



Maritime and Coastguard Agency

MGN 195 (M)

TRAINING AND CERTIFICATION GUIDANCE – PART 21

DECK OFFICER CERTIFICATES OF COMPETENCY FOR SERVICE ON COMMERCIALY AND PRIVATELY OPERATED YACHTS AND SAIL TRAINING VESSELS

Notice to Owners, Masters, Deck Officers and Crews of Commercially Operated Yachts and Sail Training Vessels, and those concerned with Maritime Training.

This Note supersedes MGN 14(M).

Summary

This Marine Guidance Note (MGN) is part of a series, which gives guidance regarding the application of the Merchant Shipping (Training and Certification) Regulations 1997¹.

In order for the guidance to be easy to use and to keep up-to-date, the individual Parts will retain the same Part number but the MGN number may change if and when revisions are necessary. The front sheet of any revised Part will list the latest MGN numbers. Any reference to “Part” in this Note relates to this series of Guidance Notes as listed below.

Key Points

This part describes the system for harmonising deck officer certification for Large Commercial and Sailing and Motor Vessels in accordance with UK regulations and the principles of the International Convention on Standards of Training and Certification for Seafarers, 1978, as amended in 1995 (STCW 95) and the associated code (STCW Code).

It provides details of the certification system for deck officers and personnel serving on:

- (a) commercial yachts or sail training vessels of 24 metres and over in loadline length which are in commercial use for sport or pleasure and which do not carry cargo and do not carry more than 12 passengers, covered by the Maritime and Coastguard Agency (MCA) Code of Practice for safety of Large Commercial Sailing and Motor Vessels; and
- (b) privately owned yachts of 24 metres and over in loadline length used for sport or pleasure and which do not carry cargo and do not carry more than 12 passengers.

The certification system provides a structured progression for crew entering the industry to achieve an Officer of the Watch (OOW), Chief Mate and a Masters qualification. This Guidance Note covers:

- Details of the certification system and criteria for certification;
- Details of the training modules;
- Ancillary training requirements;
- Manning scales for yachts;
- Testimonial pro-forma;
- Outline syllabuses;
- Oral examination syllabuses;
- The examination systems.

This certification system comes into effect on 1st February 2002.

Note 1 SI 1985/1306 as amended

<u>Part No.</u>	<u>Subject</u>	<u>Latest MGN Number</u>	<u>Issue Date</u>
1	General requirements for certification and medical fitness	MGN 91(M)	April 2000
2	Certificates of competency – deck department	MGN 92(M)	April 2000
3	Certificates of competency – engine department	MGN 93(M)	April 2000
4	Certificates of competency – radio personnel	MGN 94(M)	July 1999
5	Special training requirements for personnel on certain types of ship	MGN 95(M)	April 2000
6	Emergency, occupational safety, medical care and survival functions	MGN 96(M)	April 2000
7	Alternative certification – dual certification	MGN 7(M)	April 2000
8	Education and training schemes	MGN 8(M)	April 2000
9	Procedure for the issue and revalidation of certificates of competency, marine engine operator licences and tanker endorsements	MGN 9(M)	April 2000
10	Ratings	MGN 97(M)	April 2000
11	Conduct of MCA oral examinations	MGN 69(M)	April 2000
12	Safety training for concessionaires working on passenger ships	MGN 120(M)	April 2000
13	Use of fishing vessel certificates of competency in standby, seismic survey, and oceanographic research vessels – revised arrangements	MGN 121(M)	April 2000
14	STCW 95 application to certificates of service	MGN 116(M)	April 2000
15	Certification of inshore tug personnel	MGN 117(M)	April 2000
16	Certification of inshore craft personnel (other than tugs)	MGN 126(M)	November 2000
17	Certificates of competency or marine engine operator licences for service as an engineer officer on commercially and privately operated yachts and sail training vessels	MGN 156(M)	February 2001
18	STCW 95 certificates of competency – conversion of tonnage limitations from GRT to gt	MGN 164(M)	January 2001
19	Certificates of Equivalent Competency	MGN 179(M)	June 2001
20	Certificates of Equivalent Competency (Fishing Vessel)	MGN 204(F)	Not yet Published
21	Deck Officer Certificates of Competency for Service on Commercially & Privately Operated Yachts & Sail Training Vessels	MGN 195(M)	This note

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Maritime and Coastguard Agency
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Ref.: MC 124/1/43

Safer Lives, Safer Ships, Cleaner Seas



***An executive agency of the Department for
Transport, Local Government and the Regions***

1.0 Introduction

- 1.1 Masters and deck officers serving in UK registered private or commercial yachts and sail training vessels of 24 metres and over in loadline length and under 3000gt must be qualified in accordance with the UK's Training and Certification Regulations¹ or the MCA Code of Practice for Safety of Large Commercial Sailing and Motor Vessels.
- 1.2 The MCA, in consultation with the yachting industry, Sail Training organisations, and UK maritime colleges, has revised the route to gaining appropriate certification limited to service in this sector of industry.
- 1.3 The revised route to certification is structured to provide a progressive career path for those in the professional yachting industry. Candidates meeting the requirements will be issued with an STCW 95 certificate of competency limited to service on yachts and sail training vessels.

2.0 Certificate Structure

- 2.1 The certificates of competency limited to yachts will be issued as follows:

	Capacity	Limitations
2.1.1	Officer of the Watch (Yacht). STCW Reg. II/1	Commercially and privately operated yachts and sail training vessels less than 3000gt. Unlimited area.
2.1.2	Chief Mate (Yacht). STCW Reg. II/2	Commercially and privately operated yachts and sail training vessels less than 3000gt. Unlimited area.
2.1.3	Master 500 gt (Yacht). STCW Reg. II/2	Commercial and privately operated yachts and sail training vessels less than 500gt. Unlimited area.
2.1.4	Master (Yacht). STCW Reg. II/2	Commercially and privately operated yachts and sail training vessels less than 3000gt. Unlimited area.

3.0 Manning Scales

- 3.1 The manning scales for deck officers to be carried on motor or sailing yachts and sail training vessels are laid down in Annex A of this note. These manning scales will enter into force on 1st August 2003. It is the overriding responsibility of the owner/operator to ensure that the Master and the crew have the appropriate qualifications and relevant experience of the type and size of vessel for the area of operation.

4.0 Eligibility Requirements

- 4.1 The qualifying yacht service for any Deck Officer (Yacht) certificate of competency must be performed in the deck department and is reckoned from the date of engagement to the date of discharge. At least 6 months of the qualifying service must have been performed within the 5 years preceding the application.

Note 1 SI 1985/1306 as amended

- 4.2 Candidates will be required to present documentary proof of yacht service for each certificate of competency. Such proof should be in the form of any of the following documents:
- Merchant Navy discharge book; or
 - Certificates of discharge; or
 - Professional Yachtsmen's Association (PYA) Service Record Book; or
 - International Yachtmaster Training (IYT) logbook; or
 - Royal Yachting Association (RYA) logbook; or
 - Similar MCA approved service record book.
- 4.3 Additionally, signed testimonials from masters, owners, or superintendents covering character, standards of behaviour including sobriety, experience, ability and good conduct at sea should also be submitted. The testimonials should be in the format given at Annex B of this note.

