



Maritime Innovation & Development Centre



Our Centre

The Maritime Innovation and Development Centre (MIDC) at Singapore Maritime Academy (SMA) is an 'Industry-Singapore Polytechnic' collaborative effort. The I & D facility aims to provide IT-related services to Maritime Industries. Our major thrust is in the development of multimedia electronic performance support systems, computer-based training programs, and web-based training and assessment programs.

Our Vision

To bring innovative software into the industry as well as SMA classrooms.

Our Expertise

Computer-based Training Software

Web-based Training Software

Electronics Performance Support System

Knowledge-based System

Customised Software Development

Mobile Application and e-Book Development

Other Multimedia Services

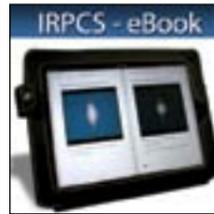
DECK OFFICER'S TRAINING SOFTWARE

ENGINEERING OFFICER'S TRAINING SOFTWARE



Supply Chain Management (eBook)
This interactive eBook explains how supply chain management and distribution channels play an integral role in a firm's marketing strategy.

e Ex 2D A



IRPCS (eBook)
Users get to learn the International Regulations for the Prevention of Collisions at Sea (IRPCS) in a more convenient and effective manner.

e Ex 2D A



Gyro Compass
This program helps the users to understand the abstract concept of the principle and construction of the gyro compass, motion of heavenly bodies and the common gyro errors.

C W 2D A



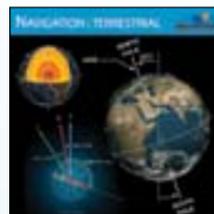
Bunkering
Focus on the fuel oil system piping & pumping arrangement employed on board merchant ships. It also includes the measurement & calculation of oil cargo quantity in the cargo tanks.

C W Ex 2D A



Deck Log Book
Explains the purpose of the deck log book and provides support to new watchkeeping and duty officers in updating the log book during their watch.

C W 2D A



Navigation : Terrestrial
Explains the concept of chart projections and direction finding. It also demonstrates the fundamentals of ship's positioning on the earth's surface.

C W Ex 2D A



Ship Handling
A comprehensive study of ship manoeuvres, propulsion, interaction, effect of wind, current and tugs on berthing & unberthing. A program for all levels of navigation staff.

C W Ex 2D 3D A



Navigation : Celestial
Guides the users through the concepts & understanding of the celestial sphere. Provides the knowledge & practice in the use of celestial bodies for navigating at sea.

C W Ex 2D A



Care & Handling of Lifeboat
Familiarises with various lifeboats, their equipment, inspections and operations. It includes lifeboat drills.

C W Ex 2D A V



Storm Navigation
Storm navigation highlights the basic principles to be followed when navigating in or near a Tropical Revolving Storm.

C W Em Ex 2D A



Magnetism : The Ships Compass
With the help of graphics and animations this program demonstrates abstract concepts on magnetism & the principles related to the correction of the ships compass.

C W Ex 2D A



Ship Stability : Bilging
Teaches the concept of intact stability when water enters a vessel in the event of an accident. It elaborately teaches the derivation of Trim & List with reference to box shaped and ship shaped vessels.

C W Ex 2D 3D A



PPCDL
This program is an animated training aid to assist users to prepare for the powered pleasure craft driving licence. Tutorials and boating tips are included.

C W Ex 2D A



Ship Stability : Draught Survey
This program aims to train the user on how to effectively conduct Draught Survey and assists the surveyor with a Draught Survey Generator program.

C W Ex 2D 3D A



Engine Log Book
Explains the purpose of the engine log book and provides support to new watchkeeping and duty engineers in updating the log book during their watch.

C W 2D A



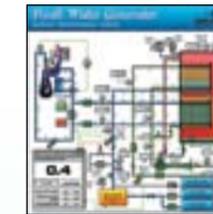
15 PPM Bilge Separator
Explains the working of a bilge separator which includes gravity separation and coalescer.

C W Ex 2D



Starting Air System
Explains the manoeuvring of SMC engine, from remote and local control. It also includes a section on maintenance and troubleshooting.

C W Em Ex 2D A



Fresh Water Generator
Explains the working principle of a fresh water generator. It includes a simulator that allows a user to start and optimise production of fresh water.

