





INSHORE SKIPPER

STUDENT TEXTBOOK

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IALA Buoyage

Lateral Marks

Cardinal Marks

& Pilotage

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Course Content



The ISSA Inshore Skipper Certificate is a course aimed at candidates who have completed the ISSA Yacht Crew course and have a good understanding of sailing/boat handling, nautical terminology and safety at sea. The aim of the course is to increase the candidates' nautical knowledge to competently take on the duties of a bareboat skipper on board a bareboat yacht, in daylight hours within sight of land. Upon completion the students may be

THEORY TOPICS

Taking over a vessel: Hull and rig checks, machinery and systems checks, instrument checks, safety equipment checks

Meteorology: Sources of information, personal observation, weather patterns, sea and land breezes, cloud types and formations, precipitation and fog

Pilotage and passage planning: Pilot books, almanacs and information sources, passage planning considerations, navigating a coastal passage, passage strategy, port regulations, pilotage plans

Vessel handling: Anchoring mooring and MOB, berthing and leaving a berth, handling in confined areas with and against cross currents

Chartwork: Review of position fixing and running fixes, course to steer to counteract a current, effect of tide and plotting the effect of tides and currents

Collision Regulations: Review of collision regulations, lights, sound and shapes, application of the regulations

eligible to undertake the ISSA Offshore Skipper Course

Tuition is provided by experienced and highly skilled ISSA Instructors using a combination of practical instruction and theoretical teaching. Student learning is enhanced using a variety of handouts and teaching aids with correct student/instructor ratios.

PRACTICAL TOPICS

Vessel Check-out: Hull and rig checks, machinery and systems checks, instrument checks, safety equipment checks, fuel and water capacity

Responsibilities of Captain/Skipper:

Communication with crew, delegation of crew seamanship general deck work, ropes, knots and splices, care and use of lines

Vessel Handling: Anchoring, mooring and MOB, berthing and leaving a birth, handling in confined areas, handling with and against cross currents



Operational Checklist

The vessel you are using is in sound condition and has the full inventory as per the MCA Code of Practice for small commercial vessels. As a Skipper (in training) you should implement the operational process below to ensure safe

1. As Skipper you should:

- Prepare a Passage Plan (if appropriate)
- Obtain an up to date Weather Forecast
- Collect navigation equipment (Charts etc.)
- Check all safety equipment location
- Complete pre-departure legal procedure (Customs and Immigration)

ABOVE DECK

- Sails and spars
- Rigging
- Winches and handles
- Blocks and running gear
- Clutches and cleats
- Guardrails
- Jack stays
- Tiller and extension
- Sheets, lines and halyards
- MOB life ring with light
- Anchor and anchor winch
- Engine throttle control lever
- Life-raft attached correctly

3. Crew Briefing:

- Personal Safety briefing
- Boat Safety Plan
- Action to be taken in an emergency
- How to stop and start the engine
- Location of sea cocks
- Fire Brief
- Action to take in a MOB situation
- How to use the heads
- Where VHF is and how to use it

use of the vessel. Familiarise yourself with the vessel and her equipment.

ISSA has provided you with the following checklist to ensure this is possible.

- 2. Pre-departure boat checks:
- Above Deck
- Below Deck
- Engine Checks
- Generator Checks
- VHF Radio Check
- Rig Checks
- Safety checks for the vessel

BELOW DECK

- Batteries (electrolyte level, terminals and voltage)
- Bilge (Ensure dry) Check Bilge pumps and float switches
- Safety equipment (lifejackets, harness lines, first aid, fire extinguishes, flares, Vhf, Navigation equipment, spare anchor, spare lines, fenders, tools and spare parts, EPIRB, SART, torches, fog horn, bungs, bucket, day shapes.
- Ensure everything stowed safely ready for going to sea
- Hatches are closed and secure
- Engine and gearbox (See below for checks)
- Electronics (GPS- chartplotter, VHF, nav lights, radar AIS, bilge pumps, water pump, Instruments)
- Heads
- Galley equipment and cooker
- Sea cocks and hoses
- Fresh Water tanks and fuel tank levels



ENGINE CHECKS

- > Batteries (electrolyte level, terminals, wiring and voltage)
- Engine Mounting is secure
- Engine bilge is dry from oil and water
- Belts are tight and free from damage
- > All hoses in good condition and securely fastened
- All electrical connections are clean and secure
- Fresh water header tank is topped up with coolant.
- Engine oil and gearbox oil level is correct and oil is not black
- Raw water seacock is open and hoses secure
- Fuel tank filled and fuel valve open
- Primary fuel filter/Water strainer doesn't have water at bottom.
- Engine housing for damage