5.0 Medical Standards

- 5.1 All candidates for any certificate of competency must meet the medical fitness and eyesight standards as required by the Merchant Shipping (Medical Examination) Regulations 1983² as amended.
- 5.2 All candidates for any certificate of competency must produce a valid UK medical fitness certificate, currently known as an ENG 1, issued by an approved medical practitioner. A medical fitness certificate issued by a national administration under the Medical Examination (Seafarers) Convention 1946 may be accepted as equivalent. A list of acceptable certificates can be found in MSN 1760 or subsequent amendments.
- 5.3 The medical fitness certificates must specify the date of examination and the period of validity.

6.0 Entry and Examination Requirements

6.1 Officer of the Watch (Yacht):

To qualify for issue of this certificate a candidate must:

- Have attained the age of 19 years;
- Have a minimum of 36 months service (over the age of 16) in vessels of 15 metres or over in loadline length;
- Provide proof of attendance and successful completion of a shore-based RYA, IYT or similar MCA approved Yachtmaster Offshore course;
- Hold an RYA, IYT or similar MCA approved Yachtmaster's Offshore Certificate of Competency;
- Have completed the MCA approved Training Record Book;
- Have successfully completed the four element STCW 95 basic training:
 - Personal Survival Techniques – (STCW A-VI/1-1), or RYA Basic Sea Survival;
 - Fire Fighting and Fire Prevention – (STCW A-VI/1-2);
 - Elementary First Aid – (STCW A-VI/1-3);
 - Personal Safety and Social Responsibilities – (STCW A-VI/1-4);
- Hold a MCA approved Certificate of Proficiency in Survival Craft and Rescue Boats (CPSC&RB), (STCW A-VI/2-1), or an MCA approved Sea Survival for Yachtsmen certificate (see Annex N);

Note 2 SI 1983/808 as amended

- Hold an MCA accepted GMDSS, General Operators Certificate;
- Hold a certificate of successful completion of an MCA approved 'Navigation and Radar (OOW, Yacht)' training module; plus an examination pass certificate from Scottish Qualification Authority (SQA);
- Hold a certificate of successful completion of an MCA approved 'General Ship Knowledge (OOW, Yacht)' training module; plus an examination pass certificate from SQA;
- Pass the MCA oral examination.

6.2 Chief Mate (Yacht):

To qualify for issue of this certificate a candidate must be holder of an OOW (Yacht) certificate of competency and hold:

- An MCA approved Certificate of Training in Advanced Fire Fighting – (STCW A-VI/3);
- An MCA approved Certificate of Proficiency in Medical First Aid – (STCW A-VI/4-1);
- Proof of attendance and successful completion of an RYA, IYT or similar MCA approved Yachtmaster's Ocean shore based course certificate;
- An RYA, IYT or similar MCA approved Yachtmaster's Ocean Certificate of Competency.

6.3 Master less than 500gt (Yacht):

To qualify for issue of this Certificate a candidate must:

- Have attained the age of 21 years;
- Have a minimum of 12 months service as a Bridge watchkeeper on vessels 15 metres or more in loadline length whilst holding a Deck Officer STCW II/1 Officer of the Watch Limited to Yachts less than 3,000gt and Sail Training Vessels Certificate, or an acceptable equivalent qualification;
- Meet the minimum requirements to serve as Chief Mate (Yacht);
- Hold an MCA approved Certificate of Proficiency for Persons in Charge of Medical Care on Board Ship (STCW A-VI/4-2);
- Hold a certificate of successful completion of an MCA approved "Seamanship and Meteorology (Master, Yacht)" training module; plus an examination pass certificate from SQA;
- Hold a certificate of successful completion of an MCA approved 'Stability (Master, Yacht)' training module; plus an examination pass certificate from SQA;
- Hold a certificate of successful completion of an MCA approved 'Business and Law (Master, Yacht)' training module; plus an examination pass certificate from SQA;
- Hold a certificate of successful completion of an MCA approved 'Navigation, ARPA and Radar Simulator (Master, Yacht)' training module; plus an examination pass certificate from SQA;
- Pass the MCA oral examination.

6.4 Master (Yacht):

To qualify for issue of this certificate a candidate must:

- Have attained the age of 23 years;

- Have a minimum of 24 months yacht service as Bridge Watchkeeper, on vessels 15 metres or more in loadline length whilst holding a Deck Officer STCW II/1 Officer of the Watch limited to yachts less than 3,000gt and sail training vessels and hold a Master less than 500gt (Yachts) certificate of competency or have successfully completed the above sea service and all the education and training required for issue of Master less than 500gt (Yachts) or hold an acceptable equivalent qualification;
 - Hold a valid Certificate of Proficiency for Person in Charge of Medical Care on Board Ship (STCW A-VI/4-2);
 - Pass the MCA oral examination.
- 6.5 MCA training modules and oral examination passes for each level of certification have a period of validity of 3 years. These training modules require to be in date at the time of issue of the certificate.
- 6.6 Where a candidate fails an examination for any MCA module they will be allowed one further resit without the need to retake the training module provided that the resit is taken within 6 months of the failed attempt. Should the candidate fail the resit it will be necessary for the entire training module to be retaken prior to a further attempt.
- 6.7 Candidates must fully meet the sea service, age requirements and all training required for issue of a particular certificate before being eligible for the MCA oral examination for that certificate.
- 6.8 Candidates should be aware that questions in the MCA oral examination may, in addition to the published oral syllabus, include topics that should have been covered in previous training.
- 6.9 Examination for MCA training modules may only be conducted at approved examination centres. Written examination papers will be set and marked by the Scottish Qualification Authority (SQA) on behalf of the MCA.
- 6.10 Most STCW 95 short course certificates currently have no period of validity. However, the Master and any other person in charge of medical care on a UK flag vessel will be required to undertake refresher training in Proficiency in Medical Care (STCW A-VI/4-2) every 5 years.
- 6.11 All STCW 95 short course ancillary training required for the issue of an MCA Certificate of Competency must be completed at an MCA approved training centre.
- 7. Transitional Arrangements**
- 7.1 Candidates wishing to complete qualifying under the existing scheme (as outlined in MGN 14) must have completed the following by 31st January 2002:
- RYA, IYT Yachtmaster Ocean or Offshore or similar MCA approved course; and
 - Any four of the existing training modules from MGN 14, one of which must be the Navigation and Radar training module. Where a module has an expiry date the module requires to be in date at the time of issue of the certificate.
- 7.2 Holders of a Deck Officers Class 5 with command endorsement limited to yachts of less than 500gt within 150 nautical miles from a safe haven may upgrade to the Master of Commercial and Privately Operated Yachts and Sail Training vessels less than 3000gt, unlimited area by obtaining an RYA Yachtmaster's Ocean or similar MCA approved certificate of competency. Candidates who fail to upgrade by 31st July 2003 under this provision will be required to complete the Master less than 500 gt (Yacht) and MCA Oral examination for Master (Yacht) training in full as outlined in Section 6.3 and 6.4 above. Candidates who choose not to upgrade will retain their existing limitations.
- 7.3 Candidates who have obtained 5 years service prior to 31st January 2002 as a Watchkeeping Officer on vessels of 15 metres or more in loadline length may take the modules, short courses and

examination for the Officer of the Watch (Yachts) certificate of competency and may proceed to the Chief Mate and Master modules and certification without the need to complete further sea service.

