

**Study text-book  
for  
the yacht master training programmes  
As of 1 January 2003  
(version 3, dated 1 October 2007)**

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**Danish Maritime Authority**

## 1. PURPOSE

The purpose of the study text-book of the Danish Maritime Authority is to inform about the regulations and guidelines applicable to the individual yacht master exams, including about the formal regulations for registering for an exam. Furthermore, information is provided about the types of exams and about the formal regulations on the holding of exams.

The study text-book should be used by everybody who wants to register for an test or who teaches persons who are preparing for a test.

The study text-book as well as all the forms about registration for exams, etc. mentioned in the text-book are available for down-loading from the web-address [www.fritidssejler.dk](http://www.fritidssejler.dk).

This version of the study text-book describes the exams as they have been arranged for students who want to sit for a yacht master exam after 1 January 2003.

Students are free to choose which text-books to use for the training programmes. As a service for the users of the training programmes, there are however – in connection with the description of each individual subject (see items 10 and 11 in the list of contents) – references to relevant curricula. Furthermore, a number of assignments with associated answers are available from [www.fritidssejler.dk](http://www.fritidssejler.dk).

Additional information about the yacht master training programmes is available from

Danish Maritime Authority  
Carl Jacobsens Vej 31  
DK-2500 Valby  
Tel. +45 72 19 60 00

## 2. CERTIFICATE OF COMPETENCY AND RIGHTS

### 2.1 Requirement for certificate of competency

Pursuant to the act on the manning of ships, all recreational craft with a hull length of or above 15 metres, but below 24 metres, must have one or more navigating officers on board holding a certificate of competency. In order to acquire a certificate of competency, you must meet certain requirements for theoretical and practical training, just as certain minimum sight and hearing requirements must be met. This text-book describes only the requirements for theoretical education and training.

### 2.2 Rights

Once you have been issued with a certificate of competency on the basis of a passed yacht master exam, etc., the following rights are acquired:

- 1) A certificate of competency as a yacht master, 3<sup>rd</sup> class entitles the holder to sail recreational craft with a hull length of or above 15 metres, but below 24 metres, engaged in voyages in the Baltic Sea, the North Sea and the English Channel as well as trade on the British Isles, Ireland, Norway, the Faroe Islands and along the coasts of Greenland at a distance of no more than 30 nautical miles from the coast.

Furthermore, the certificate of competency entitles the holder to sail as a mate on board the same ships engaged in voyages on all seas.

- 2) A certificate of competency as a yacht master, 1<sup>st</sup> class entitles the holder to sail recreational craft with a hull length of or above 15 metres, but below 24 metres, engaged in voyages on all seas.

## 3. YACHT MASTER TRAINING PROGRAMMES

The provisions on the yacht master exams have been laid down with its legal basis in act no. 226 of 22 April 2002 on maritime training programmes.

### 3.1 Purpose

1. The purpose of the yacht master, 3<sup>rd</sup> class, exam is to qualify the student:
  - to function as a master of large recreational craft in Northern European waters,
  - to function as a mate on large recreational craft engaged in voyages on all seas,
  - to pursue further studies for the yacht master, 1<sup>st</sup> class, exam.
2. The purpose of the yacht master, 1<sup>st</sup> class, exam is to qualify the student:
  - to function as a master of large recreational craft engaged in voyages on all seas.

### 3.2 Qualifications

In order to be able to register for an exam, the person concerned must have passed:

- the practical part of the test for a certificate of competency in sailing for yachtsmen, or

- the test for master of certain engine-driven recreational craft with a hull length below 15 metres (the power boat test), or
- have completed – with a satisfactory result – a basic course at an approved nautical college or on board a training ship.

The practical part of the training programme must be completed before it is possible to register for the yacht master, 3<sup>rd</sup> class, exam.

## **4. TEST REQUIREMENTS**

### **4.1 Subjects**

The tests for the two training programmes consist of a number of subjects each of which cover a specific subject area. A specific exam consists of a specific number of subjects. The design of each individual training programme is described under 4.2, "Exams".

### **4.2 Exams**

#### **4.2.1 Exam for yacht master, 3<sup>rd</sup> class**

The following subjects form part of this exam:

- Navigation
- Seamanship and maritime safety
- Meteorology
- Maritime law
- Watchkeeping duty

#### **4.2.2 Exam for yacht master, 1<sup>st</sup> class**

The following subjects form part of this exam:

- Navigation
- Seamanship and communication
- Meteorology
- Medical care

## **5. TEACHING AND TESTS**

### **5.1 Teaching**

Students are not obliged to attend the teaching, and there is no recommendation for the time to be spent preparing for the exam. However, experience shows that it may be difficult to handle the training programmes as self-tuition.