GENERATOR CHECKS

- Observe for obstructions around stern of vessel
- Throttle lever in Neutral
- Turn on ignition
- Start with key or button
- Ensure cooling water and exhaust gases are being expelled at stern
- Observe electronics panel for warning lights or alarms
- Check ahead and astern gears
- Leave engine to warm up
- Check for leaks on all cooling, fuel, oil and exhaust system

4. Provisioning check:

- Water and drinks
- Food and snacks. Enough for 100% of Passage + 20%
- Grab bag prepared
- Medical supplies
- Adequate clothing for any weather conditions

5. Before leaving port, remember:

- Weather forecast and tidal information
- Crew list and relevant documents
- Passage Plan
- Contact relevant authorities (Harbour master, Immigration, Customs)
- Leave information ashore

6. When returning to port, remember:

- Boat correctly moored and fendered
- Fuel and water tanks refilled
- Rinse boat with fresh water
- Sails dried and stowed
- Safety equipment dried and stowed
- Tidy all lines, sheets and halyards
- All electrics turned off and batteries off (Cover instruments)
- Check no water in the bilge
- Check seacocks closed
- Check fuel system and turn off fuel valve
- Fridge left open to air
- Lock hatches and washboard



EXERCISE 1

Please make your own pre-departure check lists now. Write down the 6 most important items, in your opinion, to be checked

ABOVE DECK CHECK LIST	
1	
2	
2	
3	
4	
F	
5	••••••••••••••••••••••••
6	
0	•••••••••

BELOW DECK CHECK LIST
1
2
3
4
5
6
0









CHART DATUM

Chart Datum is the reference point for all depths on a chart. It can be the lowest astronomical tide on record – the theoretical minimum. On some charts however, it is the mean lowest low tide – the average of the lower of the two low tides in a day. As this is not the theoretical minimum, it is important to know what your chart datum is set to, to avoid running aground.

On a chart, the zero contour line is the line between green and dark blue.





MERCATOR PROJECTION

Projections are a means of representing a 3D object on a 2D surface.



- Project light from the center of a sphere onto a cone.
- Most commonly used with large scale maps.
- **Advantage** is a straight line will always be at the same heading.
- **Disadvantage** A straight line may not be the shortest route over long distances and as you near the poles.
- Transverse for long coastlines North to South.

HORIZONTAL DATUMS

Over time cartographers have been busy producing their own charts. This has made any type of conformity very difficult and hundreds of datum points are in existence. The standard datum **WGS 84** was finally adopted and all UKHO and Imray charts now use this datum (or one that is compatible). Check charts when taking over a vessel and if necessary make the appropriate adjustments on the GPS for the chart.







DEVIATION

Deviation is caused by ferrous objects and materials on the yacht which affect the compass. It can be caused by the following objects:

- Engine
- Steel Emergency Tiller
- Binnacle Mounting
- Electric and Electronic Components and Wiring
- Radios
- Cockpit Speakers
- Binoculars

Deviation can be plotted onto a graph or chart that enables us to know the amount on each heading, and correct our route accordingly. This is known as a **Deviation Table.**



DEVIATION IS NOT STATIC It changes as the direction of the boat changes





PARALLELS EQUATOR W PRIME MERIDIAN MERIDIANS

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THE GLOBE

The globe is a ball, just under 13,000 km in diameter. The ball is actually slightly squashed but this distortion is so small that for many practical purposes we can simply ignore it.

Thus we can visualise the globe as a perfect sphere, whose surface is covered by an invisible grid of lines.





LATITUDE









PLOTTING POSITION

In maritime navigation direction (course) is plotted on the map as a straight line passing through the two points. That direction is determined by the angle between the direction of the north and the direction of the line. You plot your course using navigational triangle.

Always place the triangle with its right angle towards You as reading always faces this angle.

To the right of the meridian courses are from 0° to 180° (the triangle exterior scale), and to the left of the meridian are courses from 180° to 360° (the triangle internal scale).

Remember:

Draw the course line (T°) after taking into consideration:

- Variation
- Deviation
- Leeway







DEAD RECKONING

In navigation, Dead Reckoning is the process of calculating your current position by using a previously determined position, and advancing that position based upon your speed over time (from the Log) and course (from the Compass).

However, if the first fix is inaccurate, the new DR will also be inaccurate. It also ignores the effect of the tide. For this reason to gain a more accurate fix we use what is known as an **Estimated Position (EP)**



EP WITH "LEEWAY'

Leeway is the sideways effect of the wind on the yacht. As a navigator you must factor this effect into your calculations and chartwork. The amount of sideways slippage will depend on the keel shape of the yacht you are sailing.



A longer keel yacht will only slip 5-10°, whilst a bilge keel yacht can slip up to 20°.

You must factor in the effect of leeway into our navigation but you **do not plot Leeway on the chart:**

Water Track IS PLOTTED on the chart not Heading!