- 7.4 Candidates with more than 3 years service, prior to 31st July 2003, as a Watchkeeping Officer on vessels of 15 metres or more in loadline length may take the modules, short courses and examination for the Officer of the Watch (Yacht) certificate of competency without further sea service and without the need to complete the MCA Training Record Book.
- 7.5 This transition period will end on 31st July 2003. Under these arrangements all candidates will require to have fully met the sea service requirements, and have successfully completed all of the relevant training modules, short courses and examination necessary for the issue of the certificate of competency prior to this date.

8.0 Revalidation

- 8.1 Officers holding STCW 78 certificates of competency must revalidate their certificates by 31st January 2002. After 31st January 2002 STCW 78 certificates will no longer be valid for sea going service.
- 8.2 Every Master and Officer holding a certificate of competency issued or recognised under STCW 78 or STCW 95 who wishes to serve at sea is required to revalidate the certificate at intervals not exceeding 5 years. All candidates for revalidation must:

- .1 Meet the medical fitness requirements of the Merchant Shipping (Medical Examination) Regulations 1983 as amended and produce a valid medical certificate;
- .2 Have served as master or deck officer on the yacht's official crew list of sea going ships, of any flag, of more than 15 metres in loadline length for at least 12 months during the preceding 5 years; and
- .3 Hold an acceptable GMDSS Certificate (minimum ROC).

- 8.3 Candidates who do not meet these requirements may serve on ships in a supernumerary capacity for 3 months before applying for revalidation of the certificate. During this period Officers are expected to update their professional knowledge.

- 8.4 Deck Officers who do not meet the revalidation criteria above may, alternatively:

- .1 Satisfactorily complete an approved shore-based updating course; or
- .2 Sail in a lower rank than that for which they are certificated, for 3 months before applying for revalidation of their certificate. In order to do this, candidates must first contact the MCA for a revalidation oral examination. Successful candidates will be issued with a Certificate of Dispensation that will confirm their eligibility for service at a lower rank. Candidates will also require present a valid medical fitness certificate at the time of examination; or
- .3 Have performed duties, in an acceptable occupation, appropriate to the class of certificate held which are considered at least equivalent to the service required for revalidation for at least two and a half years of the preceding five years.

- 8.5 Further details can be found in MGN 9 – Procedures for Issue and Revalidation of Certificates of Competency, Marine Engine Operator Licences and Tanker Endorsements.

9.0 Examination Application Procedure

- 9.1 Application for examination forms can be made to MCA Marine Offices (see Annex C). Completed forms accompanied by the appropriate fee, evidence of successful completion of the required training modules and short courses, medical fitness, testimonials, proof of service and completed Training Record Book (where appropriate), must be sent to the MCA's Seafarers

Standards Branch at the address on the application form. Applicants eligible to attend the MCA oral examination will be issued with a Notice of Eligibility.

10.0 Approved Training providers

- 10.1 All training assessment and examinations must be taken at an MCA approved academy or training facility. All training providers wishing to gain MCA approval to deliver training must have in place a recognised Quality Management System (QMS) with appropriate auditing and accreditation. Existing training providers who do not have such a QMS must have an acceptable system in place by 31st July 2003.
- 10.2 To gain approval a training provider will first have to undergo assessment to ensure that standards set meet those required by the MCA. Training establishments wishing to obtain approval should make written application to the MCA outlining:
- Course title;
 - Lesson plan;
 - Course duration;
 - Facilities, teaching aids and equipment;
 - Staff qualifications and experience;
 - Examination and assessment procedures;
 - Monitoring of entry requirements;
 - Issue, control, authentication and recording of certification;
 - Quality management systems and procedures.
- 10.3 Once these particulars have been received, reviewed and found to meet the required standards a site evaluation/inspection visit will be made. Full approval will only be granted when the required standards are deemed to have been fully met and at which time a Course Approval Certificate will be issued. The full vetting process will involve the attendance of an MCA Surveyor and associated costs.
- 10.4 Thereafter, any changes to the course content/delivery, training facilities and/or equipment, teaching staff, certificates, and/or examination/assessment process must be notified to the MCA. Failure to notify changes to the MCA may result in approval being withdrawn.
- 10.5 Should a training provider wish to deliver any course at a centre other than that approved by the MCA, further approval will be required.
- 10.6 In order to maintain standards and to satisfy the procedures of the MCA Quality Standards Procedures all courses and training facilities will be subject to audit at intervals not exceeding 3 years.

11.0 Manning Requirements

- 11.1 To reflect current industry best practice, the manning requirements for yachts of 24 metre or over in loadline length as detailed in Annex A will come into force on 1st August 2003.

12.0 Further Information

- 12.1 Further information is available from the MCA at any MCA Marine Office or at the address given at the beginning of this Guidance Note.

Seafarers' Standards Branch
Maritime and Coastguard Agency
Spring Place
105 Commercial Road
Southampton SO15 1EG

Tel: 023 8032 9231
Fax: 023 8032 9252

DECK MANNING SCALE FOR COMMERCIALLY AND PRIVATELY OPERATED MOTOR YACHTS OVER 24M

(All RYA/DTP Yachtmaster and Coastal Skipper Certificates must be commercially endorsed)

AREA	Rank	VESSEL		
Miles From Safe Haven		>24m < 200gt	200 – 500gt	500 – 3000gt
Up to 60nm	Master Chief Mate OOW	YM Offshore – –	Master (Y) < 500gt Coast Skipper –	Master (Y) OOW (Y) –
Up to 150nm	Master Chief Mate OOW	YM Offshore Coast Skipper –	Master (Y) < 500gt YM Offshore –	Master (Y) Ch.Mate (Y) –
Over 150nm	Master Chief Mate OOW	YM Ocean YM Offshore –	Master (Y) < 500gt OOW (Y) YM Offshore	Master (Y) Ch.Mate (Y) OOW (Y)

DECK MANNING SCALE FOR COMMERCIALLY AND PRIVATELY OPERATED FORE AND AFT RIGGED SAILING YACHTS OVER 24M

(All RYA/DTP Yachtmaster and Coastal Skipper Certificates must be commercially endorsed)

AREA	Rank	VESSEL		
Miles From Safe Haven		>24m < 200gt	200 – 500gt	500 – 3000gt
Up to 60nm	Master Chief Mate OOW	YM Offshore – –	Master (Y) < 500gt Coast Skipper –	Master (Y) OOW (Y) –
Up to 150nm	Master Chief Mate OOW	YM Offshore ¹ Coast Skipper –	Master (Y) < 500gt YM Offshore –	Master (Y) Ch.Mate (Y) –
Over 150nm	Master Chief Mate OOW	YM Ocean ¹ YM Offshore –	Master (Y) < 500gt OOW (Y) YM Offshore	Master (Y) Ch.Mate (Y) OOW (Y)

Note¹ For Sail Training Vessels only – the Master of a Sail Training Vessel carrying more than 12 trainees is required to either:

- Hold a Certificate specified in the Table and be able to prove at least 50 days satisfactory sea service in a position of responsibility on Sail Training Vessels; **or**
- Hold a Master <500gt (Yacht) or Master (Yacht).

(It is the overriding responsibility of the Owner/Managing Agent to ensure that the Master and, where necessary, other members of the crew have, in addition to the qualifications required in Annex A, recent and relevant experience of the type and size of vessel and of the type of operation in which she is engaged.)