Many sailing clubs, sailing schools, adult education associations, etc. offer courses in the subjects covered by the training programmes.

## 5.2 Pre-registration

Due to the Danish Maritime Authority's exam planning activities, the form shown in **annex 1** should be forwarded as soon as possible after the start of the teaching, duly filled in with information about the expected number of persons for the test, when they will be ready for the test as well as the preferred place of examination (city). Any changes to this information should be provided on an ongoing basis. Then the Danish Maritime Authority will, to the widest extent possible, try to meet the requests. It should, however, be noted that traditionally especially the month of April is requested.

Persons who are preparing themselves for the yacht master exam need not forward the pre-registration mentioned above.

## 5.3 Test

The entire training programme for the yacht master exam is finalised once for all subjects by a written exam and/or oral exam in accordance with the guidelines below:

### 5.3.1 Exam for yacht master, 3<sup>rd</sup> class

Initially, the test consists of a written part in the subject watchkeeping duty (regulations for preventing collisions at sea, bridge watchkeeping teams, distress signals, etc.) and safety.

Then, the test will be oral and have the form of an "operational interview" of approx. 45 minutes' duration, i.e. the examinee is examined in the remaining part of the curriculum for the training programme. The basis of the interview can, for example, be a voyage from A to B with various questions as the exam progresses in voyage planning, navigation, meteorology, etc. from the curriculum described.

The evaluation will be passed/not passed.

### 5.3.2 Exam for yacht master, 1<sup>st</sup> class

For the test, an interdisciplinary project paper made by the examinee should be brought along about an ocean voyage, which covers as a minimum voyage planning, navigational observations, the taking on board/removal of weights with subsequent stability changes as well as a "sick visit" to the skipper.

The test will be oral in the form of an "operational interview" of approx. 45 minutes' duration. On the basis of the examinee's project paper, various questions will be asked related to the curriculum described in the education programme.

The evaluation will be passed/not passed.

## 6. REGISTRATION FOR EXAM

### 6.1 Exam for yacht master, 3<sup>rd</sup> class

Anybody who wants to register for the exam for yacht master, 3<sup>rd</sup> class must:

- a) have passed the practical part of the test for a certificate of competency in sailing for yachtsmen or the "power boat test",
- b) have attended a practical presentation of life-saving appliances and, in this connection, attended a demonstration of the use of an inflatable liferaft, as described in the curriculum for the subject "Seamanship and maritime safety" for the exam for yacht master, 3<sup>rd</sup> class,
- c) have attended a practical presentation in the extinguishing of small fires by manual fire-extinguishers of the relevant type, as described in the curriculum for the subject "Seamanship and maritime safety" for the exam for yacht master, 3<sup>rd</sup> class, and
- d) pay an exam fee determined by the Danish Maritime Authority.

The registration for the exam must be made on a special form (annex 2). The filled in form must be signed and forwarded to the Danish Maritime Authority together with:

1. Documentation (photo copies are acceptable) of personal number and name (passport, driver's license or birth certificate as well as health insurance or personal number certificate. In the case of change of name, also name certificate or marriage certificate).
2. Documentation that the subjects mentioned under items a), b) and c) are met.
3. Documentation of exam fee paid, if relevant.

The registration form accompanied by the required documentation must have been received by the Danish Maritime Authority **no later than 1 month** before the chosen date of the exam.

### 6.2 Exam for yacht master, 1<sup>st</sup> class

Anybody who wants to register for the exam for yacht master, 1<sup>st</sup> class must:

- a) have passed the exam for yacht master, 3<sup>rd</sup> class, and
- b) pay an exam fee determined by the Danish Maritime Authority.

The registration for the exam must be made on a special form (annex 2). The filled in form must be signed and forwarded to the Danish Maritime Authority together with:

1. Documentation of having attended practical exercises in the operation of the technical navigation means, as described in the curriculum for the subject "Navigation".
2. Documentation of having completed a recognised course in extended first aid.
3. Documentation of exam fee paid, if relevant.
4. Documentation of any change of name, if relevant (name certificate or marriage certificate), after having passed the exam for yacht master, 3<sup>rd</sup> class.

The registration form accompanied by the required documentation must have been received by the Danish Maritime Authority **no later than 1 month** before the chosen date of the exam.

## 7. EXAM FEES

When registering for the exams for yacht masters, a fee determined by the Danish Maritime Authority must be paid.