Position Fixing

QUICK REMINDER

Variation and deviation effect steering compasses. Handheld bearing compasses are only subject to variation



CONVERTING

Use these mnemonics to convert compass to true and vice versa.

CADET = From COMPASS TO TRUE we ADD EAST (or - West)

TAWC = From TRUE TO COMPASS we ADD WEST (or – East)

METHODS OF POSITION FIXING

- Line of Position
- Depth and Bearing
- 2 Point Fix
- 3 Point Fix
- Dead Reckoning
- Estimated Position
- Estimated Position with Leeway
- GPS Fix
- RADAR Fix
- Plotters and Overlay Radar
- Buoy (IALA)

The **accuracy** of your FIX **increases** as we move **down the list**. As Inshore Skippers you are expected to use a range of these methods to establish your location.

LINE OF POSITION

Line of Position involves taking one fix on a stationary object.

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TRANSIT



TRANSIT & BEARING

You can combine a TRANSIT with a LINE OF POSITION to improve its accuracy.



Step 1:

Keep the mountain and lighthouse in transit. Draw this line on the chart.

Step 2:

Add another bearing using the West Cardinal mark, giving you your location along the transit line.

FIX WITH DEPTH AND BEARING

Another way we can confirm our position with some degree of accuracy is by using our depth sounder.



Take a bearing on an object, and use the depth contours on the chart to confirm your location.





THREE POINT FIX

A Line of Position doesn't give your exact position, just a position on a line. So take three bearings to improve your accuracy.

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This is called a Three Point Fix

Your Three Point Fix may not always be entirely accurate. This can be caused by inaccurate readings on the compass, or taking too long to sight your bearings. If it isn't accurate you will end up with a triangle where our lines of sight meet. This is called a **cocked hat**.



As you might be unsure of your exact location, you should plot your position at the closest point to danger.

Position Fixing





RUNNING FIX

A running fix, employed when only one object for a fix is visible, is obtained from two separate bearings taken of the same object, combined with the direction and distance travelled by the vessel.



bearings. ...

Step 5:

Redraw first bearing from the end of the dividers and mark your time, location and log on the chart.

1 hour, therefore covering 5NM between the two



Passage Planning

APPRAISAL	Creating a detailed mental and chart-based model of how the voyage will proceed. Gather and consider all relevant information: charts, weather, tides, almanacs etc.
PLANNING Pre-departure Checks	Produce a detailed plan of your route on your chart, plotter or iPad, factoring in the weather, tides, buoyage, pilotage and Plan B. Communicate this to your team.
EXECUTION Leaving Harbour A Pilotage Arrival at Harbour B	It is the skipper's responsibility to treat the plan as a "Living Document". Delegate roles to the crew and execute the intended plan accordingly.
MONITORING DRs, EPs, Fixes	Regular checks and monitoring of the progress of the vessel along its planned route. DRs, EPs, Ship's Log, fixes, updating the chart. All crew must be able to confirm their location.
	PLANNING

PLANNING YOUR PASSAGE

As Inshore Skippers it is your legal and moral obligation to plan your passage well in advance. A good skipper should:

- Organize crew How many, how experienced, strengths and weakness?
- **Study the weather** Seasonal changes, what is to be expected?
- Navigation Equipment Charts, Navionics, pilot books, almanacs, tidal atlases.
- **Plan B** A second option in the event of an emergency.

- **Victualing** Organise sufficient food and provisions for the crew and the length of trip.
- **Boat Checks** Ensure the boat is in good working order and that you carry spares.
- **Communications** Internet, radio, EPIRB, SART, VHF, mobile phones, batteries.
- **Dangers** Be aware of potential threats to the boat.





COURSE SHAPING

When entering or leaving a PORT or HARBOUR, the tide may alter your course. Use a **TRANSIT** to ensure you stay on course.



When close enough to see, transfer to more appropriate TRANSIT until out of tide.





CLEARING BEARINGS

If there are HAZARDS either side of a channel entrance, take CLEARING BEARINGS to avoid crossing into their path. Stay within these constraints to avoid the dangers.



Passage Planning



LEADING LINES & LIGHTS



NAVIONICS[™]



Electronic charts in leisure sailing are very useful. There are many software providers, some using only one sort of chart and others able to use several. The ability to use multiple types of charts, including those used by dedicated chartplotters, is probably the ideal.

You can download the software onto your smartphone or iPad/tablet.



IALA Buoyage & Pilotage

Established in 1957, IALA (International Association of Marine Aids and Lighthouse Authorities) is a non-profit international technical association. IALA provides nautical expertise and advice. There are two IALA systems based on geographical location: Region **A** and Region **B**



LATERAL MARKS

When entering a port or harbour, the LATERAL MARKS ensure you stay in the required channel. We show here marks for the IALA Region A.





