



TEACHER'S BOOK: METHODS & ACTIVITIES

Maritime Literacy – A Preparatory VET Course

The Educational Objective:

To present and deliver a course to young students who are from disadvantaged backgrounds. The students will acquire a level of knowledge, skills and competences in order to understand the important basics of Boating, the important knowledge connected to it and the protection of the Maritime environment, using innovative teaching methods combined with interesting activities.

Pre-Requisite: Although this course is designed for students who are beginners to the maritime world it is assumed that the teachers have a level of knowledge and experience to explain, for example, the concept and details of navigation and therefore be able to offer a variety of scenarios to explain the subject better to the learners. It is also expected that for specific Modules such as First Aid or Sea Survival Training, a professional instructor employed to deliver the course content as there are dangers or risks if certain procedures are not followed correctly.

INTRODUCTION

The Maritime Literacy course is presented in three documents:

- a). The Syllabus.
- b). The Teachers Book: Methods and Activities, and
- c). The Evaluation Rubric

In the Teachers Book (this document), the course is presented in 5 Modules. Each Module is broken down by Activities. Each Activity involves a different teaching Method, as set out below.

From the Syllabus, each activity has been given an ID Number. Each ID number refers to the activities listed below within each teaching module. This is how this document connects to the syllabus.

The evaluation Rubric completes the teacher resources of the Maritime Literacy course as it is designed to help them record and monitor their students progress through the course.

Below can be seen the teaching Module tables. Each table has 7 titled columns. Following is a short explanation of each title:

- 1. **ID:** This column refers to the ID number of each activity in the Syllabus.

- 2. **Methods & Activities:** This column represents which teaching methods and activities have been chosen and developed in the course framework, each teaching method is displayed in **bold** and each activity in *italic*.

Methods: The teaching methods refers to the general principles, pedagogy and management strategies used for classroom instruction. The teaching methods for this course have been selected by considering different educational philosophy, classroom demographic, subject area(s) and school mission statement in order to attend diversity and focus on projects target group. These methods are listed below.

Activity: The activities are the means used by the teachers to develop the programmed contents and the achievement of the learning objectives. Activities enhance students' understanding, knowledge skill or competences in a specific area by engaging multiple teaching methods. Activities also serve to infuse fun into learning as well as bolster student confidence and the ability to think critically.

Types of Teaching methods

a. **Direct Instruction:** Direct instruction is the general term that refers to the traditional teaching strategy that relies on explicit teaching through lectures and teacher-led demonstrations. In this method of instruction, the teacher might play one or all of the following roles: Formal authority, expert and personal model.

b. **Experiential learning:** the process whereby knowledge is created through the transformation of experience. Knowledge results from the combinations of grasping and transforming the experience. The learning in this model includes multiple content areas so that students can see how problem-solving can happen in the real world--ideally, their own worlds.

c. **Flipped classroom learning approach:** Is a teaching structure that has students watching pre-recorded lessons at home and completing in-class assignments, as opposed to hearing lectures in class and doing homework at home. Teachers who implement the flipped classroom model often film their own instructional videos, but many also use pre-made videos from online sources. A key benefit of the flipped classroom model is that it allows for students to work at their own pace if that is how the teacher chooses to implement it. In some cases, teachers may assign the same videos to all students, while in others, teachers may choose to allow students to watch new videos as they master topics (taking on a more “differentiated” approach).

d. **Game based learning:** Game-based learning comes from the desire to engage students in more active learning in the classroom. External link. Because they require students to be problem solvers and use soft skills that they will need as adults, games are a great way to encourage a “mastery” mindset, rather than a focus on grades.

In a game-based learning environment, students work on quests to accomplish a specific goal (learning objective) by choosing actions and experimenting along the way. As students make certain progress or achievements, they can earn badges and experience points, just like they would in their favorite video games.

e. **Kinesthetic learning:** In a kinesthetic learning environment, students perform physical activities rather than listen to lectures or watch demonstrations. Hands-on experiences, drawing, role-play, building, and the use of drama and sports are all examples of kinesthetic classroom activities. Though a great way to keep students engaged and, at times, simply awake, very few classrooms employ kinesthetic learning activities exclusively.

d. **Project-based learning:** Project Based Learning is a teaching method in which students gain knowledge and skills by working together for a period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge. This style of teaching encourages the student to work together to respond to a problem or question set by the teacher.

3. **Description:** The text offered in this column is to explain in more detail the content of this learning session.

4. **Learning Objectives:** This column provides indicators of what the students are expected to either learn or understand.

5. **Materials/Equipment:** These items are listed as teaching aids to support the explanation and learning of the content. They also offer an opportunity to see real situations that would not otherwise be available.

6. **Notes for teachers:** This column offers information to help the teacher prepare prior to the session ahead.