C W Em Ex 2D A



Hydrophore System
Explains the operation of a fresh water hydrophore system on board a vessel. An exercise is available to start up a hydrophore system after and overall.

C W Em Ex 2D



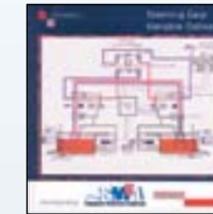
Steam Turbine
A comprehensive learning tool to understand the factors affecting a Steam Turbine Plant's efficiency and methods used to optimise it.

C W Em Ex 2D A



High Pressure CO₂ System
Familiarises with fixed high pressure CO₂ installation. Explains the release of CO₂ in case of fire in an engine room. It also includes a section on maintenance, and case studies.

C W Em Ex 2D A



Steering Gear
Available in 3 types (i) 4 ram with variable delivery pump (ii) 4 ram with fixed delivery pump (iii) Rotary vane steering gear. All explain the hydraulic circuit & single failure fault simulation.

C W Em Ex 2D



Centrifugal Oil Purifier
Familiarises with the principle, operation, maintenance and troubleshooting of a Mitsubishi centrifugal purifier.

C W Em 2D 3D A



Turbocharger for Marine Engineers
Explains the working of a turbocharger, its maintenance, evaluation of its performance and an emergency operation if the turbocharger is damaged.

C W Ex 2D A



Biological Sewage Treatment Plant
Explains the operation, maintenance and safety aspect of a sewage treatment plant.

C W Em Ex 2D



Stern Tube
Ship's propeller is the only protrusion on the hull with a rotational shaft. This e-learning program provides an insight into the construction of the stern tube and how it prevents seawater ingress into the ship.

C W Ex 2D 3D A V

Other projects : Liquid Ring Vacuum Pump, MAN B&W SAC Type Valve, Fuel Injection Pump and Gear Pump

For the latest innovation and development projects, please visit our website at www.sma.sp.edu.sg

INDUSTRY TRAINING SOFTWARE



MANTRA
Electronic Training & Record Book
MANTRA for A.P.Moller is an electronic solution to track the training of Deck and Engine Cadets by the shipping companies.

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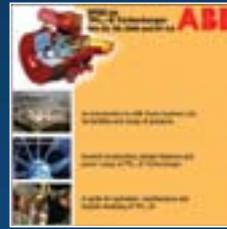


ABB Turbocharger : TPL..-B
This is a performance support tool operation and maintenance of TPL..-B turbochargers.

C 2D 3D A V



Ship Staff Assessment System
Developed for assessing ship staff, and identifying the knowledge gaps and training needs.

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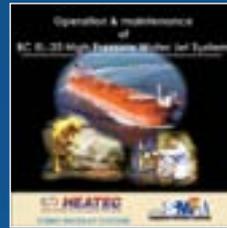
Bunker Quality Survey
This interactive CBT enhances the competency of a DNVPS bunker.

C Ex 2D 3D A V



HIV/AIDS Be Safe Not Sorry
This CBT on HIV/AIDS awareness for merchant navy officers was produced for UNESCAP.

C Ex 2D A V



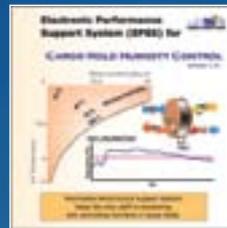
Operation and Maintenance of High Pressure Water Jet System
This EPSS produced for Heatec (Asia Pacific) Pte Ltd coaches in the operation and maintenance of the BC EL-20 high pressure water jet system.

C 2D A V



Air Compressor
A comprehensive performance support system for operation and maintenance of air compressor and its electrical control system.

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Cargo Hold Humidity Control
A software developed to help ship staff in controlling humidity in cargo hold to prevent moisture damage.

C W Em Ex 2D A V



Maritime Environmental Awareness
This program highlights the current environmental issues and initiatives undertaken so as to raise the standard of awareness.

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Partners and Clients

Maritime and Port Authority of Singapore
Joint United Nations Programme on HIV/AIDS
Neptune Ship Management Services Pte Ltd
A.P. Moller Singapore Pte Ltd | Det Norske Veritas
DNV Petroleum Services Pte Ltd | MasterBulk Pte Ltd
Heatec (Asia Pacific) Pte Ltd

MARITIME INNOVATION & DEVELOPMENT CENTRE

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