CARDINAL MARKS

Indicate the direction in which a particular danger lies, and the side on which it is safe to pass.





IALA Buoyage & Pilotage

BUOYAGE ON CHARTS

IALA buoys and marks can be found on nautical charts.

They will be labeled with either their light sequence, sound sequence, colour or shape.



IALA Buoyage & Pilotage



You can use a Pilotage Plan to safely enter a harbour, day or night. Each leg can be jotted on a notepad for easy navigation on deck, including the distance and bearing for each leg.

Include in each leg of your plan:

- Bearing (Compass)
- Distance
- Dangers and Risks
- Buoys (Colour & Number)



PREFFERED CHANNEL MARKS

On entering an anchorage, port, harbour or bay there may be more than one route the skipper can take. IALA have developed **Preferred Channel. Markers** to indicate the preferred route into the anchorage.





PILOTAGE - SECTORED LIGHTS

Sectored lights are used to aid navigation when approaching a channel or harbour. The light sequence will be shown on the chart, however sectored lights usually consist of a red section, a white section and a green section.



PILOTAGE - CLEARING BEARINGS

You can use clearing bearing to help you navigate through narrow channels between islands or hazards. To produce clearing bearings we need a prominent point to take two bearings from.



PILOTAGE - LEADING BEARINGS AND LEADING MARKS

Leading Bearings and Leading Marks are used to guide larger ships up the centre of a channel from the safe water buoy. Leading Bearings will be shown on most charts, and also in smaller pilotage charts in the Almanac.



During the day Leading Marks are large white posts usually with a shape on the top. At night these marks show yellow lights with the sequence shown on the chart.



If you see this alignment you are on the **Port side** of the channel.



If you see this alignment you are in the **Centre of the channel.**

If you see this alignment you are on the **Starboard** of the channel.

EXERCISE 2





to

B, avoiding obsticles marked by the cardinal marks





Meteorology

Inshore Skippers should principally have meteorological information about their local sailing area (coastal sailing). This is mainly the daily forecast, but can also be extended to a week-long, regional or global forecast. In general, the skipper would want information on the following:

- Wind Strength
- Wind Direction
- Precipitation
- Sea State
- Air Pressure
- Temperature
- Cloud Cover
- Seasonal Changes

WEATHER FORECASTS

Weather forecasts are essential in planning a safe passage. They are available from a variety of sources.

- Internet
 - windguru.cz
 - weather4D.com
 - windytv.com
 - GRIB Files
- Navionics™
- Local Radio
- National Radio (Shipping forecast)
- Marina Office
- Appropriate National Meteorological Offices
- INMARSAT
- NAVTEXT

GRIB FILES are the

standard data format of the World Meteorological Organization. They are available to download and contain raw data based on the world's collected meteorological information.



The direction of the arrows corresponds to the direction of the wind.

Area we Winds





FORMAT OF SHIPPING FORECAST

Shipping forecasts are issued daily by the UK MET Office at: <u>www.metoffice.gov.uk/public/</u> <u>weather/marine</u> and broadcast on BBC Radio 4 and other local, mainly national radio stations, usually few times a day. They use a specific format and terminology that skippers should know. The information is most commoly issued in the following order:

- 1. Gale Warning,
- 2. General Synopsis,
- 3. Sea Area Forecasts
- 4. Weather Wind Visibility
- 5. Coastal Station Reports

- 6. Wind
- 7. Significant Weather
- 8. Visibility in miles or meters
- 9. Pressure
- 10. Tendency

TERMS USED IN THE FORECAST

Veering Wind: Wind is changing its direction and is moving clockwise from 0°.

Backing Wind: Wind is changing its direction and is moving anticlockwise from 359°.

Cyclonic: Considerable change in wind direction as a depression passes through an area.

Imminent: Within 6 hours from the time of issue. **Soon:** Between 6-12 hours from the time of issue. **Later:** More than 12 hours from the time of issue

VISIBILITY

Good: More than 5 miles. Moderate: Between 2-5 miles. Poor: Between ½ mile – 2 miles. Fog: Less than 1000m.

SEA STATI

Smooth: Wave height is less than 0.5m.
Slight: Wave height is between 0.5m – 1.25m.
Moderate: Wave height is between 1.25 – 2.5m.
Rough: Wave height is between 2.5m – 4m.
Very Rough: Wave height is greater than 4m.



Meteorology

CORIOLIS EFFECT / GLOBAL WIND PATTERNS

The Earth is constantly rotating about its own axis, completing one revolution in 24 hours. This spinning causes anything which moves freely over the Earth's surface to be deflected to the right of its path in the northern hemisphere and to the left in the Southern hemisphere

Low Pressure Rising Air



SYNOPTIC CHARTS

Synoptic charts are maps overlaid with meteorological information pertaining to air pressure and fronts. Lines of equal air pressure (isobars) indicate areas of high or low pressure, whilst red lines indicate warm fronts and blue lines indicate cold fronts.