MODULE 1 SEAMANSHIP – A) HISTORY OF SEAFARING

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
1	Direct Instruction: <i>Lecture + exercises of history of Seafaring</i>	<p>Teacher to give an introduction to maritime history which will give outline of the origin of, and up to, present day maritime activity. The teacher will provide reference books, PowerPoint presentations, maps, and videos.</p> <p>The teacher will introduce the learning materials and explain a connection and relevance to the subject.</p> <p>The second part of the activity consists of exercises for the students to complete by using the materials which determine the understanding and of the knowledge presented.</p>	<ul style="list-style-type: none"> Understands how seafaring developed through the ages. How the different types of vessels developed regarding the activity. 	<ul style="list-style-type: none"> Maps Globe Atlas Reference books. Videos 	<ul style="list-style-type: none"> The teacher should have a variety of alternative content examples to help explain to those students, who may have not understood during the first presentation. For example, some students may need a refresher of basic geography to understand the content of this section. 	1,5h

MODULE 1 SEAMANSHIP – A) HISTORY OF SEAFARING

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
2	Game based learning: <i>Online game to identify types of vessels to period of history</i>	<p>The students will work with online tools and games that test their ability to identify specific vessels. By making use of the online tool (h5p.org), the teacher will develop together with the students a game that will teach and test the student's ability to recognise the various types of vessels.</p> <p>Secondly, the same online tool can be used to explain and identify the various parts/terminology of the ship in common use today which will strengthen students digital skills and broader knowledge of vessels.</p>	<ul style="list-style-type: none"> • Understands the different stages of seafaring through the ages. How the different types of vessels developed. • Understand the terms/names for basic parts. 	<ul style="list-style-type: none"> • Computers • online games: i.e. <i>h5p.org</i> 	<ul style="list-style-type: none"> • Th teacher should be mindful that some students might be new to IT and may need extra support with the basic functionality of the computer or tool used. 	1h

MODULE 1 SEAMANSHIP – B) READING THE SEA

Activity ID	Method & Activity name	Description	Learning objectives	Materials/ equipment	Notes for teachers	Time
3	<p>Direct Instruction: <i>A lecture + Basic meteorological forecasting and weather map reading activity.</i></p>	<p>The teacher will provide some resources and examples of free to download weather apps for students to use and understand with regard to weather forecasting.</p> <p>This Direct Instruction activity will take place at a location where the effects of the weather(wind) can be witnessed. The location will either be coastal or lakeside or river side.</p> <p>The teacher will deliver the content upon arrival at the visit location.</p> <p>The teacher must remind the students of the dangers of being at close proximity to water.</p>	<ul style="list-style-type: none"> • Understands the importance of weather, particularly the wind and its effects regarding seafaring. • knows Beaufort scale and effects of wind on water • Knows where to obtain Weather forecast. Understands reading map and low pressure and high pressure 	<ul style="list-style-type: none"> • Reference books. • Videos. • Test Papers 	<ul style="list-style-type: none"> • Teacher must pre organise transport for the visit. • Research and prepare various suitable locations to carry out this visit excursion. • Teacher must consider refreshments/lunch for the students during this half day session. • Teacher must explain safety issues/swimmers? 	0,5 hrs

MODULE 1 SEAMANSHIP – B) READING THE SEA

Activity ID	Method & Activity name	Description	Learning objectives	Materials/ equipment	Notes for teachers	Time
4	Experiential learning: <i>Visit, going to the coast, to experience the effects on the sea state by the wind</i>	Briefing for the activity ahead that will include safety and behaviour during the journey and at the location. At the location the students will be given notepads and pens and handouts explaining wind, speed, and meteorological conditions for that day.	<ul style="list-style-type: none"> • Can describe wind differences, wind directions. Understand the effects and dangers of storms. • Can describe basic wave types heights. 	<ul style="list-style-type: none"> • Notepads • Pens • Handouts • App information for mobile devices. 	<ul style="list-style-type: none"> • Teachers to consider a risk assessment policy regarding the visit activities. • Teacher to demonstrate the wind direction with reference to the weather map. • To indicate the wave effect on the surface of the water in terms of its heights and direction. • Teacher to check if parental permission is required regarding the excursions and the use of mobile devices. 	2 hrs

MODULE 1 SEAMANSHIP - C) SECTORS AND ACTIVITIES RELATED TO WATER

Activity ID	Method & Activity name	Description	Learning objectives	Materials/ equipment	Notes for teachers	Time
5	<p>Direct Instruction: <i>PowerPoint presentation to show examples of different types of ships.</i></p>	<p>An Introduction to the various maritime sectors and the activities related to them. This module will provide information of four sectors; trade, military, fishing and pleasure boating. The teacher will provide reference books, PowerPoint presentations, and videos to provide examples.</p> <p>The teacher will introduce the learning materials and explain a connection and relevance to the subject.</p> <p>The second part of the activity consist of exercises for the students to complete by using the materials which determine the understanding and of the knowledge presented.</p>	<ul style="list-style-type: none"> Understands the different types of vessels and their relationships and priority to each other. 	<ul style="list-style-type: none"> Online Videos Reference Books Powerpoint presentations 	<ul style="list-style-type: none"> Teacher to prepare before hand a selection of links to Youtube videos and a Powerpoint presentation. Use multilingual flashcards depending on partner language as some of the students may lack English language skills. 	1h

