

Author	Hinno, Tanel
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Section	QUALITY MANUAL
Sub Sect	ÕPPEKAVAD
Title	ÕK-1271 ECDIS tüübispetsiifiline koolitus

Õppeainete loend, maht ja ainekava

Käesolev koolitus viiakse läbi STCW Konventsiooni Reegel I/14 paragrahv 1.5, ISM Koodeksi paragrahv 6.3 ja 6.5, ning STCW.7/Circ.18 (22 mai 2012) alusel.

Käesolev õppekava on töötatud loodud vahitüürimeste jätkukoolituseks lisaks IMO mudelkursusele 1.27 vastava koolituse läbimisele. Koolitus keskendub Maris ECDIS900; Consilium ECDIS; Kelvin Hughes MantaDigital ECDIS; JRC ECDIS; Transas ECDIS, FURUNO ECDIS ja Adveto ECDIS tüübispetsiifiline koolitusele. Koolitus tagab vajalikud teadmised ja oskused loetletud ECDIS seadmete kasutuseks efektiivsel ja ohutul kombel.

Adveto ECDIS ja Transas ECDIS tüübispetsiifiliseks koolituseks on kasutusel täisfunktsionaalsed Adveto ECDIS ja Transas ECDIS tarkvara mis on integreeritud täisfunktsionaalse navigatsioonisilla simulaatoriga. Kelvin Hughes MantaDigital ECDIS koolituseks on kasutusel eraldiseisev MantaDigital ECDIS treeninginstallatsioon ja online koolitusmoodulid. Maris ECDIS900; Consilium ECDIS ja JRC ECDIS koolituseks on kasutusel online koolitusmoodulid. FURUNO ECDIS koolituseks on kasutusel CBT koolitusmoodul.

Õpe toimub inglise keeles. Terminoloogia selguse huvides on õppekava inglise keelne.

Subject	Simulator or online training as applicable
Maris ECDIS900; Consilium ECDIS; Adveto ECDIS; Transas ECDIS	
ECDIS system description	
<i>Monitoring station</i>	
<i>Planning station</i>	
<i>Additional Planning station</i>	
<i>Radar ARPA station</i>	
<i>Inputs: GPS; GYRO; ARPA; AIS; NAVTEX; RPM, Rudder, Torque, Fuel.</i>	
<i>Ship communication and sitcom systems input.</i>	
<i>Backup System</i>	

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<p><i>Master station & Slave station</i></p> <p><i>Switching from planning station to monitoring (Slave) station</i></p> <p><i>Common reference point</i></p> <p><i>Share and synchronization of data between stations</i></p> <p><i>Sharing of radar data between stations</i></p> <p><i>Connection of non – supplier radar, PC radar connection kit</i></p> <p><i>Navigational warnings</i></p> <p><i>Time, alarm levels and common settings</i></p> <p><i>Prevention of operator to switch to operational system</i></p> <p><i>Application manager, content</i></p> <p><i>Reboot and shutdown</i></p> <p><i>Shortcuts to applications</i></p>	
<p>Basic functions</p>	
<p><i>Basic functions and activation of those</i></p> <p><i>Help (Glossary) menu</i></p> <p><i>Hotkeys (Function keys)</i></p> <p><i>Main key functions</i></p> <p><i>Console are function section and buttons</i></p> <p><i>Time indicator</i></p> <p><i>Scale indicator</i></p> <p><i>Wind indicator</i></p> <p><i>Depth indicator</i></p> <p><i>Alarm indicator</i></p> <p><i>Legend panel</i></p> <p><i>Editing panel</i></p> <p><i>Configuration of the content panel</i></p> <p><i>Predefinition of configurations and layout</i></p> <p><i>Hide and show console</i></p> <p><i>Navigation control toolbar</i></p>	

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Terminology (Cursor, cursor functions, drag and drop, cursor controlled functions)

Chart types and functionalities (vector and raster charts, scrolling, selection of information, chart scale.

Brightness control

Color switch

Plotting of ships icon

Sensor data and sharing, set and verification

Observing the ships position on the chart

Position sensor input failure

Centering ship on the screen area

Measuring range and bearing

Own ship symbol, scaling, vectors

Printing screen image

Route plotting basic functions

Working with route planning with three different methods

Route editing by keyboard, cursor

Transferring routes from paper format, things to remember

Route importing

Multi route function

Waypoint repositioning

Inserting waypoints, adjusting the position, adding extra waypoints

Route plotting advanced functions

ENC usage according to ships characteristics

Alarm settings

Loading of stored routes

Viewing the route plan

Route plan main elements, waypoint data

Editing of route plan data

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User data file

Editing of user data file

Linking user data file to the route file

User data file, editing user data

Parallel indexing

No-go area

Adding information point to the user data file layer, adding information to the point

Ships default turn radius and speed

WOP (Wheel over point) functions

XTE (cross track error) and other alarms

Switching off route alarms

Activation of the route, check for dangers and warnings

Route status check, anti-collision and grounding alarms.