Meteorology



FORMATION OF A DEPRESSION

Changes in weather are caused by the interaction of cold and hot air masses.



Stratus

Steady perspiration Stratocumulus

Cumulus

Cumulonimbus

Showery perspiration



BEAUFORT SCALE

Beaufort scale is an empirical measure that relates wind speed to observed conditions at sea or on land.







Handling Yacht Under Sails

POINTS OF SAIL





LUFF UP

Steer to reduce the angle between boat's heading and the direction the wind is coming from. Winch the sheets of both sails, first of all the main sail, as it is the "back" sail that makes the boat turn to the wind.

WIND

WIND

WIND

WIND

WIND

BEAR AWAY

Steer to widen the angle between boat's heading and the direction the wind is coming from. Ease sheets of both sails, main sail in particular, so that it does not make you turn towards the wind.



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Handling Yacht Under Sails

TACKING

GYBING

When you pass the "No go zone" the mainsail fills up with wind. Straigthen the tiller and winch in the other tack jib sheet WIND

NO GO

To start the manoeuvre turn the tiller gently and winch in the main sail sheet quickly to bring the boom as close to the boat's centre line as possible

Once you enter the "No go zone" let go of the working jib's sheet. No need to adjust the mainsail sheet. Keep the tiller slightly turned. Once you pass the wind line, pull the other tack jib sheet gradually while slowly releasing the initial tack jib sheet. Release the main sail sheet to its working position

NO GO ZONE

Sufficient speed is crucial for the manoeuvre. You might need to bear away a bit to gain it. When ready turn the boat's tiller distinctively - at last 30 degrees Straigthen up the tiller . Trim the sails. It might be wise to install a preventer

3

Handling Yacht Under Sails

WIND

NO GO



DANGEROUS GYBE

It is crucial to control the main sail sheet. The boom should be brought to the boat's centre as close as possible before the boat passes to the other tack zone, leaving the boom as little room as possible to gain momentum.

If the boom is away from the boat's center, when crossing the wind line, it turns into a doom tool. It will fly violently to the other tack zone putting a lot of dynamic tension on boat's construction (main sail sheet, shrouds, boom fixing points)

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Handling Yacht Under Power

GEARS

Most of the modern boats are equipped with a shifter like the one below. You always **start the engine on neutral** and then you can switch to forward or reverse. Moving the shifter further in each direction is like pushing the accelerator pedal in a car. **There is no break** however!





TURNING CAPABILITY - THE HEART RULE

Wind and stream play a strong factor in the boat turning capability .



When head-to-wind, the bow will easily come around

Pivot points are different for every boat, but when going ahead a yacht usually pivots around a point approximately 1/3 from the bow (roughly at the mast). When going backwards the pivot point moves 1/3 from the stern.

> When going downwind, the wind will resist your efforts to make a turn

> > The bow is most vulnerable to the wind

When going forward, beware of colliding with obstructions with your stern When going **backward**, **beware of colliding** with obstructions **with your bow**



DOCK LINES

Each line used for docking a boat has a different function.



FENDERS

Fenders are usually made of plastic and are hung from the grabrails or lifelines over the side of the boat to prevent it making contact with the bulkhead, dock or another boat along side. They are made in a variety of shapes to suit different situations. You should use at least three fenders when berthed alongside.





TYPES OF BERTHS

LONGSIDE



The most typical type of berth. Use at least bow and stern line. Adding just one spring line will better stabilize the boat.

DOLPHINES

In some marinas you might encounter docking piles, called dolphines (large wooden or metal stakes driven into the seabed). When approaching the berth first fix the lines on the piles and than ashore.





Usually thare is a lazyline secured to an / underwater mooring. The lazyline is **picked up from the shore side** on arrival and **led to bow (or stern**, depending on how you want to dock) and **fixed from the open water side.** Twin moorings secure the boat. BOW/STERN 2 Anchor / Buoy

To berth with your bow or stern you will need to attach the boat to the docking buoy (if there is one) or to use your anchor to stabilize the boat.



Modern marinas offer platforms or ramp supported by pontoons that are called floating docks. They allow a convinient berth. ramps are usually shorter than the boats. Use spring in order to prevent the boat of hitting the bulkhead.













Anchoring

TYPES OF ANCHORS

There is a number of different types of anchors and each has its own advantages and disadvantages. Below the most common types you might encounter:



Bruce: Universal, but poorly keeps on clay and heavy mud.

Delta: Holds well on most substrates. Weaker only on the rocks.