As of 1 October 2007, these fees are as follows:

<u>Exam for yacht master, 3<sup>rd</sup> class</u>	
Registration for exam	DKK 350

<u>Exam for yacht master, 1<sup>st</sup> class</u>	
Registration for exam	DKK 600

The exam can be paid by credit card (Dankort) via the payment module on [www.fritidssejler.dk](http://www.fritidssejler.dk), over net banking on card type 73 and creditor number 83601426, by inpayment form to creditor number 83601426 (the Jyske Bank) or by an enclosed cheque issued to the Danish Maritime Authority.

Examinees who have cancelled their participation in the exam by letter received by the Danish Maritime Authority no later than 14 days before the exam date, will have the exam fee refunded with a deduction of DKK 100.00.

No-show will result in loss of the exam fee unless it is documented through a medical report that the examinee was prevented from showing up on the exam date. In this case, the exam fee will be refunded with a deduction of DKK 100.00.

## 8. HOLDING THE TEST

The Danish Maritime Authority plans and holds the tests.

It is presupposed that six persons can be examined per day.

On the basis of the pre-registrations received (see 5.2), the Danish Maritime Authority draws up a preliminary exam form for the entire country. The exam form which is being updated on an ongoing basis will be available from the webpage of the Danish Maritime Authority, [www.fritidssejler.dk](http://www.fritidssejler.dk), from each turn of the year. The form will show the place of the test (city), the date and time of the test and the number of vacant places.

### 8.1 Date and time of the test

In principle, it will be possible to hold tests at any time of the year – on the condition of a sufficient number of registrations (6 persons). However, it must be expected that the possibility of attending a test is greatest in the spring when the winter season's offer of courses is traditionally finalised.

## 8.2 Place of the test

It will be possible to hold tests all over the country on the condition that suitable facilities are made available free of charge for the holding of the exam. The facilities must, as a minimum, be equipped with a board, a flip-over or the like. Furthermore, the text-books, navigation manuals and charts used for the training programme must be available.

It can be possible to hold exams for individual persons and small groups of persons at specific maritime training centres if it is impossible to offer the examinee another exam group. It is expected that any vacant places can be used by individuals or other small groups.

## 9. PROCEDURES

In this section, you will find a brief summary of the course of a training programme for the yacht master exam:

1. You prepare for the exam requested (if relevant, by registering for a course that prepares you for the relevant exam).
2. At the start of the course, the teacher sends the form "Pre-registration", annex 1, to the Danish Maritime Authority (required only if the teaching takes place in groups).
3. On the basis of the pre-registration, the Danish Maritime Authority makes an exam form that covers the entire country, which is available from [www.fritidssejler.dk](http://www.fritidssejler.dk) or from the Danish Maritime Authority.
4. On the basis of the information in item 3 above, you choose the wanted date, place and time of the exam, fill in and forward the "registration form" (annex 2 or 3) so that the Danish Maritime Authority receives it **no later than 1 month prior** to the chosen date and time of the exam.
5. The Danish Maritime Authority confirms your registration for the exam.
6. You turn up for the exam at the stated place, date and time bringing along **photo ID**.
7. You receive your test result immediately after the exam.

## 10. DESCRIPTION OF THE INDIVIDUAL SUBJECTS IN THE EXAM FOR YACHT MASTER, 3<sup>RD</sup> CLASS

### Subject: NAVIGATION

**PURPOSE:** A yacht master must have the competences and skills in navigation necessary to function as a master of large recreational craft in Northern European waters.

**GOAL DESCRIPTION:** After having completed the training programme, the goal is that the yacht master:

- has knowledge about voyage planning,
- can determine and assess the ship's position by using:
  - landmarks at sea and ashore,
  - reckoning in consideration of the effects of the wind and current,
- can use aids to navigation according to IALA A,
- can use charts and manuals for planning and carrying out the ship's safe voyage,
- can maintain a ship's collection of charts and manuals,
- has knowledge about the magnetic compass, including is able to determine its indication error,

- has knowledge about the functional principles of the technical navigation equipment that is normally available in large recreational craft,
- has knowledge about conditions related to currents.

### **GUIDING CURRICULUM/TEACHING MATERIAL**

**COURSE CONTENTS:** Basic concepts: The earth, positions on the earth, mutual position, compass lines, course steered, course through the water and course made good, bearing, nautical miles. The magnetic compass: magnetism, the compass in general, erecting and caring for the magnetic compass, its variation and deviation. Speed and distance, drift and current. The chart, navigational manuals, Notices to Mariners, aids to navigation. Position-determination by means of terrestrial navigation. Reckoning. Elementary functional theory related to echo sounder, log, GPS and radar. Voyage planning. Conditions of current.