Key settings for the anti-grounding

Line crossing warnings

Alternative routes, creating and activating

Route approval and locking

Filing of voyage plans and routes

Route monitoring

How to solve System freezing

ARPA data connection to the ECDIS

AIS data connection to the ECDIS

Using data for the collision avoidance

Sending messages through the AIS receiver & ECDIS (AIS ECDIS messaging function)

Safety zones

Track, Own ship and Target data recording function

Scheduling calculations

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Adding bearing and distance manually

Reading the radar cursor on the ECDIS

Adding multiple manual bearings

Chart display and management

Permits (digital keys)

Chart handling menu

Installing and Adding ENC charts, installing large number of charts

Installing and Adding ARCS charts, installing large number of charts

Installing chart corrections by CD

Installing chart and corrections in internet

Night and day colors and backlight adjustments

ENC charts – anti grounding capability

SOLAS Ch. V requirements of publication requirements, update of publications

Purchase, download and Update of charts and publications via the internet (MDS)

Chart data display modes

Chart update history

Update of S57 data through the manual Update

ECDIS logbook

Ships position

Ships heading

Ships speed

Status of main alarms as waypoint, XTE, grounding, CPA and position offset

Ships name, call sign, dimensions, position of GPS and shape

Type and scale of chart in use

Chart description as name, edition number, update number and date of update

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<p><i>Position on the screen</i></p> <p><i>Chart display parameters as layers, type of presentation, projection and safety parameters (alarm limits)</i></p> <p><i>Navigation Editor objects</i></p> <p><i>ARPA and AIS targets (ID, position, vector and alarm status) Within 5 nm circle (distance is optional)</i></p> <p><i>Route (a full route is saved)</i></p> <p><i>Route activation - deactivation</i></p> <p><i>Waypoint activation</i></p> <p><i>Manual event</i></p> <p><i>Alarm events - activated and acknowledged</i></p> <p><i>Target events - new target, lost target</i></p> <p><i>Configuring and adjustment of ECDIS logbook</i></p> <p><i>Replay of logbook, differences in replay with or without logbook data</i></p> <p><i>Storing of logbook data</i></p>	
<p style="text-align: center;"><i>ECDIS advanced functions</i></p> <p><i>NAVTEX messages</i></p> <p><i>Plotting of NAVTEX messages in charts</i></p> <p><i>Radar overlay function</i></p> <p><i>Radar overlay adjustment</i></p> <p><i>Voyage plan presentation formats</i></p> <p><i>Route format conversions</i></p> <p><i>Route plan templates</i></p> <p><i>Voyage optimization module. Currents.</i></p> <p><i>MDS, digital forecasts installation and ordering</i></p>	
Assessment	
Total	4 hours per type

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Subject	Simulator or online training as applicable
<i>Kelvin Hughes Manta Digital</i>	
<p style="text-align: center;"><i>MantaDigital hardware</i></p> <p><i>Identify the hardware parts of a Kelvin Hughes MantaDigital system</i></p> <p><i>Recognize a typical setup on a vessel</i></p> <p><i>State the functionality of the display panel buttons</i></p> <p><i>The MantaDigital is a platform for ECDIS, radar, chart radar and conning display.</i></p> <p><i>The MantaDigital can be fitted with various types of hardware keyboard.</i></p> <p><i>An on-screen keyboard is available if no hardware keyboard is fitted.</i></p> <p><i>A typical set up has the MantaDigital fed with information from navigational information devices.</i></p> <p><i>Optional features can be purchased and released using a four digit code.</i></p>	
<p style="text-align: center;"><i>Switching on - items on the Standby screen</i></p> <p><i>How to switch on and set up a MantaDigital device</i></p> <p><i>How to power down the ECDIS</i></p> <p><i>Features found on the standby screen</i></p> <p><i>How to select the ECDIS program</i></p> <p><i>Features in the alarm list</i></p> <p><i>Switch on using live power buttons on the processor and screen.</i></p> <p><i>When the computer has finished booting up the standby screen is displayed.</i></p> <p><i>Items are selected from drop down menus using ticks alongside them</i></p> <p><i>The setup utility allows settings to be changed but is password protected</i></p> <p><i>Information sensors can be selected with the ECDIS running</i></p>	

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There is no sensor filtering applied by the MantaDigital computer

The alarm list is accessed and configured from the standby screen

Menu system and information layers

Functions and areas on the menu panel Identify menu icons

How to select Information on the displayed chart

How to select information on charted objects

Where to see alarm information

Menus are accessed using the icons on the menu panel.