MODULE 1 SEAMANSHIP - C) SECTORS AND ACTIVITIES RELATED TO WATER

Activity ID	Method & Activity name	Description	Learning objectives	Materials/ equipment	Notes for teachers	Time
6	Game based learning: <i>Simulator game to determine rules regulations and relationships of the 4 categories of maritime activities or demonstrate best sectors.</i>	Through game based methodology the teacher will make use of this website: https://ecolregs.com/ The website has a training simulator that offers interactive scenarios that explain rules and regulations and further teach the differences between the vessels at sea regarding the rules. The students can be directed to specific parts of the website to learn relevant rules and regulations relating to the relationships between vessels at sea.	<ul style="list-style-type: none"> Understands the different types of vessels and their relationships and priority to each other. 	<ul style="list-style-type: none"> Simulator Games 	<p>Teacher to familiarise themselves with this website: https://ecolregs.com/ before hand.</p> <p>Students who are new to IT the teacher should be mindful that the students will need support with the basic functionality of the computer or tool used.</p>	1,5hrs

MODULE 1 SEAMANSHIP - D) KNOTS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/ equipment	Notes for teachers	Time
7	<p>Flipped classroom learning approach: <i>Prepare a presentation to teach the other teams. One team per knot.</i></p>	<p>Teacher to provide handouts, video links, and materials (ropes) for students to prepare presentations to teach the 4 of knots to fellow students who will be divided into groups.</p> <p>This teamwork approach can include competitions, speed tests in order to keep students engaged.</p> <p>This approach will help students develop a sense of responsibility, leadership and teamwork. This teaching approach encourages the development of attitudes and strategies for learning and working together.</p>	<ul style="list-style-type: none"> • Know the names of the knots. • Can tie four different knots for which use 	<ul style="list-style-type: none"> • Ropes of different diameter, texture, and length. • Handouts, diagrams. • Video links showing the various knots. 	<ul style="list-style-type: none"> • Teacher to prepare before hand video links, teaching materials and ropes. • This flipped classroom approach will mean the teacher must observe and make notes and provide a conclusion back to the class regarding success or problems encountered. • This will also provide the teacher with an opportunity to observe and comment on the student's attitudes for teamwork and the learning and teaching styles. • The teacher should encourage the students to formulate and strengthen leadership skills and attitudes amongst the groups which is important in the maritime sector. 	2,5hrs

MODULE 1 SEAMANSHIP – E) TYPES OF BOATS AND VESSELS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/ equipment	Notes for teachers	Time
8	A combination of direct instruction and experiential learning: <i>Online group research to identify different examples of each boat category</i>	<p>The students will be provided with resources and handouts to explain the official differences between vessels. Students will learn from handouts the various parts of the boat. Students will start to develop a game to present the different parts of the vessel in a humorous but interesting way.</p> <p>During the visit the students will take photos of boat parts of different boats to be included into the final version of the game.</p>	<ul style="list-style-type: none"> • Can identify the various types of vessels. • Can identify the parts of the boat. 	<ul style="list-style-type: none"> • Game of pictures • Computers Videos 	<p>Teacher to prepare a lesson plan and excursion strategy regarding permissions, planning, authorizations with a relevant shipyard.</p> <p>For scenarios where a coastal visit or a shipyard visit is not possible the internet/youtube can provide abundant resources to use.</p>	1h

MODULE 1 SEAMANSHIP - E) TYPES OF BOATS AND VESSELS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/ equipment	Notes for teachers	Time
9	<p>A combination of direct instruction and experiential learning:</p> <p><i>Visit the local port/marina identify different examples of each category</i></p>	<p>Upon arrival the students will be given some handouts. Usually this type of excursion will be led by a guide representing the boat yard or marina.</p> <p>Teacher will explain the different types of vessels seen and students will be directed to take photos or make drawings of the vessels and the boat parts.</p>	<ul style="list-style-type: none"> • Understand the official categories of vessels. • Understand the names of the main vessel parts. 	<ul style="list-style-type: none"> • Notepads • Pens • Pencils • Phones 	<p>Safety briefing by boatyard manager in cooperation with the teacher including strict rules regarding a keeping the group of students together (i.e. give a number to each student).</p> <p>Teacher to consider refreshments/lunch arrangements.</p> <p>As an alternative, youtube videos and slide presentations of the various types of vessels can be used.</p>	1h