**TEXT-BOOKS:** "Navigation 1", "Navigation 2" and "Navigation 4" by Jørgen Wittrup and the leaflet issued by the Danish Maritime Safety Administration, "Aids to navigation in Danish waters".

**EDUCATIONAL MATERIAL:** Relevant charts, Chart 1 (INT 1). For use in the teaching, the course should have an appropriate selection of Danish special charts as well as the following manuals at its availability: "Den dansk lods" (*The Danish pilot*), "Den danske havnelods" (*The Danish port pilot*), "Dansk fyrliste" (*Danish list of lights*) (is available for downloading for free from the webpage of the Danish Maritime Safety Agency) as well as copies of "Notices to Mariners".

**DESCRIPTION OF THE CURRICULUM:** The following chapters and sections in the text-books should be read:

#### Navigation 1

Chapters: 1.1, 1.4-1.8, 1.10-1.13, 1.19-1.21, 1.23, 1.24, 1.26-1.28, 1.33-1.37 and 1.39-1.45.

Furthermore, the most important contents of the following chapters is presented: 1.2, 1.3, 1.9, 1.14-1.16, 1.25, and 1.32.

Elementary functional theory related to navigation instruments is available from the CD-ROM enclosed with the text-book.

#### Navigation 2

Chapters: 1.1-1.9, 2.1-2.3, 2.5-3.2, 3.4 and 4.1

Furthermore, the most important contents of the following chapters is presented: 2.4, 3.6, 3.7 and 4.2.

#### Navigation 4

Chapters: 1.1-1.8 and 1.13-1.15.

Furthermore, the most important contents of the following chapters is presented: 1.12, 2.1 and 2.2

Furthermore, the leaflet "Aids to navigation in Danish waters" is read.

## **Subject: SEAMANSHIP AND MARITIME SAFETY**

**PURPOSE:** A yacht master must have the competences and skills in seamanship, maritime safety and fire-fighting necessary to function as a master of large recreational craft in Northern European waters.

**GOAL DESCRIPTION:** After having completed the training programme, the goal is that the yacht master:

- can describe the construction of various types of recreational craft and their characteristics using the most common names and designations used on board;
- can define the concepts of weight and measurement tonnage as well as the ship's dimensions (measures);
- can calculate a ship's mean draught and trim on the basis of the observed draught;
- can define the concepts of centre of gravity, buoyancy centre, meta-centre and stability;
- has an understanding of factors that affect the stability of large recreational craft, including the loss of buoyancy, the effects of the wind, sea and free liquid surfaces;
- is informed about the sailboat and its balance and is familiar with how to change the boat's balance;
- has knowledge about the common types of ropes and wires in large recreational craft and their use;
- can calculate the dimensioning of ropes, wires and shackles;
- has knowledge about a ship's manoeuvring, mooring and anchoring under various conditions, including the man-over-board situation;
- has knowledge about personal safety equipment and life-saving appliances, including the inflating of rubber liferafts;
- can take the appropriate and necessary precautions in case of loss;
- be informed about GMDSS communication;
- has knowledge about the maritime rescue service in Denmark, including rescue by helicopter;
- has knowledge about the principles of preventing fires and fighting fires.

## **GUIDING CURRICULUM/TEACHING MATERIAL**

**COURSE CONTENTS:** The ship's construction, weight and measured tonnages, draught and trim, stability, the sailboat and its balance, sail area and centre of pressure of sails, lateral plane and centre. The use of safety factors on ropes, wires, chains and shackles.

The ship's manoeuvring, use of anchors and effects of the sea. Loss, including groundings, collision and heavy weather damage. Maritime safety. Life-saving appliances, including inflatable liferafts, their design, equipment and use. GMDSS. The construction of the maritime rescue service, rescue by helicopter. Prevention of fire and fire-fighting, fire theory, fire-extinguishants and their use, portable fire-extinguishers.

**TEXT-BOOKS:** "Seamanship and communication for yachtsmen", by Leif Rosendahl.

**EDUCATIONAL MATERIAL:** Various leaflets published by the Danish Pleasure Craft Safety Board. The leaflets are, inter alia, available from the internet address [www.soesport.dk](http://www.soesport.dk).

In connection with the teaching, the student must have attended a practical presentation of the life-saving appliances and their use and have attended a practical demonstration of an inflatable liferaft.

Furthermore, the student must have attended a practical presentation of the extinguishing of minor fires by means of manual extinguishers which are normally available on board large recreational craft.

