

## **NAEST(M) training Course Structure and Session Objectives**

### **Day 1**

0830-0930 **Introduction and enrolment**

0930-1330 **Effective Bridge Procedures & Rule of the Road**

Lecturer will go through the PowerPoint on Rule of the Road and Rule 19 in detail. Lecturer will go through the application and revise collision avoidance studied and practiced at the operational level. The importance of effective bridge management and demonstrate the need of the inter-relationship and the optimum use of all data available for conducting safe navigation. Effective use of bridge checklists and Bridge procedures guide will be demonstrated.

After the session, the candidates will understand the application of the International Regulation for the Prevention of Collision at sea, application of navigational and collision avoidance techniques, to make and implement command decisions for collision avoidance and for directing the safe navigation of ships. Each candidate will be aware of the value of effective bridge procedures and make the best use of the resources of the bridge team and equipment.

1400-1700 **Radar & ARPA – Radar Plotting**

Lecturer will go through the PowerPoint on functions, limitations, interpretation, analysis and safe application of information obtained from Radar & ARPA. Instructor to explain the use of radar plotting sheets with aids to collision avoidance. Each candidate will practice on individual plotting sheets.

After the session, the candidate will have the knowledge of interpreting and analyzing information obtained from Radar & ARPA, taking into account the limitations of the equipment and prevailing circumstances and conditions. Decisions to amend course and /or speed are both timely with use of plotting sheets and to avoid over-reliance on ARPA. To maintain safe navigation through the use of information from radar and ARPA to assist command decision making.

## Day 2

### 0930-1330 ECDIS & Passage Planning

Lecturer will go through the PowerPoint on Purpose and structure of ECDIS. Instructor to explain the function of route planning and monitoring, will go through NP 231 and apply the knowledge, explain the function of ARPA and Radar overlay

After the session, the candidates will understand Purpose of ECDIS, its Value to navigation, its Correct & incorrect use, how to quickly locate Vessel position, identify Position source, do Basic navigation, understand the representation of Heading & drift vectors, acknowledging alarms. System and position alarms, depth and contour alarms. Passage planning on ECDIS (Appraisal, Planning, Execution and monitoring)

After the session, the candidate will have the knowledge of Sensors, Ports & data feeds, Chart selection, Chart information, changing the settings, Chart scaling, Information layers, chart symbols using NP 5012, NP231, understanding of how ECDIS uses vessel maneuvering characteristics. They will be able to understand how to do route planning by table, Route planning by chart, Track limits, Check plan for safety., understanding echo referencing, target list, ARPA overlay, and radar overlay. They will also be able to control radar through the ECDIS. understanding SAR menu. Be able to generate search patterns and use it to navigate and use of ECDIS to assist command decision making.

### 1400-1700 Electronic Navigation

Lecturer will go through the PowerPoint on various navigational equipment and explain the limitations and dangers involved with misuse of equipment.

After the session, the candidate will have knowledge of limitations and advance of use electronic navigation systems including GPS, DGPS, AIS, Integrated bridge system and maintain safety of navigation. And to make efficient use of navigational information to aid the safe navigation of their vessels and fully appreciate the dangers involved with misuse of electronic navigation system. Use of selection of data appropriate to the prevailing circumstances.

## Day 3

### 0830-1000 Simulator Induction Exercise

Instructor to explain and update the knowledge of all individual electronic navigational equipment available in each of the advance navigation equipment simulators.

After the session, the candidate will have the understanding and update knowledge of all electronic aids. Adequate familiarization on the simulator and with its equipment.

### 1000-1330 Simulator Exercise Open Sea -Day time

Candidates will navigate in open sea at day time which includes all categories of realistic encounters which may call for alterations in own ship and /or speed.

After the session, the candidate will have the knowledge of the use of radar and ARPA for collision avoidance. Plotting and interpretation abilities to increase the appreciation of plotting limitations and errors including those associated with use of ARPA system navigation.

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed.

### 1400-1700 Simulator Exercise Open Sea -Night time

Candidates will navigate in open sea at night time which includes all categories of realistic encounters which may call for alterations in own ship and /or speed.

After the session, the candidate will have the knowledge to recognise, where the action is necessary, the need for generally making substantial alterations of course and or speed at an early stage in the encounter, the use of radar and ARPA for collision avoidance.

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed.

## Day 4

### 1000-1330 Simulator Exercise -TSS & Heavy weather

Candidates will be involved in multi-ship encounters when approaching a coastline and other navigational hazard from open waters. Later the candidate will involve in heavy weather scenario which includes all categories of realistic encounters which may call for alterations in own ship and /or speed.

After the session, the candidate will have the knowledge of collision avoidance manoeuvres involving single and multi -ship encounters. To work as a part of bridge team when navigating in heavy weather, use of radar and ARPA for collision avoidance. The occasional malfunctions of equipment used in navigation and collision avoidance, including alarm management. Production and execution of passage plan through an area containing focal points for traffic and traffic separation zones.

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed.

### 1400-1700 Simulator Exercise -Anchoring

Candidates will approach for anchoring their respective ship, and prepare the ship for anchoring in VTS allotted area at night time which includes all categories of all realistic encounters which may call for alterations in own ship and /or speed.