Mushroom: Good for long-term anchoring

Fisherman's: It holds well on the rocks, but it is difficult to store.

Danforth's: Holds well on the sand and in the mud. It occupies little space.

CHOOSING THE RIGHT SPOT

Choosing the right spot for anchoring is crucial. Check your chart for proper depths, anchoring sites and type of substrate on the bottom.

DROPPING THE ANCHOR

Look at how other boats are oriented on the approach to the site. (1) Always go against the wind when dropping an anchor. (2) Ensure you have stopped. (3) Start easing the anchor. (4) Go slowly backwards, (5) until the chain/rope stretches.

IRPCS

The **International Regulations for Preventing Collisions at Sea 1972 (Colregs)** are published by the International Maritime Organisation (the IMO) and set out, among other things, the "rules of the road" or navigation rules to be followed by ships and other vessels at sea to prevent collisions between two or more vessels.

FUNDAMENTAL RULES

KEEP A WATCH by all appropriate means (look, listen, radar, AIS)

2 NO ONE has'RIGHT OF WAY'

One vessel is the give way, the other is the stand on vessel. BOTH remain RESPONSIBLE to avoid a collision

Travel at a **SAFE SPEED** for the conditions

In a narrow channel KEEP TO STARBOARD (right)

GIVE WAY = EARLY & SUBSTANTIAL action

STAND ON = MAINTAIN COURSE AND SPEED until it is clear the other vessel is not taking action and only then take avoiding action

RISK OF COLLISION

When there is deemed to be a risk of collision

- One vessel is the **GIVE WAY** vessel
- The other is the **STAND ON** vessel

If there is a **CONSTANT BEARING** between the two vessels which are approaching each other there is a risk of collision.

SAILING RULES

STARBOARD BOW.

UNDER POWER

Vessels meeting head on – both turn significantly to **STARBOARD** and pass Port to Port.

IRPCS

IRPCS

VISUAL DAY SIGNAL At intervals not exceeding 2 min mhnn At intervals not exceeding 2 min Rapid bell at intervals not exceeding 1 min. If over 100m followed by rapid gong. May also sound MORSE A on whistle At intervals not exceeding 2 min 3 bell strokes + rapid ringing + 3 bell strokes + (gong if 100m plus). At intervals not exceeding 1 min. May also sound Morse R on whistle At intervals not exceeding 2 min

Fishing Vessel gear extending more than 150m horizontally

Carrying out underwater operations (Restricted ability to manoeuvre)

Vessel at Anchor

Vessel not under command

Vessel aground

Vessel engaged in mine clearing operations

LIGHTS

	AFT	FORWARD	STARBOARD
Sailing vessels Under 20m a combined all-round mast light can be used	•	• •	•
Power vessel <50m	•	•	•
Power vessel >50m When seen from forward it is impossible to distinguish this from a towing vessel < 50m with tow < 200m	•	•	•••
Towing Vessel < 50m (tow < 200m) When seen from forward it is impossible to distinguish this from a power vessel > 50m or a power vessel < 50m showing the optional second masthead light	•	•	•
Towing Vessel > 50m (tow < 200m) When seen from forward or aft it is impossible to distinguish this from a towing vessel < 50m with a tow > 200m	•	•	••
Towing Vessel < 50m (tow > 200m)	•	•	•
Fishing Vessel Memory Aid: Red Over White = Fishing At Night	•	•	•

IRPCS

Electronics

KNOW YOUR SYSTEM

The modern yacht is fitted with several sensors and instruments with display units. The major instruments on a yacht are:

- GPS
- Depth Sounder
- Log
- Electronic Compass
- Wind Sensor
- VHF Radio
- Satellite phone
- AIS

- Radar
- Chart Plotter
- Auto Pilot

GPS - GLOBAL POSITIONING SYSTEM

Handheld or mounted GPS devices are a must for any sailing boat today.

They provide reliable position fixing using Lat./Long. co-ordinates provided by 27 satellites orbiting the earth. Waypoints for a route can be entered and distance/bearing from the boat to the destination are calculated in real-time and displayed on the device.

DEPTH SOUNDER

Depth sounders are fitted under the hull or are handheld. They can display the depth in metres or feet of the sea beneath the hull.

If fitted under the hull, they need to be calibrated to either the bottom of the hull or the surface of the sea.

The sensor should be regularly cleaned of barnacles.

On a new boat, inquire about the calibration of the sounder to avoid confusion.

ELECTRONIC LOG

The modern yacht is fitted with low power instruments that record depth and speed.

The Speed/Log records the water track speed. It is wired to the main ship computer and then to the multi display in the cockpit.

The small wheel can get clogged and it should be carefully checked and be cleaned weekly.

ELECTRONIC COMPASS

The Electronic Compass display complements the standard magnetic compass but does not replace it.

