Computer, 2 - 24” Touch screen Monitors

Alarm, Monitoring and Remote Control console – Console, Computer, Keyboard, 1 x Standard Monitor 24”, Industrial Tracker Ball

Main engine remote control & indication console – Console, Computer, 1 x Touch Monitor, 2 x Standard Monitors, 1 x Speed Set Lever

CCTV Touch Monitor – Computer, 1 x Touch Monitor, Bracket

Log Printer - A4 size, impact dot-matrix printer with endless paper, black printing

Internal Telephone System

Internal Telephone - 1 unit located at Instructor station, 1 unit located in Engine Control Room, 1 unit located in Engine Room, 1 unit located in Emergency Generator Room, 1 unit in mini engine room

Headset - 1 unit located in Engine Room

Microphone System / CCTV

Microphone/CCTV - 1 unit located in Engine Control Room, 1 unit located in Engine Room, 1 unit located in Emergency Generator Room, 1 unit in mini engine room can be heard / viewed at the instructor console.

Control Panels in Engine Control Room

Fire detection Panel - Generic Fire alarm Panel, Fire monitoring of simulated areas onboard, Release of Water mist protection

Simulated CCTV Functionality.

CCTV of selected areas in the Engine Room can monitor visual effects like blackout, fire and water mist release.

Main Switchboard

MSB Hardware

Main switchboard - 7x Consoles (5 with 1 display, 2 with 2 displays); 7x ERS computers

MSB Sound System

Loudspeakers - Installed inside the main switchboard

Main Switchboard Sounds – with Circuit breakers and Increase/decrease of frequency input

Engine Room Desktop (6) with the capability of linkage to Main Engine Room Simulator

EMERGENCY GENERATOR ROOM

EGR Hardware

Local Operating Console – Console, Computer, Keyboard, 1 x Monitor 24", Industrial Tracker Ball

Loudspeakers - Installed in the Emergency Generator Room

Control Panel in EGR

Emergency Shut off/CO2 release/Stop Panel - Emergency operating panel, Emergency stop of fuel supply to diesel generators and main engine. Emergency stop of DO, FO and LO pumps, Separate quick closing of oil tanks, CO2 release

ENGINE ROOM EQUIPMENT

BigView Software Based Operation of the Engine Room Equipment - Including: 4 x 65" Touch Monitors, Framework, 4 x Computers, 4 x Controller for operation of Walk-Through VR

3D Visual in BigView Software - The BigView consists of detailed 2D schematic operations of all engine room systems for local operations in the engine room.

Walk-through virtual engine room on bigview - Walk-Through Virtual Engine Room application, comprising an interactive virtual animation of the entire engine room.

Engine Room Sound System

Sub-woofer - Located in Engine room The sound system is able to create a sound level up to minimum 100 dB(A)

Satellite speakers - Located in Engine room (4)

Engine Room Sounds - The synthesized sound system located in the engine room reproduces the following sounds: Main engine, Turbochargers, Crank case explosion, Starting air for main engine and diesel generators, Air drain valves, Diesel generators, Air compressors, Pumps, Oil fired boiler fan and oil fired boiler burner(s)

Alarm Horn and Lamp - Lights and Electronic siren, General alarm, CO2 alarm, Fire alarm, Engine alarm, Dead man alarm, Telephone, Engine telegraph

INSTRUCTOR STATION

Instructor's Hardware

Instructor Station – Including Computer, Keyboard, Mouse, 3x Monitors 24”, Furniture is to be provided by the maker.

Color laser printer - Color LaserJet to which all Desktops are connected

Server Station

File Server - Including: Computer, Keyboard, Mouse; Monitor 24”; Network Switch - Procurve Switch; Fire Wall Router - High Speed Internet Router for remote support.

*SHALL INTERFACE TO BRIDGE SIMULATOR

The engine room generic models will be interfaced to corresponding bridge simulator model. The full mission engine room simulator can be interfaced to one bridge at the time. A PC displaying selected information from the Full Mission simulator on the connected bridge can be set up.