**DESCRIPTION OF THE CURRICULUM:** The following chapters and sections in the text-book should be read:

- Chapter 1: Sections 1.1-1.5
- Chapter 2: Sections 2.1-2.3
- Chapter 3: Section 3.1
- Chapter 4: Sections 4.1, 4.2, 4.6
- Chapter 5: Sections 5.1-5.6 (not the calculations in 5.2 and 5.3)
- Chapter 6: Sections 6.1-6.6
- Chapter 7: Sections 7.1-7.5
- Chapter 8: Sections 8.1-8.4
- Chapter 9: Section 9.8. Furthermore, information is provided about the contents of section 9.9
- Chapter 10: Sections 10.1-10.2
- Chapter 11: Fire

Furthermore, the most important contents of the leaflets published by the Danish Pleasure Craft Safety Board are presented.

**Subject: METEOROLOGY**

**PURPOSE:** A yacht master must have the competences and skills in meteorology necessary to function as a master of large recreational craft in Northern European waters.

**GOAL DESCRIPTION:** After having completed the training programme, the goal is that the yacht master:

- has knowledge about characteristic conditions related to relevant weather systems in the Northern European trade area;
- can collect relevant meteorological information and use it appropriately in connection with the planning and performance of the ship's safe voyage;
- has an understanding of special meteorological phenomena that may present a risk to the ship and be able to assess when there is such a situation and decide how to act in this connection as a master or watchkeeping navigating officer.

**GUIDING CURRICULUM/TEACHING MATERIAL**

**COURSE CONTENTS:** The atmosphere, the air pressure, water vapour in the air, the wind and determining the wind direction as well as estimating wind speeds, air mass and fronts, precipitation, low pressure (temperate cyclones) and their passage, sea breeze and land breeze, weather forecasts and weather observations, tides, waves and currents.

**TEXT-BOOKS:** "Heaven and sea", by Svend Albrechtsen.

**DESCRIPTION OF THE CURRICULUM:** The following should be read:  
Pages 4-48 and 55-64.

**Subject: MARITIME LAW**

**PURPOSE:** A yacht master must have the knowledge about acts and their provisions related to the maritime field necessary to function as the owner and master of a large recreational craft.

**GOAL DESCRIPTION:** After having completed the training programme, the goal is that the yacht master:

- has knowledge about ships' tonnage measurement, registration and certification;
- has knowledge about the need for a maritime inquiry and its reporting;
- has knowledge about the provisions of the seaman's act on service agreements, the ship service and penalty provisions;
- has an understanding of the master's obligations and responsibilities, including his police-related authority, conditions of authority and requirements for the manning of recreational craft so that he can use this knowledge on a legal basis and solve tasks in this connection;
- be able to arrange and carry out the necessary instructions of persons on board about the safety of recreational craft, environmental protection and occupational safety, including the use of personal safety equipment and protective equipment;
- can ensure that a responsible behaviour is displayed in connection with the protection of the surrounding environment;
- has knowledge about the customs provisions applicable to recreational craft;
- has knowledge about the mandatory insurance against the consequences of industrial injury.

**GUIDING CURRICULUM/TEACHING MATERIAL**

**COURSE CONTENTS:** The merchant shipping act, tonnage measurement of ships, registration, surveys, certificates, manning, certification, the provisions of the seaman's act on service agreements, disputes about service conditions and penalty provisions, the customs authorities, environmental protection, maritime inquiry and insurance against industrial injuries.

**TEXT-BOOKS:** "Maritime law for yachtsmen" (5<sup>th</sup> edition) by Kurt Skytte.

**EDUCATIONAL MATERIAL:** For use in connection with the teaching, the course should have at its availability the acts and orders in the maritime field related to yachtsmen (see the text-book).

**DESCRIPTION OF THE CURRICULUM:** The contents contained in sections 2-10 (both incl.) in "Maritime law for yachtsmen" should be read.

**Subject: WATCHKEEPING DUTY**

**PURPOSE:** A yacht master must have the competences and skills in watchkeeping duty necessary to function as a master of large recreational craft in Northern European waters.

**GOAL DESCRIPTION:** After having completed the training programme, the goal is that the yacht master:

- can use the international regulations for preventing collisions at sea;
- can use distress and rescue signals and take appropriate measures in connection with these;
- can use the order on watchkeeping;
- has knowledge about how to find information about and use various nations' special regulations on sailing, including the special regulations on sailing in certain Danish waters.

## **GUIDING CURRICULUM/TEACHING MATERIAL**

**COURSE CONTENTS:** The international regulations for preventing collisions at sea, regulations 1 to 38 with comments as well as appendix I on the location of ship's lights and shapes, appendix II on additional signals for fishing vessels, appendix III on technical specifications for sounding signalling devices and appendix IV on emergency signals. Furthermore, the special regulations for certain Danish waters and the regulations on the marking of safety zones related to fixed and floating offshore installations. Pilot and rescue signals. Watchkeeping on board ships.