MODULE 1 SEAMANSHIP – F) MAINTENANCE OF BOATS AND VESSELS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/ equipment	Notes for teachers	Time
10	Experiential learning: <i>Visit to a shipyard repair business to see how it is done</i>	The group will relocate to the marina workshop to see demonstrations by professionals regarding various maintenance repair and servicing methods.	<ul style="list-style-type: none"> • Understanding of general boat maintenance • Understands control on the fuel system, electricity, cooling and lubricating oil system on boat engine • Understands good seamanship in connection with maintenance / inspection of a boat. 	<ul style="list-style-type: none"> • Notepads • Pens • Phones 	<p>All of the safety rules still apply.</p> <p>Teachers to consider whether students are required to wear protective gear as the workshop areas have higher risks and are therefore more dangerous in terms of the working environment.</p>	2h

MODULE 1 SEAMANSHIP - F) MAINTENANCE OF BOATS AND VESSELS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/ equipment	Notes for teachers	Time
11	Game based learning: <i>Finalise the game structure and content</i>	Upon returning from the port, yard, or marina the students can finalise and upload their drawings and photos taken during the visit to the online game system (h5p.org)	<ul style="list-style-type: none"> • Can identify the various types of vessels. • Can identify the parts of the boat. • Strengthen digital skills 	<ul style="list-style-type: none"> • Computer • Phones 	<p>In pairs, students will work with one computer to build the game.</p> <p>The teacher will be at disposal of the students for any IT support and to ensure the content for the game is accurate.</p>	1h

MODULE 1 SEAMANSHIP - G) UNDERSTANDING OF ENGINES AND SAILS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/ equipment	Notes for teachers	Time
12	Project based learning: <i>Research Project to determine type and principles of both power and sailing vessels</i>	<p>The students will be divided into two groups. Each group will be responsible for either power or sail research and will design a presentation to demonstrate to the other group.</p> <p>The presentations can suggest an element of competition. So for example, the group presenting 'Sail Boats' will try to suggest that Sailing are better because..... This could add a fun factor to the task and keep the students engaged.</p>	<ul style="list-style-type: none"> • Understand different types of power and sailing vessels. • Advantages and disadvantages of the two different types of vessels. 	<ul style="list-style-type: none"> • Computers • PowerPoint 	<p>The teacher will be at disposal of the students for any IT support and to ensure the content for the game is accurate.</p> <p>Students can make use of other Slide Presentation software (i.e: Prezi.com).</p> <p>The teacher could present a prize to the best presentation.</p>	5hrs

MODULE 2 COMMUNICATION ON WATER - A) INTRODUCTION TO RADIO ETIQUETTE

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
13	<p>Direct Instruction: <i>Lecture + exercises of radio etiquette</i></p>	<p>An Introduction to maritime radio communications which will explain and teach the origins to up to present day of marine radio communications and activity. The teacher will provide reference books, PowerPoint presentations, printed material learning, and videos.</p> <p>The teacher will introduce the learning materials and explain a connection and relevance to the subject.</p> <p>The second part of the activity consist of exercises for the students to complete by using the materials which determine the understanding and of the knowledge presented.</p>	<ul style="list-style-type: none"> • Understands basic protocol to receive and transmit radio messages correctly. • Understands radio the Etiquette. Do's & Don't's. 	<ul style="list-style-type: none"> • Printed learning material • PowerPoint • Reference Books • Videos 	<p>The teacher will assume zero pre-knowledge of students and control step by step learning process.</p>	1,5hrs

MODULE 2 COMMUNICATION ON WATER - A) INTRODUCTION TO RADIO ETIQUETTE

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
14	Kinesthetic learning: <i>Online games</i> <i>Online simulators</i> <i>Dummy simulators</i>	<p>Using the online simulators and the dummy handsets the students will role play-caller and receiver scenarios in the classroom.</p> <p>After one hour of practice, students will be tested on the phonetic alphabet and given instructions on how to memorize this for life.</p>	<ul style="list-style-type: none"> • Can describe how a VHF radio works, including making a DSC call. • Can learn the phonetic alphabet and pro-words. 	<ul style="list-style-type: none"> • Computers • Online simulators • Dummy Sets 	<ul style="list-style-type: none"> • To prepare simulators beforehand: Use the App: <i>VHF Trainer Lite</i>. There is a free version available on App Store and Play Store. • It is recommended that teachers listen to maritime English pronunciation examples online. 	1,5hrs

MODULE 2 COMMUNICATION ON WATER - B) MORSE CODE

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
15	Direct Instruction: <i>Lecture + exercises of Morse code</i>	An introduction to the history of Morse Code, which is now discontinued, however the SOS system still applies in distress situations.	<ul style="list-style-type: none"> • Understands the basics of Morse code. • Understands Morse code importance in history 	<ul style="list-style-type: none"> • Printed learning material 	Teachers to source a Morse code simulator online to help students understand and learn the principles of Morse Code.	1hr

MODULE 2 COMMUNICATION ON WATER - B) MORSE CODE

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
16	Kinesthetic learning: <i>Online Morse code simulator</i>	Either using videos or simulators, students can hear examples of Morse code, how it is formulated and how it is translated alphabetically.	<ul style="list-style-type: none"> Knows how to make an SOS message in Morse Code. 	<ul style="list-style-type: none"> Morse code simulator 	<ul style="list-style-type: none"> Teachers to source a Morse code simulator online to help students practice the Morse Code. Students to respect the sensitivity of any electronic equipment when practising this technique. 	1hr