SOFTWARE LICENSES

Complete software license for each PC running Windows OS – to include Complete software license for each PC running Windows OS

Windows Server License – to include complete software license for fileserver

Engine System Licenses – to include Complete to run the quoted system with software license and CD-ROM back-up copy

DOCUMENTATION

SITE CERTIFICATION of a Simulator Certifying Body

2 - Instructors manual includes basic system description and instructors facilities

1- Users manual includes: Basic system description; Description and operation of the monitoring and the remote control systems; Functional description

1- Technical manual includes: assembly Documentation; room layout; Nios Test Program; 3rd Part manuals/technical description

1 - Computer and peripheral equipment includes misc. product information

NB - Manuals supplied with subcontracted equipment will be supplied in the quantities received from the manufacturer. All system manuals will be written in English

TRAINING

Basic Operator Course and Technical Course

Basic Operator Course learning objectives: Introduction to Instructor Facilities; Introduction to Engine Room Models; Practicing simulator operation; Normal engine

room operation; Fault conditions incl. evaluation of students; Plant performance analysis; Planning and preparing exercises

Technical Course learning objectives: Basic day to day maintenance; First line fault finding procedures; Basic HW repair

PROJECT MANAGEMENT

When the contract is signed, there will be an assigned project manager who will be responsible for administration and day-to-day communication with the customer up until delivery and installation of the system specified in the quotation.

QUALITY ASSURANCE AND QUALITY CONTROL

To include quality assurance and quality control

SYSTEM ACCEPTANCE TESTS (SAT)

The project manager is responsible for preparing an SAT procedure in accordance with the maker's Quality Assurance program. Following a completed installation a system acceptance test (SAT) will be conducted. A customer representative authorized to sign the SAT certificate shall be present during the entire SAT.

PACKING, FREIGHT AND INSURANCE

Packing, freight and insurance are included

INSTALLATION AND START-UP

The installation of the simulator equipment will be done by the maker's experienced installation engineers. System start-up will take place immediately after the installation and commissioning period. At the end of the start-up period a site verification of the system will take place. The installation and commissioning includes basic maintenance instructions, installation material appropriate for setting the simulator to work including plugs, cables and miscellaneous installation material.

*CIVIL WORKS / FURNITURES / APPLIANCES

These are to be supplied by the maker/supplier.

Engine room/ Engine Control Room

2Hp Inverter split type air conditioning (2 pcs)

Briefing/Debriefing Room

Students chair/table (30)
Cabinet (1)
2 hp Inverter split type air conditioning (1 pc)
55" LED TV (1)

Instructor's station

Tables (2 pcs)
Chair (4)
Cabinet (1)

Mini Engine Room

Student Chair/table (24)
Cabinet (5 pcs)
2Hp Inverter split type air conditioning (1 pc)
55" LED TV (1)

EXPENSES INCLUDED IN SALES PRICE

The sales price is inclusive of possible import duties, taxes, any withholding tax and VAT.

Time of Delivery

The equipment should be delivered 90 days after signed contract. Final delivery date to be agreed during contract negotiations.

EQUIPMENT WARRANTY

The maker/supplier shall warrant for a period of 24 months from the date of shipment

FULL MISSION ENGINE ROOM SIMULATOR SET UP

EMERGENCY GENERATOR



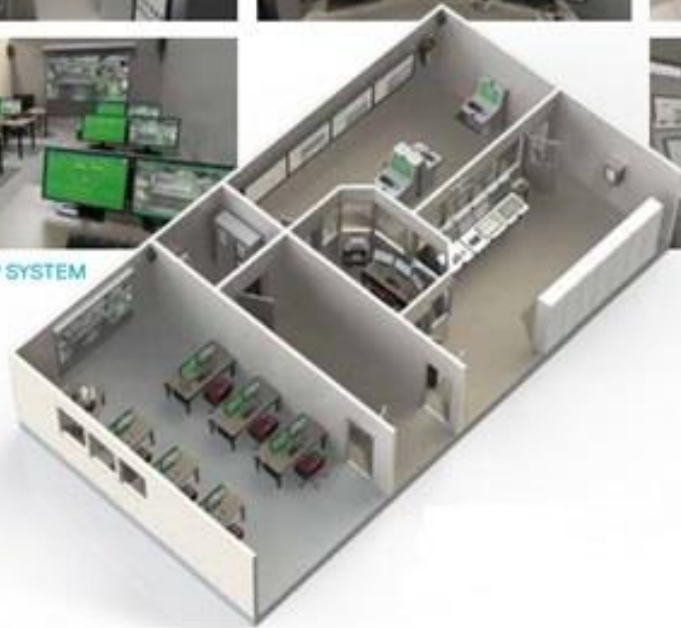
INSTRUCTOR ROOM



ENGINE ROOM



DESKTOP SYSTEM



ENGINE CONTROL ROOM

* Plus Briefing Room to Accommodate 24 students