MANNING SCALE FOR COMMERCIALLY AND PRIVATELY OPERATED SQUARE RIGGED SAILING VESSELS OVER 24M

(All RYA/DTP Yachtmaster and Coastal Skipper Certificates must be commercially endorsed)

AREA	Rank	VESSEL		
Miles From Safe Haven		>24m < 200gt	200 – 500gt	500 – 3000gt
Up to 60nm	Master Chief Mate OOW	YM Offshore ^{1 & 2} Coast Skipper –	Master (Y) < 500gt ² Ch.Mate (Y) ³ –	Master (Y) ² Ch.Mate ³ –
Up to 150nm	Master Chief Mate OOW	YM Offshore ^{1 & 2} Coast Skipper –	Master (Y) < 500gt ² Ch.Mate (Y) ³ –	Master (Y) ² Ch.Mate ³
Over 150nm	Master Chief Mate OOW	YM Ocean ^{1 & 2} YM Offshore ³ –	Master (Y) < 500gt ² Ch.Mate (Y) ³ OOW (Y) ³	Master (Y) ² Ch.Mate (Y) ³ OOW (Y) ³

Note¹ For Sail Training Vessels only – the Master of a Sail Training Vessel carrying more than 12 trainees is required to either:

- Hold a Certificate specified in the Table and be able to prove at least 50 days satisfactory sea service in a position of responsibility on Sail Training Vessels; **or**
- Hold a Master <500gt (Yacht) or Master (Yacht).

Note² The Master of a square rig vessel must in addition to holding the base certificate have served at least 14 days seetime as a Watchkeeping Officer in the vessel and have been assessed as competent to serve as Master of the vessel by the Owner/Operators under an assessment system approved and monitored by the MCA. The Master shall only serve on the vessel, or specified sister vessel, for which the assessment has been undertaken.

Note³ A Watchkeeping Officer of a square rig vessel must in addition to holding the base certificate have served at least 14 days seetime as a Watchkeeping Officer in the vessel and have been assessed as competent to serve as a Watchkeeper of the vessel by the Owner/Operators under an assessment system approved and monitored by the MCA. The Watchkeeping Officer shall only serve on the vessel, or specified sister vessel, for which the assessment has been undertaken.

Note^{2 & 3} For an Owner/Operators' Assessment System to be approved by the MCA to permit officers to serve on specific square-rigged sailing vessels, full details must be submitted of the criteria against which assessment will be made and the process of assessment. Such a system requires Owners/Operators to demonstrate that the applicants have followed an assessment programme, which includes proving knowledge of sailing ship terms and methods of working including the following evolutions:-

Tacking
Wearing
Anchoring
Heaving to
Coping with squalls

Setting and stowing sails
Reefing
Operating at night
Operating in heavy weather
Effect of knockdowns

The management organisation must be able to demonstrate that they have established that the candidates know how to deal with emergencies and have carried out at least two man overboard evolutions and have demonstrated competency in passage planning in an exercise relating to critical circumstances when the weather pattern is adversely changing and deteriorating.

Any Officer who, in addition to holding the base certification, holds a Nautical Institute Square Rig Sailing Ship Certificate, shall be considered to have met the requirements of Notes ².

(It is the overriding responsibility of the Owner/Managing Agent to ensure that the Master and, where necessary, other members of the crew have, in addition to the qualifications required in Annex A, recent and relevant experience of the type and size of vessel and of the type of operation in which she is engaged.)

TESTIMONIAL PRO-FORMA

COMMERCIAL AND PRIVATELY OPERATED YACHTS AND SAIL TRAINING VESSELS

DECK OFFICER TESTIMONIAL

This is to certify that:

Full Name:

Date of Birth :/...../.....

has served on the yacht/sail training vessel*

(name).....

Motor/Sail* Length (m)..... Gross Tons (gt).....

Type of Vessel

Between/...../..... and/...../.....

During this period of service, the above-named officer has served in the following capacity(s) (complete as appropriate):

Master/Chief Mate/OOW/Rating Monthsdays

The above service includes months days of actual sea service time.

My report on the service of the above named during the period is as follows:

Conduct:

Experience/ability:

Behaviour/sobriety:

Signed:

Name (Print)

Position on yacht or in owning/managing company*

Name of owning/managing company*

Yacht/Company Stamp*

Date:.....

* Delete as appropriate

ADDRESSES OF MCA MARINE OFFICES WHERE ORAL EXAMINATIONS ARE HELD

- | | | |
|-----|--|--------------------|
| 1. | Central Court,
1B Knoll Rise,
Orpington
Kent BR6 0JA | Tel: 01689 890 400 |
| 2. | Spring Place,
105 Commercial Road
Southampton SO15 1EG | Tel: 02380 329329 |
| 3. | New Fish Market
Baylys Wharf
Fish Quay
Plymouth PL4 OLH | Tel: 01752 266 211 |
| 4. | Hall Road West
Crosby,
Liverpool
Merseyside, L23 8SY | Tel: 0151 931 6600 |
| 5. | Oxford House
Hills Street
Cardiff CF1 2TD | Tel: 029 2022 9556 |
| 6. | 6000 Academy Park
Gower Street
Glasgow G51 1TR | Tel: 0141 427 9400 |
| 7. | Customs House
Queens Square
Belfast BT1 3ET | Tel: 028 9056 2962 |
| 8. | Marine House
Blaikies Quay
Aberdeen AB11 5EZ | Tel: 01224 574 122 |
| 9. | 1, John's Place
Leith
Edinburgh EH6 7EL | Tel: 0131 554 5488 |
| 10. | Compass House
Tyne Dock
South Shields
Newcastle upon Tyne, NE34 9PY | Tel: 0191 496 9900 |
| 11. | Crosskill House
Mill Lane, Beverley
North Humberside HU17 9JB | Tel: 01482 866 606 |

ADDRESSES OF EXAMINATION CENTRES FOR MCA YACHT DECK WRITTEN EXAMINATIONS

United Kingdom

North West Kent College
Gravesend Campus
Dering Way
Gravesend
Kent, DA12 2JJ
Tel: 01322 629600
Fax: 01322 629687

Warsash Maritime Centre
Newtown Road
Warsash
Southampton
Hampshire SO31 9ZL
Tel: 01489 576161
Fax: 01489 573988

UK Sailing Academy
West Cowes
Isle of Wight, PO31 7PQ
Tel: 01983 294941
Fax: 01983 295 938

Glasgow College of Nautical Studies
21 Thistle St
Glasgow
Scotland, G5 9XB
Tel: 0141 5652500
Fax: 0141 5652599

South Tyneside College
South Shields
Tyne and Wear NE 34 6ET
Tel: 0191 4273500
Fax: 0191 4273646

Plymouth Maritime Centre
Royal William Yard
Stonehouse
Plymouth, PL1 3RP
Tel: (01752) 265 695
Fax: (01752) 265 699

Lairdside Maritime Centre
3 Vanguard Way
Campbeltown Road
Birkenhead, CH41 9HX
Tel: (0151) 647 0494/6
Fax: (0151) 647 0498

France

Blue Water
La Galerie du Port
8 Boulevard d'Aguillon
06600
Antibes
FRANCE
Tel: 00 33 4 93 34 34 13
Fax: 00 33 4 93 34 35 93

Freedom Yachting
7 Boulevard d'Aguillon
06600
Antibes
FRANCE
Tel: 00 33 4 93 34 47 73
Fax: 00 33 4 93 34 77 74

USA

International Yachtmaster Training
910, South East 17th Street
Suite 200
Fort Lauderdale
FLORIDA
33316
USA
Tel: 00 1 954 779 7764
Fax: 00 1 954 779 7165

Spain

International Yachtmaster Training
c/de la Torre de Perares
#5 - Piso 2
Porto Pi Paluna de Mallorca
07015 SPAIN
Tel: 00 34 971 265 5600

Officer of the Watch (Yacht)

Navigation and Radar (OOW,Yacht)

Duration

This module must be conducted over a minimum period of 10 days.