**TEXT-BOOKS:** The most recent edition of "The international regulations for preventing collisions at sea".

**EDUCATIONAL MATERIAL:** For use in connection with the teaching, the course must have at its availability the most recent edition of the order on watchkeeping on board ships with annexes.

**DESCRIPTION OF THE CURRICULUM:** The leaflet "Regulations for preventing collisions at sea" should be read:

Regulations 1-37 with comments,  
appendix I, items 1-6 and 12, appendix II and appendix IV,  
regulations for operation in national inner waters,  
order on watchkeeping on board ships with extracts of annex 1,  
marking of fixed and floating offshore installations, and  
pilot signals

must be trained for full understanding of the international regulations for preventing collisions at sea and their interpretation.

Through exercises, the course participants must be presented with specific situations where ships meet each other and where a complete account is made of the situation and how to act on the basis of the regulations.

Furthermore, the most important contents of the following must be presented:

Regulation 38,  
appendix I, items 7-11 and 13, and appendix III,  
the section "On liability etc. in connection with the implementation of the regulations for preventing collisions at sea" and the order on safety zones.

## **11. DESCRIPTION OF THE INDIVIDUAL SUBJECTS IN THE EXAM FOR YACHT MASTER, 1<sup>st</sup> CLASS**

### **Subject: NAVIGATION**

**PURPOSE:** A yacht master must have the competences and skills in navigation, including voyage planning, necessary to function as a master of large recreational craft in trade on all seas.

**GOAL DESCRIPTION:** After having completed the training programme, the goal is that the yacht master:

- can determine and assess the ship's position by using:
  - landmarks at sea and ashore,
  - astronomic navigation,
  - common technical navigation equipment (including radar) in large recreational craft engaged in international trade,
  - reckoning in consideration of the effects of the wind and current,
- can use aids to navigation,
- can use the types of technical navigation equipment that is common on board large recreational craft engaged in international trade,
- can use magnetic and gyro compasses, including determine their indication errors,
- has knowledge about voyage planning,
- can use charts and manuals for planning and carrying out the ship's safe voyage,
- can use a ship's log,
- can predict conditions related to the tide,
- can maintain a ship's collection of charts and manuals,
- can use radar plotting.

### **GUIDING CURRICULUM/TEACHING MATERIAL**

**COURSE CONTENTS:** Calculation of astronomical position lines, the sun and the time, the chronometer, the ship's log, deviation examination, great circle sailing, the tide and current. Elementary functional theory related to the satellite navigation system GPS, gyrocompass, echo sounder, log systems and radar.

**TEXT-BOOKS:** "Navigation 1", "Navigation 2", "Navigation 3", "Navigation 4", "Navigation 5" and "Navigation 10" by Jørgen Wittrup, Mette Hundahl, Henrik Jeppesen and Søren V. Hansen.

**EDUCATIONAL MATERIAL:** Admiralty chart no. 2182 A (INT 1043 – the North Sea, southern part). Great circle chart of the Northern Atlantic Ocean. Funder's position line chart. Chart 1 (INT 1). Danish Nautical Almanac. Extracts from H.O. 249, Vol. I (Selected Stars, Epoch 1990). Extracts from H.O. 249, Vol. III (Latitudes 39°-89°).

Furthermore, the course must have access to practical exercises in the use of nautical instruments such as direction finders and sextant as well as the technical navigation means: GPS receiver, echo sounder, log and radar.

Completed practical exercises in the use of nautical instruments must be documented in connection with the registration for exam.

**DESCRIPTION OF THE CURRICULUM:** The following chapters and sections in the text-books should be read:

Navigation 1

Chapters: 1.2, 1.3, 1.9, 1.17, 1.18, 1.25, 1.29-1.32 and 1.38.

Elementary functional theory related to navigation instruments is available from the CD-ROM enclosed with the text-book.

Navigation 2

Chapters: 1.1, 3.3 and 3.5-3.8.

Furthermore, the most important contents of the following chapters is presented: 1.4-1.7, 1.13-1.17 and 2.1-2.6.

Navigation 4

Chapters: 1.10 (except ARPA), 2.1 and 2.2

Furthermore, the most important contents of chapter 1.1 is presented.

Navigation 5

Chapters: 5.1-5.7, 6.1-6.4, 7.1-7.3, 9.4-9.11, 10.1, 10.2 and 11.1

Furthermore, the most important contents of the following chapters is presented: 1.1, 2.1-2.6, 3.1-3.8, 4.1, 7.5, 8.1, 9.1 and 9.2.