MODULE 2 COMMUNICATION ON WATER - C) SIGNS & D) SOUNDS & FLAGS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
17	Direct Instruction: <i>Lecture of signs, sounds and flags</i>	<p>An introduction to the subject of Signs, sounds, and flags which is a method of how vessels communicate with each using various systems other than voice communications.</p> <p>The teacher will explain and demonstrate how the signs appear depending on day or night view.</p> <p>The teacher will use a simulator to demonstrate sound signals.</p>	<ul style="list-style-type: none"> understands the significance and meaning of the signs understands the meaning of sound signals and flags 	<ul style="list-style-type: none"> PowerPoint, Video, Reference books, Audio device to simulate sound communication (vessel horn). Printed graphics to show signal flag recognition. Handouts 	<p>During this session the teacher will need to explain in detail the difference of how Bouys appear either by day or by night.</p> <p>Prepare to engage students by creating night-time situations within the classroom using different coloured light formulations to demonstrate different vessels and their activity.</p> <p>To prepare handouts to visualize and explain the appearance or sound of the relevant signal.</p>	2,5hrs

MODULE 2 COMMUNICATION ON WATER - C) SIGNS & D) SOUNDS & FLAGS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
18	Game based learning: <i>An activity with flip cards and online simulator</i>	Through game based learning, in this session the students will be engaged with using practical tools to further understand and test the knowledge. The students can split into groups and use flip cards to learn the buoys, day shapes, sounds signal and flags, in order to test the other class groups through a quiz.	<ul style="list-style-type: none"> understands the significance and meaning of buoyage and day shapes. understands the meaning of sound signals and flags To make learning a interesting and fun process. 	<ul style="list-style-type: none"> Flip cards, Audio device to simulate sound communication (vessel horn). i.e. an App. Prize/award 	<p>The teacher will help the students organise their groups and guide them regarding the rules of the quiz.</p> <p>Each group will be given a selection of flip cards in order to test the other group in a competitive situation where the winner group could get an award.</p>	2,5hrs

MODULE 2 COMMUNICATION ON WATER - E) LIGHTS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
19	Direct Instruction: <i>Lecture and classroom activities and exercises about lights</i>	<p>The teacher will explain the difference between navigation lights (only on board vessels and lights which appear only on buoys, lighthouses, ports, marinas or hazards).</p> <p>The teachers can use flipped cards to demonstrate the different navigation lights.</p> <p>The teacher can use a navigation chart to show examples of all of the lights.</p> <p>The students can then practice with the chart to locate, identify, and describe various lights (colours, flash patterns, heights, etc),</p>	<ul style="list-style-type: none"> • Understands the significance and meaning of navigation lights for various types of vessels. • Can identify the various types of lights used by vessels to safely navigate in or out of port by night. 	<ul style="list-style-type: none"> • Video links • Reference books • Navigation chart • Flip cards 	<p>The students must understand that these two groups of lights are very important methods of communication (i.e navigation lights will indicate to other vessels direction, type, activity and size another vessel in view).</p> <p>Whereas lights (in ports or marinas) are to communicate information regarding where to go and where not to go. Teacher to divide the session into a) navigation lights and b) charted lights.</p> <ul style="list-style-type: none"> • Teacher to prepare video examples to show different navigation lights as seen by night: <ul style="list-style-type: none"> ○ https://www.respektforvand.dk/p/aa-havet/laer-at-sejle/skibsllys ○ https://www.respektforvand.dk/p/aa-havet/sejlertesten • Teacher to download a section of a chart showing a port or a marina to give examples of lights as seen on a chart. 	2,5 hrs

MODULE 2 COMMUNICATION ON WATER - E) LIGHTS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
20	Game based learning: <i>An activity with flip cards, online simulators and online activities</i>	<p>This session is will be designed to deliver learning but also develop teamwork and decision making that is important to maritime work ethic.</p> <p>The students will be tested both one to one and in groups.</p> <p>The online simulators will teach individual students and offer a variety of scenarios that will test their learning.</p> <p>The flip cards will be used by groups of students to test knowledge and understanding to other classroom groups.</p>	<ul style="list-style-type: none"> • Understands the significance and meaning of navigation lights for various types of vessels. • Can identify the various colours of lights used by vessels to safely navigate in or out of port by night. • Can work and make decisions in a team. • Can work and make decisions individually. • Strengthen IT skills regarding online activity. 	<ul style="list-style-type: none"> • flip cards • Online Simulators (ecolregs.com/) 	<p>Prepare and test the online system in order to help students work with the program.</p> <p>Some students may need more time to understand and develop the computer skills.</p> <p>Reserve computer class.</p>	2,5hrs