Content

The module will consist of sections on basic chart work, navigation aids, basic radar operation and plotting.

Assessment

There will be practical in-course assessment throughout and satisfactory completion of this assessment will allow the student entry to the final written examination at the end of the course.

The in course assessment will include demonstrating competence in:-

- Basic chartwork and position fixing, including:-
- Running fix with tides and leeway;
- Compass bearings and conversion from compass to true bearings;
- Horizontal angles;
- Clearing bearings and transits.

Operation and setting up of Electronic Navigation Aids including:-

- GPS;
- Loran C;
- Electronic Chart Systems;
- Echo Sounders and Logs;
- Basic operation and setting up of Radar & use of PI's;
- Knowledge of chart symbols and abbreviations;
- The IALA system of buoyage both A & B and the Cardinal system.

The written examination will consist of a 2½ hour theory paper in two parts.

Part 1 will consist of 2 questions – 1 each on chartwork and radar plotting.

Part 2 will consist of 4 questions to test “underpinning knowledge”. Candidates must achieve a minimum of 60% in both parts.

The practical part of the course must occupy at least half of the course period (a minimum of 5 days).

TOPIC 1 COMPASS WORK.

.1 Magnetic compass.

- 1 Understands basic magnetism;
- 2 Draws a diagram of the earth's magnetic field;
- 3 Understands the difference between magnetic and geographic poles;
- 4 Understands the Magnetic Meridian;
- 5 Explains the reason for magnetic variation;
- 6 Recognises the method of obtaining local magnetic variation from the chart.

.2 Understands deviation of the magnetic compass.

- 1 Understands the reasons for the change in deviation of the magnetic compass with changes in the ships head;
- 2 A basic knowledge of induced magnetism;
- 3 Has a basic knowledge of the methods of correcting a compass for deviation by use of magnets and soft iron correctors.

- .3 Shows correct application of deviation and variation to compass courses and bearings.**
- 1 Converts compass course to True and True to compass;
 - 2 Converts compass bearings to True bearings and True bearings to compass bearings.
- .4 Understands the need for regular checks of the compass error.**
- 1 Demonstrates the ability to calculate compass error using transits;
 - 2 Applies compass error correctly.
- TOPIC 2 GYRO COMPASS.**
- .1 Understands the practical application of the gyro compass.**
- 1 Understands the need to regularly check the accuracy of the gyro compass;
 - 2 Calculates gyro error using transits;
 - 3 Applies latitude and speed correction correctly.
- TOPIC 3 CHARTWORK.**
- .1 Demonstrates ability to interpret information on Admiralty Charts.**
- 1 Knows chart symbols and abbreviations;
 - 2 Understands the significance of the Notes, Warnings and Chart Datums.
- .2 Different chart projections; gnomonic, Mercator & port plans.**
- 1 Understands differences of position and position lines;
 - 2 States the definition of DR, EP and Fix.
- .3 Position line, circle of position and transferred position lines.**
- 1 Plots ship's position using Compass and Speed Log;
 - 2 Plots running fix with tide and leeway.
- .4 Understands the difference between ground and water track.**
- .5 Fixes position by:**
- 1 Three bearings with unknown compass error (Horizontal angles);
 - 2 Dipping distances;
 - 3 Calculates distance off by vertical angle.
- .6 Understands the use of danger angles and danger circles.**
- 1 Calculates the correct danger angle allowing for height of tide.
- .7 Fix ships position using Echo Sounder.**
- 1 Use of line of soundings combined with range or bearing.

- TOPIC 4 CHART CORRECTING.**
- .1 Understands the importance of up to date charts.**
- 1 Recognises the latest correction on a chart;
 - 2 Understands how to check that a chart is up to date.
- .2 Understands information contained in the Weekly Notices to Mariners and cumulative lists of chart corrections.**
- 1 Demonstrates ability to correct charts accurately;
 - 2 Demonstrates ability to correct other publications including ALL, ALRS etc.
- TOPIC 5 NOTICES TO MARINERS.**
- .1 Understands the importance of up to date information.**
- 1 Uses NAVTEX and radio to obtain latest information before and during voyage.
- .2 Understands importance of T's & P's.**
- .3 Understands contents of the Annual Summary of N to M.**
- TOPIC 6 TIDES AND TIDAL CALCULATIONS.**
- .1 Tides and calculations.**
- 1 Understands basic reasons for tides;
 - 2 Differentiates between Spring and Neap tides;
 - 3 Understands relationship between Chart Datum, LATS, MHWS etc;
 - 4 Understands information contained in the Admiralty Tide Tables;
 - 5 Calculates height and range of tide at standard ports;
 - 6 Calculates times and heights of tide at secondary European ports;
 - 7 Calculates height of tide for a given time at standard and secondary ports;
 - 8 Calculates the time for a given height of tide at standard and secondary ports;
 - 9 States the difference in calculation of Pacific tides including secondary ports.
- TOPIC 7 INTERNATIONAL REGULATIONS FOR PREVENTION OF COLLISION AT SEA.**
- .1 IRCPS.**
- 1 Full knowledge of the IRCPS.
- TOPIC 8 BUOYAGE SYSTEM.**
- .1 Understands IALA system A & B.**
- TOPIC 9 NAVIGATION AIDS.**
- .1 Hyperbolic Navigation Systems.**
- Understands the propagation of electro-magnetic waves with particular reference to:
- Frequency & wavelength;
 - Ground wave, Sky wave;
 - Ionospheric effects;
 - Time difference;
 - Understands the basic principle of the Loran C system;
 - Understands the errors and limitations of the Loran C system;
 - Day/night effect;

- Propagation effect;
- Additional secondary factors;
- Demonstrates ability to fix position using Loran-C receiver.

.2 Satellite Navigation Systems. (GPS)

- 1 Understands the principle of satellite navigation systems;
- 2 Aware of the errors of GPS system and their causes;
- 3 Demonstrate an understanding of the terms DOPS etc;
- 4 Aware of the problems associated with datum correction;
- 5 An outline knowledge of differential GPS.

.3 Echo Sounders.

- 1 Understand the echo ranging principles;
- 2 Use of echo ranging for depth calculation;
- 3 Time base measurement;
- 4 Understand the operation of a simple Echo Sounder;
- 5 Demonstrates the correct setting up procedures:
 - Correct range;
 - Alarms;
 - Correct gain;
 - Correct datum (depth below keel);
- 6 Understands the errors of Echo Sounders;
 - Effect of water density;
 - Effect of shallow water;
 - Aeration;
 - Cavitation;
 - Multiple returns (second trace);
- 7 Dangers and correct use of Phased Scales;
- 8 Understand the operation of Doppler Electro-magnetic pressure and mechanical logs.

.4 Electronic Chart Display and Information Systems.

- 1 Understands the difference between ECS & ECDIS;
- 2 Understands the types of chart available;
 - Raster charts with reference to ARCS;
 - Vector charts;
 - Be aware of S-52 & S57 IMO approved standard formats;
 - Be aware of the significance of ENC and their use with ECDIS.