After the session, the candidate will have the knowledge to prepare the ship for anchoring, anchoring procedures, production, and execution of navigation plan, collision avoidance manoeuvres, effect on the ship while anchoring, track keeping of tidal streams, current, and the wind.

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed.

## Day 5

### 0830-1000 Simulator Exercise-Coastal waters -Day time

Candidates will navigate in coastal waters at day time which includes all categories of realistic encounters which may call for alterations in own ship and /or speed.

After the session, the candidate will have the knowledge to work as a part of bridge team when making landfall and navigating in coastal waters, ascertain position of own ship and to monitor its progress into coastal water, ability to monitor the ship's track in coastal water and maintain an effective radar watch, use of parallel index techniques and the use of ECDIS

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed.

### 1000-1330 Simulator Exercise-Coastal waters -Night time

Candidates will navigate in coastal waters at night time which includes all categories of realistic encounters which may call for alterations in own ship and /or speed.

After the session, the candidate will have the knowledge to work as a part of bridge team when making landfall and navigating in coastal waters at night time, ascertain position of own ship and to monitor its progress into coastal water, ability to monitor the ship's track in coastal water and maintain an effective radar watch at night time, use of parallel index techniques and the effect of backscatter of her own lights affecting navigation.

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed. Determine position and the accuracy of resultant position fix by terrestrial observations and using modern navigational aids.

1400-1700 **Simulator Exercise-Approach to break water & Pilotage-Night time.**

Candidates will approach breakwaters and make arrangements to embark pilot at safe water buoy at night time which includes all categories of realistic encounters which may call for alterations in own ship and /or speed.

After the session, the candidate will have the knowledge of production and execution of a detailed passage plan which includes confined waters passage and the approach to pilot station, to work as a part of bridge team when making approaches to break water and navigating in coastal waters at night time, ascertain position of own ship and to monitor its progress into coastal water, ability to monitor the ship's track in coastal water and maintain an effective radar watch at night time, use of parallel index techniques and the effect of backscatter of own lights affecting navigation. Master-Pilot info exchange, Pilot card amendments, interpreting of ground and sea stabilized radar displays.

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed.

## Day 6

### 0830-1330 Simulator Exercise -Distress Search and Rescue

Candidates will be involved in a Distress search and rescue operation while continuing practice in collision avoidance and navigational techniques and procedures. This exercise reflects the implications of GMDSS and the additional facilities incorporated on modern navigation aids to assist the SAR operation. Casualty will be realistically controlled by the instructor.

After the session, the candidate will have the knowledge of techniques emphasizing the need for the search to be coordinated and planned to carry out a rescue in the minimum time using to maximum effect the resource available, apply the principle of effective bridge management procedures. To make an effective and explicit communication including the keeping of a full GMDSS log. Coordination and planning of the search and rescue, including the use of IAMSAR manual. Use of EPIRB and SART

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed.

### 1400-1700 Simulator Exercise -MOB -Search and Rescue

Candidates will be involved in a MOB search and rescue operation while continuing practice in collision avoidance and navigational techniques and procedures. This exercise reflects the implications of GMDSS and the additional facilities incorporated on modern navigation aids to assist the SAR operation.

After the session, the candidate will have the knowledge for the need for casualty to assist location by others, navigation and anti-collision consideration, techniques emphasizing the need for the search to be coordinated and planned to carry out a rescue in the minimum time using to maximum effect the resource available, apply the principle of effective bridge management procedures. Coordination and planning of the search and rescue, including the use of IAMSAR manual. Manoeuvre to pick up survivors.

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed.

## Day 7

### 0830-1330 Simulator Exercise -Restricted visibility

Candidates will navigate in coastal waters encountering restricted visibility which includes all categories of realistic encounters which may call for alterations in own ship and /or speed. Exercise will involve passage through areas of navigational restrictions.

After the session, the candidate will have the knowledge of collision avoidance manoeuvres involving multi -ship encounters. To work as a part of bridge team when navigating in restricted visibility, use of radar and ARPA for collision avoidance. Plotting and interpretation abilities to increase the appreciation of plotting limitations and errors including those associated with the use of ARPA system navigation.

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed.

### 1400-1700 Simulator Exercise -Confined waters with heavy traffic

Candidates will navigate in confined waters which includes all categories of realistic encounters which may call for alterations in own ship and /or speed. Exercise will involve approaches to and passage through areas of heavy traffic with navigational restrictions.

After the session, the candidate will have the knowledge of production and execution of detailed passage plan of voyage includes a confined water passage, plan to show all relevant details including margins of safety, clearing lines, include pre-arrival and departures briefing to enhance bridge teamwork.

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases. Relevant case studies will be discussed.

## Day 8

### 0830-1200 Simulator Exercise – Ship handling

This exercise will stretch the ability of individuals and teams to the realistic maximum.

After the session, the candidate will have the knowledge of handling ship with and without the assistance of tugs, short turn around, snub around, running moor, standing moor, open moor. Arrival and departure and a from the berth with and without tug assistance. Interaction with other ships, bank effect and squat affecting the ship's maneuvering characteristics. Manoeuvre and handle a ship in all conditions.

Instructor to debrief all candidates and demonstrate highlighting those situations which have occurred in the actual cases.

### 1200-1330 Exam and Issue of Certificate