MODULE 2 COMMUNICATION ON WATER - F) VISIT TO PORTS AND MARINAS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
21	Experiential Learning: <i>Visit to a local port, marina, or lighthouse for recognition and comparison in a real sense</i>	<p>This teaching day is designed for the students to experience visually and first hand real life situations regarding navigation lights on ships and land lights as seen in ports and marinas.</p> <p>It is also an opportunity to visualize day shapes buoyage and signal flags.</p>	<ul style="list-style-type: none"> able to recognise various marks, flags and lights. To learn in reality the size and dimensions of various buoys, lights and flags. 	<ul style="list-style-type: none"> Notepads, photos, videos, handouts 	<p>Organize the day to allow time to see lights in an illuminated sense therefore the school day will start at 12:00PM or 1:00 PM through to 5:00 PM in order to experience darkness.</p> <p>Teacher to consider transport, refreshments, lunch, authorizations at the various locations.</p> <p>Teacher to be mindful of the dangers and risk associated with the port/marina environments during hours of darkness.</p>	5hrs

MODULE 3 NAVIGATION ON WATER - A) INTRODUCTION TO NAVIGATION

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
22	<p>Direct Instruction: <i>Lecture and classroom activities and exercises about navigation</i></p>	<p>Introduction to navigation, history and the reasons through a dynamic slide presentation.</p> <p>The teacher should explain that a main consideration of navigation was the effects of the tide.</p>	<ul style="list-style-type: none"> understands the fundamental differences of navigating in tidal or non-tidal waters. 	<ul style="list-style-type: none"> Presentation tool: https://prezi.com/ Reference books 	<p>Teacher to prepare the presentation to graphically demonstrate the movement of the tide.</p>	0,5hrs

MODULE 3 NAVIGATION ON WATER - A) INTRODUCTION TO NAVIGATION

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
23	<p>Direct</p> <p>Instruction:</p> <p><i>Videos of tidal rise and fall and tidal stream effects</i></p>	A selection of Youtube Videos to demonstrate the effects and movement of tidal heights and tidal streams.	<ul style="list-style-type: none"> Understands the effects and dangers of tidal waters. 	<ul style="list-style-type: none"> Video 	Prepare a selection of videos from Youtube for presentation to the students	0,5hrs

MODULE 3 NAVIGATION ON WATER - B) THE CHART

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
24	<p>Direct</p> <p>Instruction: <i>Lecture and classroom activities and exercises about the chart</i></p>	<p>This session will explain the use and information given on a nautical chart (i.e. Scale, north arrow, lines of longitude and latitude, bearing).</p> <p>The teacher will explain the various features of the chart including lighthouses, hazards, depths, heights, and contour lines for example.</p> <p>The teacher will demonstrate the use of navigation tools such as the plotter, the divider and the compass.</p> <p>The Teacher will demonstrate the key points for safe passage planning.</p> <p>Students will undertake a range of basic exercises to demonstrate they have understood each element of the learning.</p>	<ul style="list-style-type: none"> • Understand chart scale features and colour coding. • Can use the plotter, can use the dividers, can use the compass • Have knowledge of lake demarcations • Know how to read a chart • Can plan a simple passage • To learn the discipline of precision chartwork and the consequences if not so. 	<ul style="list-style-type: none"> • Reference books • Nautical chart, • plotter, • dividers, • pencils, • notepads, • calculator, • compass 	<p>Teacher to ensure sufficient charts for use within the classroom (minimum one per two people).</p> <p>Teacher to ensure other training materials and equipment is provided.</p> <p>Teacher to stress that students take care of the equipment as is delicate and expensive.</p> <p>Teacher to prepare a template for students use during basic exercises.</p>	4hrs

MODULE 3 NAVIGATION ON WATER - C) THE CHART WORK/PASSAGE PLANNING PRACTICE

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
25	<p>A combination of Kinesthetic learning and project-based learning: <i>Divide the class into different groups and give each group a different passage plan to complete</i></p>	<p>This teaching day will be divided into two sessions:</p> <p>During the morning, the students will learn how to create a passage plan and in the afternoon session the students will present their completed passage plans.</p> <p>Each group will be given an origin location and a destination point and must prepare a passage plan taking into consideration: time of departure, time of arrival, weather, wind direction, tide direction, date, time of day, speed of boat, size of boat.</p> <p>Contingency plans for emergency situations.</p> <p>The plan will demonstrate: Plotting the course, determine the distance from start to finish, the bearing of the course, and the time it will take to complete the passage.</p>	<ul style="list-style-type: none"> • Can draw up a simple passage plan. • This type of learning will highlight the students ability to work autonomously, whilst encouraging the students to work together to find a solution. 	<ul style="list-style-type: none"> • Nautical chart, • plotter, • dividers, • pencils, • notepads, • calculator, • compass 	<ul style="list-style-type: none"> • Teacher to bear in mind that the morning session will be devoted to the preparation of the plan and will need to be prepared to help and assist the students during this process. • Teacher to stress that students take care of the equipment as is delicate and expensive. • During the afternoon presentations, the teacher can assess how well each group understood and acknowledge the detail required for this element of navigation. 	5hrs