.5 Understands the methods of fixing the ship's position on ECS;

- 1 DGPS and Loran-C etc;
- 2 Understands the potential errors due to incorrect chart datum;
- 3 Understands the limitations of accuracy;
- 4 Understands the method of making corrections to electronic charts;
- 5 Appreciates the need for accurate records of corrections;
- 6 Explain the use and operation of radar overlays and the associated dangers.

TOPIC 10 RADAR.

.1 Principles of Radar.

- 1 Understands echo ranging principle;
- 2 Understands the principle of the radar beam;
- 3 Describes the function of the scanners and associated aerial system;
- 4 Describes bearing determination by azimuth of scanner;

- 5 Appreciates the effect beam width has on beam distortion and bearing error;
- 6 Describes the formation of side lobes and multiple echoes;
- 7 Appreciates the importance of vertical beam width;
- 8 Understands factors affecting minimum range and discrimination:
 - Pulse Repetition Frequency;
 - Pulse length;
 - Target aspect;
 - Height of Scanner;
- 9 Understands the factors affecting target size and quality:
 - Aspect of target;
 - Material;
- 10 Understands the errors in radar information and identifies false targets:
 - Multiple echoes;
 - Side lobes;
 - Shadow and blind sectors;
 - Second trace echoes;
 - Meteorological effects.

.2

Operation of Radar.

- 1 Understands correct setting up procedure;
- 2 Understands the action of each of the following controls:
 - Brilliance, Gain, Tuning, Pulse length, range;
 - Clutter, sea and rain;
 - Auto clutter controls;
- 3 Understands the use of the heading marker;
- 4 Understands the dangers of incorrectly aligned heading marker;
- 5 Uses the heading marker switch correctly during watch keeping;
- 6 Takes ranges and bearings using the electronic bearing line and variable range markers;
- 7 Understands the errors in range and bearing;
- 8 Understands parallel indexing techniques;
- 9 Understands the methods of parallel indexing using index lines;
- 10 Sets up index lines correctly;
- 11 Correctly interprets the information supplied by the Radar;
- 12 Interprets relative and true tracks correctly.

.3

Radar Plotting.

- 1 Understands the method of laying out a paper plot;
 - WOA triangle;
 - Understands CPA;
 - TCPA and method of calculating course and speed;
- 2 Interprets plotted information correctly and acts according to IRCPS;
- 3 Knowledge of Rule 19;
- 4 Understands the effects of alteration of course and/or speed of own ship.

Officer of the Watch (Yacht)

General Ship Knowledge (OOW, Yachts)

Duration

The course must take place over 5 days or 30 hours of formal instruction.

Contents

The course is divided into four sections;

- 1 – Ship Construction;
- 2 – Stability;
- 3 – Meteorology;
- 4 – Seamanship.

Assessment

Assessment will be by a written 2 hour examination of seven questions. The pass mark will be 60%

TOPIC 1 SHIP CONSTRUCTION

.1 Understands ship construction terminology.

- 1 Explains and illustrates the following terms: forward perpendicular, after perpendicular, length between perpendiculars, length overall, amidships, beam, depth, draught, freeboard, camber, sheer, flare;
- 2 States that gross tonnage is a measure of the internal volume of the ship and net tonnage is obtained by making deductions from GT.

.2 Distinguishes between longitudinal, transverse and local stresses due to static and dynamic loading.

- 1 Explains the causes of longitudinal stresses with reference to hogging and sagging;
- 2 Explains the causes of transverse stresses with reference to drydocking and racking;
- 3 Explains the stresses caused by a sailing boat's mast and rigging;
- 4 Explains how local stresses arise due to panting, pounding, vibration, discontinuities at hull openings and local loading;
- 5 Is aware how the concept of simple beam analogy relates to a ship's structures sufficient to explain and illustrate tensile and compressive stresses; the neutral axis and significance of material disposed furthest from this plane.

.3 Understands methods of yacht construction.

- 1 Explains the methods of construction employed to resist the stresses in transverse, longitudinal and combined systems of framing and local considerations. The importance of continuity of strength;
- 2 Is aware that the bottom, side shell and upper deck structure are important strength members;
- 3 Describes and illustrates the following terms: centre girder, side girders, stringers, transverse bulkheads, transverse frames, beams, beam knees, floors, pillars, coamings and insert plates;
- 4 Draws mid section sketches of sail and motor yachts and identifies and explains the function of the principal components given in .3;
- 5 Discusses the relative advantages and disadvantages of wood, steel, aluminium alloy, and FRP and other composite systems used in yacht construction;
- 6 Defines the term and cause of osmosis in FRP construction and discusses the potential damage that might arise.

- .4 Understands plans normally carried on board.**
- 1 Describes the contents of a general arrangement drawing;
 - 2 Describes the types of structural drawings that are normally available on board and can identify the principle components listed in 3.3.
- .5 Understands the cause and prevention of chemical and galvanic corrosion.**
- 1 Outlines the process of chemical corrosion;
 - 2 Describes the process of galvanic corrosion between dissimilar metals by explaining the electro-chemical cell;
 - 3 Identifies areas prone to galvanic corrosion and explains and illustrates methods of joining and attaching dissimilar metals and fittings;
 - 4 Explains the function of a paint system in the prevention of corrosion and the importance of its proper maintenance;
 - 5 Describes the process of preparing steel and aluminium plate for paint application;
 - 6 Outlines the principle of cathodic protection using sacrificial anodes and impressed current systems.
- .6 Understands the functions of Classification Societies.**
- 1 Explains the role of Classification Societies with regard to notation and tasks performed;
 - 2 States the items that will receive special attention during dry dock and annual surveys.
- .7 Understands load lines, reserve buoyancy and methods of damage control.**
- 1 Explains the terms freeboard deck, superstructure deck, superstructure, Assigned freeboard, weathertight, watertight;
 - 2 Sketches the 'All Seasons Load Line' and explains S, and F;
 - 3 States that the FWA = 1/48th Summer draught;
 - 4 Explains the importance of reserve buoyancy and the necessity of maintaining its integrity;
 - 5 States the items which affect the stability and seaworthiness of the ship with reference to: hatchways and coamings, doorways, side scuttles, skylights, windows, ventilators and exhausts, air pipes, and water freeing arrangements;
 - 6 Discusses the routine maintenance to ensure the efficiency of closing arrangements for the items listed in .5 above.
- .8 Understands bilge-pumping systems.**
- 1 Draws a simple bilge-pumping diagram with reference to the symbols used and describes the following components: screw lift non-return valve, screw lift valve, mud box and strum box.

TOPIC 2 STABILITY

- .1 Understands basic principles of hydrostatics and related terms.**
- 1 Defines density and relative density and explains the use of the marine hydrometer;
 - 2 States the Law of Flotation;
 - 3 Defines light displacement, load displacement, deadweight, buoyancy, reserve buoyancy;
 - 4 States that Displacement = Underwater volume × Density;
 - 5 Calculates the displacement of a box shaped vessel for a given draught and relative density;

- 6 Calculates the draught and freeboard for a box shaped vessel given the displacement and relative density;
- 7 Is aware of the information given in the hydrostatic data relating to Displacement, TPC and KM scales only;
- 8 Extracts the Displacement, TPC and KM from the hydrostatic data for a given mean draught using graphical and tabulated presentations;
- 9 Estimates the change in draught and displacement from displacement and TPC scales using graphical and tabulated presentations.