It is mostly used in conjunction with the autopilot for keeping a bearing based on a compass course. It can be calibrated to display True or Magnetic course.

WIND SENSOR

Mounted at the top of the mast is the wind sensor that monitors the speed of the wind and its direction.

The display monitor can display the Apparent Wind or True Wind speed in knots.

In addition the display monitor can display the wind direction.

An auto-pilot can also steer a course based on the wind speed monitored by this device.

VHF RADIO

Marine radio transmitting and receiving on a radio frequency range between 156.0 and 162.025 MHz.

Use Channel 16 to monitor or send distress signals (Mayday and Pan Pan).

Can be mounted with antenna or hand held.

Only operates with a radius of about 10-20 NM depending on the height of the antenna (range is 1.23 times the root of antenna height in feet).

SATELLITE PHONE

Satellite phones are becoming more prevalent on boats and are starting to replace Single Band radios. Allow for two-way voice and data communication anywhere in the world.

Small form factor and low power consumption.

AIS - AUTOMATED IDENTIFICATION SYSTEM

AIS stands for Automatic Identification System, the international automated collision avoidance system.

Commercial ships are required to carry both an AIS transmitter and receiver.

Leisure boats should have an AIS receiver.

AIS receivers will display information about ships in the vicinity and their course/speed and possibly the risk of collision.

iPAD / TABLET

These devices can be used to access navigational, pilotage, weather information all over the world by accessing the internet or by installing software such as 'Navionics'.

RADAR

Radar allows visibility at night or when there is fog. It shows ships, land and other objects in the vicinity.

Radar can also detect squalls.

CHARTPLOTTER

Chart plotters are multi function devices with built-in digital maps of specific sailing areas.

In conjunction with GPS, they allow the skipper to set waypoints, routes, keep track of the ships course.

AUTOPILOT

The Autopilot is a great addition to a vessels instruments.

The autopilot can steer the boat automatically based on a waypoint, a compass course, a wind direction. Radar allow for position fixes using bearing and distance to objects and land when there is no visibility.

Comes with an antenna mounted on the mast and a display unit.

Chart plotters allow for sailing regions to be zoomed to and display details not normally found on paper charts.

Small screen size can however hinder danger zones.

It comprises a hydraulic arm and an electronic control system.

Autopilot does not replace the helmsman.

Can be used in conjunction with a GPS and a radar when the helmsman needs to rest and no other crew can steer the boat.

First Aid at sea

FIRST AID PREPARATION

A good skipper is always prepared.

He or another person on the crew should have some knowledge of first aid.

One-day course are available at most good sailing schools.

Check all safety equipment is in date

- Heavy line with life buoy.
- Fire extinguishers.
- Signal flares and other signaling devices with current expiration dates.
- Life jacket suitable for each person on board, readily accessible, in good condition.
- MOB equipment and throwable flotation device easily accessible to helmsperson.
- Flashlight and extra batteries.
- Horn or sound signaling device.
- Bell.
- Comprehensive first aid kit.
- Bailer or manual water pump.
- Sufficient foul weather gear, warm clothing & safety harnesses for all crew.

FIRST AID KIT

It is important to have a comprehensive first aid kit on board every boat. Your first aid kit should include the following as a minimum:

- Antibiotics (wound infections, prevention of infections: urinary tract, throat, etc., insects bites, others.).
- Eye drops.
- Allergies.
- Anti-pain.
- Diarrhoea.
- Constipation.
- Stomach pain.

- Sedatives.
- Something for the flu/cold/cough.
- Injuries: bandages of various sizes, sterilr compresses, surgeon gloves (sterile), ordinary gloves - several pairs, wound stickers, mesh to hold the dressing.
- aseptic + antisepsis + burns.
- Other: syringe, thermometer, pocketmask (rescue mask).

IN AN EMERGENCY

When there is an medical emergency onboard the captain or member of crew can put in a Pan Pan (non-life threating) or Mayday (life threating) call for help. Even if you require medical advice a Pan Pan call can be made.

HYPOTHERMIA

Hypothermia is a condition in which exposure to cold air and/or water lowers body core temperature.

The symptoms include shivering, lethargy, stumbling, slurred speech, and loss of memory. The victim progressively develops a cold pale skin, slow breathing and a slow weak pulse, leading to collapse and unconsciousness.

- Your first aim is to prevent further heat loss. Get the casualty out of the sea and out of the wind.
- Get the casualty to the warmest spot on board and turn on all the heating. As soon as possible strip off all wet clothing, if necessary by cutting it off. Do not rub the skin to dry it, but dab it dry with a towel.
- If the casualty is conscious get them into warm dry clothing, give them lots of warm sweet drinks and allow them to rest in a warm sheltered spot. If you have no other

means of providing warmth get close enough to **transfer body heat**.