MODULE 3 NAVIGATION ON WATER - D) COLLISION REGULATIONS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
26	<p>Flipped classroom learning approach: <i>Student project to learn and teach specific collision regulations.</i></p>	<p>This training day will be divided by the morning session that will offer an introduction and reasons why the “colregs” (Collision regulations) exists and will include examples of collisions using video and collision report examples .</p> <p>This will be followed by the flipped learning classroom approach, where the students source a variety of learning materials to help them learn the specific collision regulation known as the giveaway rules.</p> <p>In the later session, the students will formulate their presentations. And, as a test, monitored by the teacher, will present their work back to the class.</p>	<ul style="list-style-type: none"> Initially understand which vessel gives way in different collision scenarios. How to research and source learning materials for this subject. How to communicate and present the content in a structured and clear way. 	<ul style="list-style-type: none"> Computers Videos Reference books 	<p>Teacher to monitor how the students collect their learning materials, formulate their presentations and assess the students’ performance during those presentations.</p> <p>Teacher to prepare and give feedback to the students for the presentation performances.</p> <p>Teacher to prepare a selection of Youtube videos that demonstrate both collision and risk of collision.</p>	5hrs

MODULE 3 NAVIGATION ON WATER - E) COLLISION REGULATIONS PRACTICE

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
27	Game based learning: <i>Simulator training/practice</i>	<p>This teaching day will be divided into the morning session and afternoon session.</p> <p>In the morning, the students will learn how to use the online NEO-COL Training Course and later practice different collision scenarios. Each scenario is an animated representation of a real-life collision situation. Each scenario offers a storyboard which provides step by step development during the last minutes before the collision.</p> <p>In the afternoon, the NEO-COL program also offers an assessment test for students to take and receive feedback regarding their performance.</p>	<ul style="list-style-type: none"> • More realistic understanding of collision avoidance. • Strengthen Digital Skills. 	<ul style="list-style-type: none"> • Simulator: use the NEO-COL simulator for learning and testing- .https://neo-col.eu/training-course-1/ 	Teacher to pre-test the NEO-COL training course, its functionality, etc and offer technical support during the two sessions during the day.	5hrs

MODULE 4 SAFETY ON WATER - A) UNDERSTANDING SAFETY ON WATER

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
28	Direct Instruction: <i>Introduction Lecture, Slide presentations, and online videos.</i>	<p>The teacher will introduce the concept of safety in the maritime field. It will be broken down into three separate subjects: safety equipment, safety rules and medical first aid.</p> <p>The teacher will give a briefing of the day ahead which will include a out sourced invited professional instructor to deliver specific content regarding (dangers safety equipment) and medical first aid procedures.</p>	<ul style="list-style-type: none"> to understand the importance of the need to have knowledge of and use of essential safety equipment. To know which safety equipment is used in which emergency situation. 	<ul style="list-style-type: none"> Safety equipment Videos Handouts 	<p>Teacher to prepare prior to the class the relevant safety equipment to be demonstrate to the students.</p> <p>Teacher to liaise with the instructor to coordinate the day for this teaching element.</p> <p>Teacher must be aware of the misuse and dangers of certain safety equipment i.e.. Flares, these must be dummy examples.</p>	0,5hrs

MODULE 4 SAFETY ON WATER - A) UNDERSTANDING SAFETY ON WATER

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
29	Direct Instruction: <i>Professional instructor to demonstrate and teach the important basics of medical first aid</i>	The professional instructor will demonstrate the use of Dummy safety equipment i.e.. Fire extinguishers and distress flares and present a range of other essential safety equipment to be carried onboard. Also the Instructor will deliver the Basic First Aid training to the class	<ul style="list-style-type: none"> To understand basic medical first aid, including the recognition and procedure to deal with hypothermia, frostbite and undercooling. Understand treatment and care options. To enhance, identify and improve decision making skills and teamwork abilities. 	<ul style="list-style-type: none"> Medical first aid kit contents. Dummy fire extinguishers and flares. Dummy flares Life jackets 	<p>To liaise with the professional instructor the plan for the teaching session.</p> <p>During the professional instructor presentations the teacher will have an opportunity to observe and evaluate the students understanding, attitude and progress.</p>	2,5hrs

MODULE 4 SAFETY ON WATER - A) UNDERSTANDING SAFETY ON WATER

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
30	Kinesthetic learning: <i>Practical demonstration and testing among students of various essential safety equipment</i>	<p>During this session the students will divide into groups and demonstrate safety equipment and the features to the other groups.</p> <p>The students groups will also explain the use regarding the contents of the medical first aid kit</p> <p>For each medical condition, the students can explain the treatment to the casualty in a role play scenario where each group must diagnose the condition and offer the treatment accordingly.</p> <p>At the end of the session there will be a test to check the knowledge and understanding of safety equipment and medical first aid procedures.</p>	<ul style="list-style-type: none"> • Capable to use and demonstrate essential safety equipment • Understand the procedures for basic medical first aid. • Understand the contents of the basic medical first aid kit. • Strengthen teamwork and a sense for responsibility amongst the students. 	<ul style="list-style-type: none"> • Safety equipment • Medical first aid kit. • First aid mannequin 	<p>The teacher must explain how the kinaesthetic learning session must be conducted.</p> <p>The teacher can observe and evaluate the students performance and understanding during this groupwork.</p> <p>The teacher to prepare a simple question/answer using the online tool Kahoot.com.</p>	2hrs