.2 Understands the concept of initial stability.

- 1 States that initial stability means at or near the upright;
- 2 Defines centre of gravity, centre of buoyancy, transverse metacentre, metacentric height, righting lever and righting moment;
- 3 Draws a diagram for a vessel in stable equilibrium heeled to a small angle to show the positions and forces through the centre of gravity and centre of buoyancy and explains the creation of the righting lever, righting moment, and transverse metacentre;
- 4 Explains the concept of metacentric height, GM, as an assessment of initial stability;
- 5 Describes the motion of stiff and tender vessels and states their advantages and disadvantages;
- 6 Explains the difference between stable, neutral and unstable equilibrium with reference to GM;
- 7 Describes the effect on GM due to adding, removing and transferring weights;
- 8 Describes the effect on GM due to consumption of fuel and water and retention of water on deck;
- 9 Shows that for suspended weights the effective centre of gravity is at the point of suspension and the effect this has on GM;
- 10 States that the effect of free surface can be considered as a reduction in GM or a rise in KG and this change is known as the free surface correction.

TOPIC 3 METEOROLOGY

.1 Understanding the pattern of general global pressure distribution.

- 1 Explains the factors, including the Coriolis force, which effect the strength and direction of the wind. Explains the practical use of Buoy's Ballot' Law;
- 2 Explains, with the aid of a simple sketch, the general pattern of global circulation over a uniform earth;
- 3 Explains the modifying effect of large landmasses on the general pattern of global circulation;
- 4 Describes the causes of and the conditions associated with the ITCZ, Trade Winds and the Variables.

.2 Understands the causes of local winds.

- 1 Describes with the aid of a simple diagram the formation of land and sea breezes;
- 2 Explains the causes of Katabatic Winds and the associated dangers to small vessels;
- 3 Explains that local effects may modify winds caused by pressure systems and the effects on sea conditions.

.3 Understands the effects of water vapour in the atmosphere.

- 1 Explains the cause of super-refraction and sub-refraction and the effect these conditions can have on optical and radar ranges.

.4 Understands the operating principle, practical use and care of common meteorological instruments.

- 1 Basic understanding of the types of barometer in common use;
- 2 Simple explanation of the principle of the barograph. Explain its practical use in relation to forecasting weather conditions;
- 3 Explain the use of wet and dry bulb thermometers and the practical use of the information obtained;
- 4 Explains the operation of a whirling psychrometer and the practical use of the information obtained.

.5 Understands the sources of weather information available to ships.

- 1 Knowledge of the published sources of information, including the Mariners Handbook, Admiralty List of Radio Signals Vol.3 NP 283 (1 & 2), Admiralty Routeing Charts, Admiralty Sailing Directions;
- 2 Knowledge of broadcast sources of information, including weather facsimile, satellite pictures, text messages and internet;
- 3 Outline knowledge of sources of weather routeing information. Explains the advantages of using such a system;
- 4 Defines the terms; Synoptic Chart, Prognostic Chart, Surface Analysis Chart and Surface Wave Chart;
- 5 Understands the formation, movement and occurrence of Tropical Revolving Storms;
- 6 Describes the difference between a temperate latitude depression and a Tropical Revolving Storm;
- 7 Elementary explanation of the formation and movement of a Tropical Revolving Storm;
- 8 Discuss the weather conditions in and near a Tropical Revolving Storm and the dangers to small vessels;
- 9 Demonstrate an awareness of the principle areas and times of year when Tropical Revolving Storms can be expected;
- 10 Actions to avoid a Tropical Revolving Storm. Knowledge of safe and dangerous quadrants.

TOPIC 4 SEAMANSHIP

.1 Understands the principles to be observed in keeping a navigational watch.

- 1 Can demonstrate an understanding of the application of the STCW 95 Code to vessels engaged in trade and in particular Chapter VIII, Section A-VIII/1 and A-VIII/2;
- 2 Fully appreciates the requirement to be well rested before taking over a navigational watch;
- 3 Can demonstrate an appreciation of the serious effect of operational or accidental pollution and the need to comply with international and port regulations;
- 4 Is fully aware of the implications of the requirement to keep a proper lookout;
- 5 Explains the checks to be made when taking over a navigational watch;
- 6 Discuss the correct log book entries to be made;
- 7 Explains the circumstances when the Captain should be notified;
- 8 Explains the actions to be taken when encountering and during a period of restricted visibility;
- 9 Explains the requirements for keeping a watch on a vessel at anchor.

.2 Understands the responsibilities in relation to a pilot.

- 1 Discuss the precautions to be taken when embarking and disembarking a pilot;
- 2 Discuss the responsibilities of the pilot in the conduct of the navigation of the vessel;
- 3 Is aware of the responsibilities of the O.O.W./Master in relation to the Pilot and the navigation of the vessel;

- 4 Discuss the necessity to closely monitor the position of the vessel when under pilotage.

.3 Understands the precautions to be taken in preparing a vessel for sea.

- 1 Explains the importance of maintaining watertight integrity and in particular the fitting of storm shutters;
- 2 Explains the importance of non-return valves on tank vent pipes, especially when fitted low down on a vessel;
- 3 Awareness of freeing arrangements, scuppers and freeing ports;
- 4 Explains the requirement to secure heavy or bulky items, e.g. tenders, jet-skis and helicopters;
- 5 Explains the importance of maintaining access to emergency equipment at all times;
- 6 Aware of importance of draining swimming pools, etc.;
- 7 Understands the precautions to be observed when using lifting equipment;
- 8 Explains the requirement to use certified chains, shackles, strops and slings, the care of such equipment, maintenance of all necessary records and retesting of equipment to maintain validity of certificates;
- 9 Understands the significance of Safe Working Loads, breaking strains etc.;
- 10 Understanding the precautions, under the Code of Safe Working Practice to be observed when engaged in mooring, anchoring and towing operations;
- 11 Explain the precautions necessary in preparing the anchors ready for use, including the importance of communications;
- 12 Explain the precautions to be taken before the anchor is let go;
- 13 States the difference between self-stowing chain lockers and chain lockers that require personnel to assist. Explain the dangers involved and the precautions necessary to prevent injury to personnel;
- 14 Explain the precautions necessary in mooring operations to prevent injury, including communications, supervision and the preparation of the ropes and wires to be used;
- 15 Discuss the importance of proper training in the operation of winches;
- 16 Explains the correct use of rope and chain stoppers;
- 17 States the dangers of excessive loads on the mooring ropes and the dangers involved should a rope part, with particular reference to synthetic cordage;
- 18 Explain the correct procedure for securing to a mooring buoy;
- 19 Understand the precautions to be observed when passing and connecting a towline.

.4 Understand selection, care and maintenance of wires and ropes of all types.

- 1 Explains the correct procedure for inspecting a rope or wire for the effects of damage in order to ascertain its safety;
- 2 Discuss the care of synthetic and natural fibre cordage and in particular the factors that effect strength.

.5 International Code of Signals.

- 1 Understands the information contained in the INTERCO;
- 2 Understands the international distress signals and Appendix 4 of IRPCS;
- 3 Knows the Morse Code;
- 4 Recognises the international code flags.

Officer of the Watch (Yacht)

Oral Examination (OOW,Yacht)

TOPIC 1 NAVIGATION

.1 Plan and conduct a passage including position determination.