Navigation 10

Chapters: 1.11, 1.12, 2.1, 2.2, 4.5-4.7, 4.12, 4.13, 6.1-6.6, 6.9 and 6.10.

Furthermore, the most important contents of the following chapters is presented: 1.1-1.10, 2.3-2.3.3, 3.7-3.7.6, 4.1-4.4, 4.14 and 4.15.

**Subject: SEAMANSHIP AND COMMUNICATION**

**PURPOSE:** A yacht master must have the competences and skills in seamanship communication necessary to function as a master of large recreational craft in trade on all seas.

**GOAL DESCRIPTION:** After having completed the training programme, the goal is that the yacht master:

- can define the concepts of centre of gravity, buoyancy centre, draught and trim as well as calculate the draught to the fore and aft by using hydrostatic information;
- has an understanding of factors that affect the stability of rather small ships, including the loss of buoyancy, the effects of the wind, sea and free liquid surfaces;
- has knowledge about the compound stress on the ship and its equipment and can decide whether the ship or part of its equipment will be overloaded in case of local compound stress;
- has an understanding of factors that influence the ship's stability;
- has knowledge about the International Signal Code;
- is informed about various signalling methods;
- can use one-letter signals in accordance with the International Signal Code;
- can use distress and rescue signals and take appropriate measures in this connection;
- is informed about GMDSS communication.

### **GUIDING CURRICULUM/TEACHING MATERIAL**

**COURSE CONTENTS:** Calculation of the location of the ship's centre of gravity, the ship's buoyancy, stability moment, transversal metacentre, stability curves, the influence of various factors on stability, calculation of the mean draught and trim after having put in and taken out weights, the displacement scale. Calculation of the effects on blocks and tackles. The Morse Alphabet, signal flags, one-letter signals, distress and rescue signals, the International Signal Code, GMDSS.

**TEXT-BOOKS:** "Seamanship and communication for yachtsmen", by Leif Rosendahl.

**EDUCATIONAL MATERIAL:** The International Signal Code.

**DESCRIPTION OF THE CURRICULUM:** The following chapters and sections in the text-book should be read:

Chapter 3: Sections 3.2-3.3

Chapter 4: Sections 4.1-4.7

Chapter 6: Section 6.7

Chapter 9: Sections 9.1-9.9

### **Subject: METEOROLOGY**

**PURPOSE:** A yacht master must have the competences and skills in meteorology necessary to function as a master of large recreational craft in trade on all seas.

**GOAL DESCRIPTION:** After having completed the training programme, the goal is that the yacht master:

- has knowledge about characteristic conditions related to relevant weather systems;
- can use meteorological instruments common on board large recreational craft;
- can collect relevant meteorological information and use it appropriately in connection with the planning and performance of the ship's safe voyage;
- has an understanding of special meteorological phenomena that may present a risk to the ship and be able to assess when there is such a situation and decide how to act in this connection as a master;
- can use meteorological route planning and understands the elements that form part of this, including sea currents, ice conditions and special meteorological conditions in specific sea areas.

### **GUIDING CURRICULUM/TEACHING MATERIAL**

**COURSE CONTENTS:** The atmosphere, the air temperature and temperature measurements, the air pressure and pressure measurements, the wind and determining the wind direction as well as estimating wind speeds on the basis of a surface analytical chart, the air's water vapour content, air mass and fronts, temperate cyclones, tropical cyclones, weather forecasts and weather observations, tides, waves and swells. Ice formation and icing.

**TEXT-BOOKS:** "Meteorology and Oceanography for Ship's Officers" (1<sup>st</sup> edition) by Mette Hundahl.

**DESCRIPTION OF THE CURRICULUM:** The following chapters and sections of the text-book should be read:

Chapter 1:	1.1-1.8 (summary of section), 1.9 and 1.10
Chapter 2:	The most important contents of the following chapters are presented: 2.1-2.3, 2.7 and 2.8
Chapter 3:	3.4. Furthermore, the most important contents of the following chapters are presented: 3.1, 3.2 and 3.5.
Chapter 4:	4.1 (Summary), 4.2 (Summary), 4.5 (Summary), 4.6 (Summary), 4.7-4.9 and 4.11. Furthermore, the most important contents of the following chapters are presented: 4.3, 4.4 and 4.10.
Chapter 5:	5.1, 5.2 and 5.3 (Summary).
Chapter 7:	The most important contents of the following chapters are presented: 7.1 and 7.2.
Chapter 8:	8.1 (Summary) and 8.7. Furthermore, the most important contents of chapter 8.4 are presented.
Chapter 9:	9.2, 9.4, 9.5 and 9.8. Furthermore, the most important contents of chapter 9.1 are presented.