MODULE 4 SAFETY ON WATER - B) EMERGENCY SITUATIONS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
31	Direct Instruction: <i>explaining of videos of examples to deal with the situations & slide presentations</i>	<p>This session will be carried out during the morning and will include videos and presentations regarding the following emergency situations: man over board, fire on board, sinking, run aground.</p> <p>This session will include the services of a professional safety officer who will work with the teacher to deliver the vital teaching for the subject.</p> <p>It must be stressed that only the man over board situation will be experienced in the afternoon session at the local swimming pool.</p> <p>Note: Fire, sinking and running aground can be explained through video examples and not through practical experience.</p>	<ul style="list-style-type: none"> To understand the dangers and causes of emergency situations. To understand the procedures to deal with these emergency situations. 	<ul style="list-style-type: none"> Video examples of emergency situations. Flip cards to demonstrate precautions to prevent emergency situations. 	Teachers to coordinate together with the professional safety officer the full day which will include the practical session at the local swimming pool in the afternoon.	1,5hrs

MODULE 4 SAFETY ON WATER - B) EMERGENCY SITUATIONS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
32	Experiential learning: <i>Visit to local pool to experience sea survival and rescue training.</i>	<p>The professional safety officer will accompany the students to the study visit to help organise and coordinate the day ahead.</p> <p>The afternoon will only teach the sea survival techniques and use of life raft skills.</p>	<ul style="list-style-type: none"> Understands and is able to take part in a sea survival emergency rescue situation. To appreciate the risks and importance of behaviour onboard a vessel. This activity should provide students with a greater sense of responsibility regarding themselves and other crew members onboard. 	<ul style="list-style-type: none"> Safety equipment: provided by the pool/sea survival centre. 	<p>The teacher should ensure that only students that can swim are eligible to take part in this practical session.</p> <p>Teacher to consider transport arrangements, refreshments and authorizations.</p> <p>Teacher to pre-organize together with the professional safety officer the venue and equipment required for this afternoon session.</p>	3,5hrs

MODULE 5 ECOLOGY - ECOLOGICAL ENVIRONMENT RELATED TO WATER AND THE EFFECTS ON THE ENVIRONMENTS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
33	<p>Direct Instruction: <i>An introduction to the subject and the importance of the huge impact this has at this time</i></p>	<p>This session will introduce to the students the massive impact of pollution and the damaging effects regarding the sea and land-based environment.</p> <p>The teacher will use videos and presentations to deliver the following content: Dangerous chemicals onboard, organic waste, litter, noise boating activity/anchoring, sea life, seaweed, pollution, plastic pollution.</p>	<ul style="list-style-type: none"> To be aware of the importance of the coastal environmental and how to protect it and why we need to protect it. 	<ul style="list-style-type: none"> Videos Slide presentations 	<p>Teacher to prepare a selection of videos to demonstrate the contents and the effects on the environment regarding each aspect.</p>	1h

MODULE 5 ECOLOGY - ECOLOGICAL ENVIRONMENT RELATED TO WATER AND THE EFFECTS ON THE ENVIRONMENTS

Activity ID	Method & Activity name	Description	Learning objectives	Materials/equipment	Notes for teachers	Time
34	Project-based learning: <i>Build a Campaign to include other schools in the area regarding a beach clean/protected area based on a research project</i>	<p>The students will devise a campaign for a local beach clean/protected area visit that will include other schools in the area to combine in delivering this task.</p> <p>The teacher should explain the process for this type of activity to guide the students before commencing the task.</p> <p>The students will research themselves how other projects have been delivered.</p> <p>The teacher will prepare examples of QR codes that students can scan and get information through videos on the 9 different elements previously studied.</p>	<ul style="list-style-type: none"> To learn and be aware of the importance of the coastal environmental and how to protect it. To work together and with other organizations to build and plan a physical event/ campaign to actively help the environment. To support and encourage students to disseminate the finding of their research to the wider public. 	<ul style="list-style-type: none"> Reference books, QR Codes Mobile phones Computers Posters Prize 	<p>The teacher to introduce and guide students regarding the campaign objectives and offer tips and advice before hand.</p> <p>Authorization from parents to use students mobile phones.</p> <p>Teacher may have to contact local authority to seek permission for the event.</p> <p>The teacher will offer a prize for delivering a successful project to the class and a certificate of local heroes.</p>	4hrs