The menu panel is divided with information displayed relevant to the selected icon.

The 'select' function allows Information on the chart to be seen.

The 'select' function allows information on charted objects to be seen.

The bottom area on the menu panel shows ECDIS alarms.

Display manipulation

How to adjust numerical and other values

How to move the displayed chart

How to change chart scale

How to change from simplified to traditional chart symbols

How to change the chart mode

The method of returning the ship symbol to the screen

How depth shades are varied

Parameters are adjusted with sliders or numeric values using the tracker ball.

Move around the chart using the cursor to set centre.

Chart scales are changed from the menu panel manually or automatically by the ECDIS.

Return the ship symbol to the screen by pressing the own-ship button.

Use the chart settings menu to change the type of symbol displayed.

Use the chart settings menu to change the number of depth shades.

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Menu panel functions for monitoring

How to compare position sensor information

How to set a position offset

How to load a stored route

The information available from the 'man overboard' function

Clicking on the 'nav data' icon gives information relevant to the vessel's status.

A small letter 'd' alongside the position indicates that a differential GPS signal is being received.

A comparison of two navigation sensors reveals the difference in sensor two's position compared to sensor one.

Stored routes are opened from the menu after the 'route' icon is clicked.

The man overboard function is activated from the menu panel and shows a water track position.

Tools to assist the navigator

How to zoom the displayed chart

How to activate radar overlay

How to display notes and events

How to add a 'mariners note'

How to switch on the E8L and VRM

How to create user maps and lines

The chart can be zoomed using the 'select area' function.

Radar overlay is switched on or off in the window opened using the 'radar' icon.

Text for mariners notes and events must be switched on to be seen on the chart display.

Mariners notes are added using the 'general' tab in the ECDIS menu.

EBL and VRM controls are located on the menu panel, the second EBL

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shows with a green color.

User map includes areas, lines and text and is created from the menu accessed from the map icon.

Route planning

How to set route parameters

How to enter a route

How to make entries to a route plan table

How to save and safety check a new route

How to manipulate waypoints

Route parameters are changed in the 'route table'.

New routes are saved using the route menu.

Waypoints can be added or deleted using the cursor or table.

Routes need to be safety checked and are automatically limit checked.

A compound route allows common changes to a route to be saved to more than one route.

Waypoints can be manipulated in ECDIS mode whilst a route is being monitored.

Critical route points will cause an operator alarm.

Monitoring

Where to get route monitor information

The importance of having the safety outline correctly set for the 'look ahead zone'

The use of the predictive function and the curved heading line

How to apply a manual position fix

The information obtained from docking and conning mode

Identify that loaded routes can be alternative and modified in ECDIS mode

Route monitor information is seen on the menu panel.

For danger detection to be effective, the safety depth contour value and

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<p><i>safety depth value should be set correctly.</i></p> <p><i>The safety outline 'Took ahead zone' provides danger detection when set correctly.</i></p> <p><i>The safety outline</i></p> <p><i>Look ahead zone is linked to the predictive vector.</i></p> <p><i>The curved heading line can be a useful monitoring tool.</i></p> <p><i>Any type of manual fixes can be entered.</i></p> <p><i>Docking and conning mode gives relevant information for maneuvering.</i></p> <p><i>Alternative routes can be displayed and monitored.</i></p>	
<p style="text-align: center;">Targets on the ECDIS</p> <p><i>The possible number of AIS targets monitored</i></p> <p><i>How to set limits for AIS target alarms</i></p> <p><i>How the MantaDigital ECDIS handles dangerous AIS targets</i></p> <p><i>How to associate radar and AIS targets</i></p> <p><i>There can be up to 500 AIS targets monitored.</i></p> <p><i>AIS targets need to be switched on in the target menu to see them.</i></p> <p><i>Limits are set for CPA and TCPA for AIS target alarms.</i></p> <p><i>Dangerous AIS targets flash until acknowledged and are then left in a red color.</i></p> <p><i>Radar and AIS targets can be fused together using the 'associate' function.</i></p>	
<p style="text-align: center;">How to install and update charts</p> <p><i>The use of the e-token</i></p> <p><i>Features on the 'Chart Maintenance' tab</i></p> <p><i>How to check for the Installed IHO key</i></p> <p><i>How to display chart information</i></p> <p><i>How to install chart permits and cells</i></p> <p><i>How to check and install chart updates</i></p> <p><i>The e-token must be left in place to achieve functionality.</i></p>	