- If the casualty is unconscious take off all their wet clothing and **put them in a** sleeping bag. Make sure they are in the recovery position and won't suffocate.
- If the boat will take time to warm up, get into the sleeping bag with the casualty. (Wear tight clothing to speed up transfer of heat.)

HEAD INJURIES

Head injuries can be common on boats. It is important to be able to identify the symptoms of concussion.

- Headache or "pressure" in head.
- Nausea or vomiting.
- Balance problems or dizziness, or double or blurry vision.
- Bothered by light or noise.

- Feeling sluggish, hazy, foggy, or groggy.
- Confusion, or concentration or memory problems.
- Just not "feeling right," or "feeling down".

BLEEDING

Minor scrapes, cuts and bruising are easily treated.

- 1. **Wear gloves** and other barriers to protect yourself and patient from disease transmission.
- 2. If necessary **control bleeding** with direct pressure.
- 3. Thoroughly **wash wound** with water to remove all dirt and particles.
- 4. **Cover wound** with a non-adhesive dressing and bandage securely.
- 5. Check wound daily for signs of infection.

First Aid at sea

Serious bleeding requires specialty medical treatment as soon as possible. A Mayday call should be placed if the casualty is gushing blood. While waiting for medical treatment the following

can be done to try and reduce blood loss.

- 1. **Wear gloves** and other barriers to protect yourself and patient from disease transmission.
- Place a clean cloth or a sterile dressing over the wound and apply direct pressure. If a dressing or cloth is not available use a gloved hand.
- While applying direct pressure on wound, place a pressure bandage over the sterile dressing.
- If bandage becomes blood-soaked, place another clean cloth or dressing on top and bandage in place.
- 5. Continue to apply direct pressure.
- Do not remove blood-soaked bandages as blood clots in the dressing help control bleeding. Add bandages as necessary.

MINOR BURNS

- 1. **Wear gloves** and other barriers to protect yourself and patient from disease transmission.
- Flush or soak burn in cool water for at least 10min. If possible, remove jewelry, watched belts or constricting items from the area before it beings to swell.
- 3. Cover area with a sterile (non-fluffy) dressing and bandage loosely.
- 4. Check burn daily for signs of infection.

MAJOR BURNS

A Mayday call should be placed as soon as possible for a Major burn. While waiting for emergency response the following can be done to help the casualty.

- 1. Wear gloves and other barriers to protect yourself and patient from disease transmission.
- Help the patient lie down but ensure the burnt area does not come into contact with the ground.
- Douse the burnt area with cold liquid for at least 10 minutes. Continue cooling the area until pain is relieved.
- Carefully remove clothing from around the burnt area and remove any constricting items before swelling begins.
- Cover burns with a sterile dressing or other non-fluffy material available. Cling film could also be used if applied lengthways.
- 6. **Continue to monitor the patient** until emergency response arrives.

Environmentally Responsible Sailing

Holders of the International Sailing Schools Association certificates are the elite that knows how to sail safely and should also care about the environment. Help us promote Environmentally Responsible Sailing and preserve the nature for future sailors generations by applying these few simple rules.

Use your sails as much as possible therefore reducing energy consumption

Sailing is a very environmentally friendly form of transport as it harnesses the wind and sea without detriment to the environment. Maximise the use of sails subject to safety and operational requirements.

Segregate garbage for recycling purposes wherever possible

Recycling is an alternative to "conventional" waste disposal that can save material and help lower greenhouse gas emissions. Recycling prevents the waste of potentially useful materials and reduce the consumption of fresh raw materials, thereby reducing: energy usage, air pollution (from incineration), and water pollution.Search for segregated garbage bins in every marina.

Leave any beach or shore line you visit cleaner than when you arrived.

Leisure sailing can take you to many beautiful, paradise-like places. The community of saiilors grows every year and it is constantly harder and harder to visit places untouched by a human hand. Some people do not regard that as a value and leave their trash behind them there. React and help to keep those places safe.

Educate sailing guests on the ecology of the sea and shore.

You are the skipper. It is your responsibility to educate your crew on how to properly behave during your leisure yachting experience.

Strictly enforce no waste being thrown overboard.

This is not even a matter of ecology but personal culture. Oceans and seas are huge, but that does not mean that another piece of paper thrown into the water does not make a difference. It does. It is your attitude that matters.

Topics Checklist

THEORETICAL TOPICS

PRACTICAL TOPICS

Vessel Check-out	
Responsibilities of Captain/Skipper	
Seamanship	
Vessel Handling	

NAME

This is to certify that the student,

has an understanding of the above topics and has achieved the level of INSHORE SKIPPER.

NAME			DD.MM.YYYY
Instructor		Date	
	Instructor's signature		

Wherever You Sail