**Subject: MEDICAL CARE**

**QUALIFICATION:** A recognised expanded first aid course or similar education approved by the Danish Maritime Authority must have been completed.

**PURPOSE:** A yacht master must have the knowledge and skills necessary to function as the person in charge of medical care on board recreational craft that are not required to be fitted with a ship's medicine chest.

**GOAL DESCRIPTION:** After having completed the training programme, the goal is that the yacht master can:

- arrange for first aid in connection with accidents and diseases;
- carry out an objective examination and pass on information and observations to the emergency medical service;
- initiate correct medical care on the basis of the use of the text-book and/or in consultation with the emergency medical service.

Due account must be taken of the special fact of the maritime field that it may not be possible for you to bring the patient to a hospital or a doctor for a rather long period of time so that the yacht master himself will have to initiate the treatment that is normally carried out in hospital.

**GUIDING CURRICULUM/TEACHING MATERIAL**

**COURSE CONTENTS:** Medical aid, first aid, unconsciousness, bleedings, dressing wounds, strains and fractures, burns, poisoning, heatstroke, supercooling, hypersensitivity, fevers, pains and proposals for medical equipment and medicaments.

**TEXT-BOOKS:** "First aid for yachtsmen" by Ulrik Kirk.

**DESCRIPTION OF THE CURRICULUM:** The examinee must have knowledge about the most important contents of the text-book. However, chapter 17 is of an informative nature.

## 12. TAXONOMY

### (Classification of education and training goals)

#### General

The table below lists the taxonomy primarily used in connection with the following goal descriptions. The following applies to this taxonomy:

- The individual steps of the classification explain a behaviour that a student who has completed the training programme must be able to display.
- The system consists of six classification steps (goal categories). In total, they should cover all types of goals within the areas of knowledge and intellectual competences irrespective of the nature of the training programme and the subject.
- The classification steps have been arranged according to their complexity. The knowledge goals are the simplest and the assessment goals are the most complex. When a student, for example, meets a goal at the analytical level, the person concerned can also meet the knowledge, understanding and application goals within the same group of problems or subject area.
- If the term "inform about" is used, it is not considered to be a case of learning as such, for which reason the person concerned must not be able to retell the subject matter, and a check of the result is consequently not made.

<b>Classification of education and training goals (taxonomy) within knowledge and intellectual competences</b>		
<b>The classification steps are as follows:</b>	<b>Examples of other suitable behavioural expressions:</b>	<b>The classification steps can be briefly described as follows:</b>
<b>1. <u>Have knowledge about:</u></b> Must be able to retell information given according to memory.	Describe, account for, learn, identify, mention, define, reproduce, recognize.	<b>Knowledge</b> is defined narrowly as approval or reproduction of information given.
<b>2. <u>Have understanding of:</u></b> Must be able to account for information given with one's own words and make use of it following instructions in a known situation.	Explain, formulate, interpret, calculate, list, demonstrate, explain in one's own words, give examples.	<b>Understanding</b> includes the ability to interpret a given piece of information, which presupposes reorganisation and summary of a given contents.
<b>3. <u>Be able to use:</u></b> Be able to use information given without instructions in any normal situation to which the information may naturally be connected.	Use, choose, solve, distinguish, test, apply, implement, classify, ascertain, construct, comply with, arrange, utilise, exert, perform, act.	<b>Use</b> means that knowledge acquired can be transferred to new situations or new problems corresponding to already known types.
<b>4. <u>Be able to analyse:</u></b> Must be able to divide a piece of information into its components and account for what is characteristic of the relationship between them.	Compare, hold together, find, extract, choose, derive, analyse, demonstrate, register.	<b>Analysis</b> of a piece of information is the first part of more independent problem-solving of totally new and unknown problems.
<b>5. <u>Be able to synthesize:</u></b> Must be able to relate information given to previous experience and thereby formulate one's own perception of the subject.	Propose, present, combine, conclude, organise, plan.	<b>Synthesis</b> requires a new entirety to be made. The students must relate their knowledge in a manner that is new to them.
<b>6. <u>Be able to assess:</u></b> Must be able to make a balancing of various perceptions by combining knowledge, understanding, use, analysis and synthesis and make a decision on this basis.	Decide, control, evaluate, consider, criticize, discuss, evaluate.	<b>Assessment</b> includes basing the assessment on criteria. It does not suffice to present a subjective estimate. An assessment will often be characterised by personal views, but then these must be clearly expressed in the criteria given for the assessment.