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<p><i>The 'Chart Maintenance' tab gives access to manipulate files associated with chart cells.</i></p> <p><i>The IHO key can be checked using the "Chart License' tab.</i></p> <p><i>A green border on a chart shows it is loaded with a permit.</i></p> <p><i>A blue border indicates both chart and permit are available on external media.</i></p> <p><i>A red border on a chart shows that there is no permit available for it on external media.</i></p> <p><i>Chart permits and cells are installed from external media In "Chart Maintenance'.</i></p> <p><i>Chart updates are checked and installed from external media In "Chart Maintenance'.</i></p>	
Track control	
<i>Track control function description</i>	
Assessment	
Total	4 hours

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<i>Subject</i>	<i>Simulator or online training as applicable</i>
JRC ECDIS	
JRC ECDIS hardware	
<p><i>Introduction</i></p> <p><i>General overview</i></p> <p><i>System models</i></p> <p><i>System configuration</i></p> <p><i>The Operation Panel of the 901B and 701</i></p> <p><i>The Operation Panel of the 901M and 701</i></p> <p><i>Display screen areas and brilliance</i></p> <p><i>Fitted operation panel and a keyboard</i></p> <p><i>A typical set up has ECDIS fed with information from navigational devices</i></p> <p><i>Chart area and display panel</i></p> <p><i>Drop down menu</i></p> <p><i>Route monitor menu</i></p>	
Switching on – check hard drives and essential feeds	
<p><i>How to switch on and set up a JRC ECDIS</i></p> <p><i>Hard drive checks to confirm they are operational</i></p> <p><i>Basic information feeds are present</i></p> <p><i>How to set the alarm volume</i></p> <p><i>Switching on and off using the power button on the operation panel</i></p> <p><i>Hard drives 'O' and 'E', storing of charts on the 901B and 701B models</i></p> <p><i>Basic information feeds on the top of the display panel</i></p> <p><i>The alarm button, alarm detection, warning detection and setup error</i></p> <p><i>The alarm button indication there are no alarms</i></p>	
Display manipulation	

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Various methods of moving the displayed chart.

The method of returning the ship symbol to the screen

How to change from simplified to traditional symbols

Depth shades identification

Moving around the chart using the cursor

The ship symbol returning by pressing the home button

The chart settings menu to change the type of symbol

The chart settings menu to change the number of depth shades

Menu system and information layers

How to activate and interrogate different information layers

How to select Information on charted objects

How to select Information on overlaid objects

How to display the Admiralty Information Overlay

Select function - information on the chart to be seen

Select function - information on charted objects to be seen

Admiralty Information Overlay

Menu pane functions

Sections of the display panel State how to load a pre-planned route

How to place event marks

How to activate a 'man overboard' event

Displaying navigational information

The route panel

Event marks by clicking the icon on the display panel

The man overboard function activation from the display panel or the control panel

Tools to assist the navigator

The meaning of the port list function Identify how to zoom the chart

How to Insert user map lines

How to insert user map areas

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<p><i>The functionality of Radar overlay</i></p> <p><i>A Port List - quick way of displaying the chart or a selected area</i></p> <p><i>The zoom button location on the display panel</i></p> <p><i>User lines and areas - an alarm when encountered by the vessel's vector</i></p>	
<p style="text-align: center;">More menu pane functions for monitoring</p> <p><i>How to change the displayed charted objects from base to standard</i></p> <p><i>How to change the mode of display</i></p> <p><i>How to use the VRM and EBL controls</i></p> <p><i>How to use the running fix function</i></p> <p><i>Displaying 'base', 'standard' or 'other' displayed levels of detail</i></p> <p><i>Modes of display using the menu on the main display panel</i></p> <p><i>EBL and VRM – using from own-ship or dropped on the chart</i></p> <p><i>Running fix - rubber band EBL or VRM</i></p>	
<p style="text-align: center;">Navigation facilities</p> <p><i>How to cancel alarms and reference the alarm log</i></p> <p><i>How to set a position offset and to identify when a position offset is active</i></p> <p><i>How to select various navigational inputs</i></p> <p><i>Two position sensors that can be compared with each other</i></p> <p><i>Alarms acknowledging using the on screen alarm button or the button on the operation panel.</i></p> <p><i>Alarm log available to browse.</i></p> <p><i>Two sensors used from different systems to be used for positioning</i></p> <p><i>Two sensors can be compared and give an alarm if outside set limits</i></p> <p><i>Alternative position fixes using the position offset function</i></p>	
<p style="text-align: center;">Route planning</p> <p><i>How to set route parameters</i></p> <p><i>How to enter a route</i></p> <p><i>How to make entries to a route plan table</i></p>	

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<p><i>How to save and safety check a new route</i></p> <p><i>How to manipulate waypoints</i></p> <p><i>How to import and export a route</i></p> <p><i>The difference between a normal and TCS route</i></p> <p><i>Identification of saved files on the ECDIS</i></p> <p><i>Normal and track control routes</i></p> <p><i>Saving new routes using the routes menu</i></p> <p><i>Waypoints can be added or deleted and described using properties</i></p> <p><i>Normal routes need to be safety checked</i></p> <p><i>TCS routes need to be safety checked and limit checked</i></p>	
<p style="text-align: center;">File management</p> <p><i>How to install a public key, license and permits</i></p> <p><i>How to locate saved chart files</i></p> <p><i>How to load charts and updates</i></p> <p><i>How to access the logbook</i></p> <p><i>Public key installation, the license and permits to load charts</i></p> <p><i>Charts can be automatically or manually updated</i></p> <p><i>The logbook set up from the menu system</i></p> <p><i>The logbook export</i></p>	
<p style="text-align: center;">Monitoring and track control</p> <p><i>How to set safety limits for a passage</i></p> <p><i>The importance of having the danger detection vector and sector active</i></p> <p><i>Identifying route monitor alarms</i></p> <p><i>Identifying an anchor alarm</i></p> <p><i>How to activate track control</i></p> <p><i>For danger detection, the vector and sector functions must be active</i></p> <p><i>There are alarms to inform the operator that track limits are infringed</i></p> <p><i>An anchor position can be monitored automatically</i></p> <p><i>Track sailing is activated to allow a route to be automatically followed</i></p>	

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Targets on the JRC ECDIS	
<i>Identification an AIS target on the ECDIS</i>	
<i>How to set up the ECDIS for AIS detection</i>	
<i>How to accept radar targets</i>	
<i>The ECDIS will display both AIS and radar targets</i>	
<i>Parameters can be set that govern which AIS targets are seen</i>	
Assessment	
Total	4 hours

Subject	Simulator or online training as applicable
FURUNO ECDIS	
General 1. Chapter 1: Familiarization with available functions 1.1. Introduction 1.1.1. Introduction 1.1.2. Start up and Shutdown 1.1.3. Control Unit-3200/3300 1.1.4. Control Unit-3100 1.1.5. Instant Access Knob 1.1.6. A Mouse Function 1.2. Information bars 1.2.1. Icons 1.2.2. Status Bar 1.2.3. Instant Access Bar-Common Bar 1.2.4. Instant Access Bar-Chart Maintenance 1.2.5. Instant Access Bar-Voyage Planning 1.2.6. Instant Access Bar-Voyage Navigation 1.3. Information boxes 1.3.1. Sensor Information Box 1.3.2. Own Ship Function Box Overlay/NAV Tools Box 1.3.3. EBL and VRM Boxes	

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- 1.4. Nice to know functions
 - 1.4.1. Menu
 - 1.4.2. Standby
 - 1.4.3. Alert List and Log Customize
 - 1.4.4. Save Button
2. Chapter 2: Manuals, software and hardware
 - 2.1. Manuals
 - 2.1.1. Operator's Manual
 - 2.1.2. Operator's Guide
 - 2.1.3. Operator's Manual on pdf
 - 2.1.4. Chart 1
 - 2.2. Hardware and software
 - 2.2.1. Hardware and Maintenance
 - 2.2.2. Operating System, Software, Firewall and Antivirus
- Pre-Departure**
3. Chapter 3: Sensors
 - 3.1. Sensors
 - 3.1.1. Kalman Filter
 - 3.1.2. Sensors Position Event
 - 3.1.3. Dead Reckoning
 - 3.2. Connected equipment
 - 3.2.1. Backup Options
 - 3.2.2. Safety Message
 - 3.2.3. NAVTEX
 - 3.2.4. Consistent Common Reference Point (CCRP)
 - 3.3. ECDIS Mindset
 - 3.3.1. ECDIS Mindset
4. Chapter 4: Visual settings and safety contour
 - 4.1. Visual settings
 - 4.1.1. DISP Setting
 - 4.1.2. User Profiles
5. Chapter 5: Documentation and file handling
 - 5.1. MOB and Event
 - 5.1.1. User Event
 - 5.1.2. Man Over Board
 - 5.2. Records

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