- 1 Passage planning with respect to use of navigational publications including navigational charts (including ECDIS and RCDS), sailing directions, light lists, tide tables, radio navigational warnings and ship routing information; IALA system of maritime buoyage;
- 2 Electronic Navigational Systems – limitations and sources of error and methods of correction;
- 3 Limitations of electronic chart systems including ECDIS and RCDS navigational chart systems;
4. Radar and ARPA – practical use of, modes of operation, limitations, sources of error and parallel indexing, including radar plotting techniques;
- 5 Use of a sextant and identification and correction of errors;
- 6 Use an azimuth mirror, pelorus (bearing plate) or other instrument for taking bearings;
- 7 Sources of meteorological information, ability to use and interpret information obtained from ship borne meteorological instruments, and knowledge of characteristics of various weather systems.

.2 Maintain a safe navigational watch.

- 1 A thorough knowledge of the principles of navigational watchkeeping at sea, including under pilotage and watchkeeping at anchor and in port;
- 2 A thorough knowledge of the contents, application and intent of the International Regulations for the Prevention of Collisions at Sea;
- 3 Understand the use of bridge equipment, including rate of turn indicators, course recorders, Echo Sounder and NAVTEX;
- 4 Knowledge of steering control systems, including automatic pilot and operational procedures and change over from manual to automatic control and vice-versa, and adjustment of controls for optimum performance;
- 5 Knowledge of application of ICS Bridge Procedures Guide.

.3 Manoeuvre the ship.

- 1 Preparation for getting under way, duties prior to proceeding to sea, making harbour, entering a dock, berthing alongside quays and jetties or other ships, and securing to buoys;
- 2 Use and care of mooring lines and associated equipment;
- 3 Helm orders, conning the ship, effects of propellers on the steering of the ship, effects of wind and current, stopping, going astern, turning short round, interaction, and squat, and embarking and disembarking a pilot;
- 4 Action in event of failure of bridge control, telegraph or steering gear, and emergency steering arrangements;
- 5 Procedures for anchoring.

TOPIC 2 RESPONSE TO EMERGENCIES

.1 Response to navigational emergencies.

- 1 Initial action following: man overboard, collision, grounding, flooding or major mechanical damage, and receipt of a distress message, initial damage assessment and control, protection of the marine environment;
- 2 Precautions for the protection and safety of passengers in emergency situations;
- 3 Use of the International Aeronautical and Marine Search and Rescue (IAMSAR) Manual, distress and emergency signals, and search and rescue around the UK and world-wide.

.2 Response to other emergencies.

- 1 Understand the organisational procedures for emergency parties and drills;
- 2 Knowledge of fire prevention, use and care of fire-fighting appliances, the shut-down and isolation of plant and equipment, escape and breathing apparatus, fire and safety plans;
- 3 Knowledge of classes and chemistry of fires; vent of fire including fires involving oil;
- 4 Use and care of lifesaving appliances and equipment including hand held radios, EPIRBs, SARTs, immersion suits and thermal protective aids and rocket and line throwing apparatus;
- 5 Meanings and markings on survival craft and associated equipment, correct use of distress signals;
- 6 Launch and manage survival craft, recover rescue boats at sea;
- 7 Precautions for protection and safety of passengers in emergencies;
- 8 Basic principles of survival;
- 9 Sources of medical information available.

.3 Communications.

- 1 Use of distress and emergency signals, International Code of Signals and the IMO Standard Marine Communication Phrases;

TOPIC 3 ONBOARD SHIP OPERATIONS

.1 Pollution prevention requirements.

- 1 Precautions to be taken to prevent pollution of the marine environment as required by MARPOL, including Restricted Areas and the disposal of pollutants;
- 2 Basic understanding of the SOPEP Manual, Garbage Management Plan and anti-pollution equipment.

.2 Seaworthiness of the ship.

- 1 Understand fundamentals of watertight integrity and the closing of all openings including hatches, access hatches and watertight doors;
- 2 Preparations for heavy weather.

.3 Legislative requirements.

- 1 Contents and use of Merchant Shipping Notices, Marine Guidance Notes, Marine Information Notes and Annual Summary of Admiralty Notices to Mariners;
- 2 Knowledge and application of current merchant shipping health and safety legislation, and the Code of Safe Working Practices for Merchant Seamen;
- 3 Basic knowledge of relevant IMO conventions concerning safety of life at sea and protection of the marine environment;
- 4 Purpose and application of the International Safety Management (ISM) Code;
- 5 Purpose of flag and port state control.

Master Less than 500 gt (Yacht)

Navigation, ARPA & Radar Simulator (Master, Yachts)

Duration

This module must be conducted over a minimum period of ten days (60 hours).

Content

This module is to be split into sections, Navigation, Radar, ARPA and Simulation. The structure of this module must incorporate at least five days use of a MCA type-approved Radar Simulator or any other system approved by the MCA to be suitable for this course. In order to qualify for a MCA approved ARPA Certificate a minimum of three days must be devoted to tuition in the practical use and aspects of ARPA.

Assessment

The assessment shall be in two parts:

- a) In-course practical assessment.
Candidates MUST satisfactorily complete the in-course assessment before they are eligible to take the written examination.
The in-course assessment will consist of:
 - i) Preparing a comprehensive passage plan for a voyage of over 50 miles or 3 hours passage, whichever is the greatest. If possible, this should be one of the passages run as a simulator exercise.
 - ii) Successful completion of a series of simulated exercises, demonstrating competence in the use of electronic navigational aids (including radar/ARPA operation), general navigation and an understanding of appropriate collision regulations.
- a) A written 2½ hour “underpinning knowledge” theory exam. The written paper will consist of six questions and candidates must attempt all questions.

To achieve a pass the candidate must achieve at least 60%.

NOTE:

Two certificates will be issued upon successful completion of the course; an ARPA Certificate and a ‘Navigation, ARPA and Radar Simulator’ Certificate for (Master, Yachts)

TOPIC 1 PASSAGE PLANNING

.1 Appraisal and planning – identify most suitable route.

- 1 Set courses on charts between points of departure and destination;
- 2 Assess and allow suitable margins of safety from dangers;
- 3 Identify and highlight dangers on the charts.

.2 Consult all relevant documentation.

- 1 Weather throughout route, including TRS storms, winds, potential fog, ice and any other aspect that could restrict passage;
- 2 Prevailing currents and tides (heights and directions) in relevant places;
- 3 Pilot Book information: Shallow patches, restricted areas, conspicuous landmasses;
- 4 Reporting areas, VTS and other communication requirements;
- 5 Pilotage areas requirements.

.3 Determine all aspects affecting navigation.

- 1 Determine changes in compass errors by variation chart or similar;
- 2 Identify position fixing arrangements;
- 3 Identify transit bearings and other means of determining the compass error;
- 4 Determine suitable parallel indexing and identify index ranges;
- 5 Define contingency arrangements;
- 6 Identify traffic separation areas;
- 7 Identify fishing areas;
- 8 Identify any other special areas and restrictions which may affect safe navigation.

.4 Pre sailing briefing.

- 1 Understand the importance of pre-sailing briefing;
- 2 Identify information to be discussed at pre-sailing briefing.

.5 Use of ECDIS with passage planning.

- 1 Plan and save a route using ECDIS, adding text and warnings where necessary;
- 2 Set appropriate alarm parameters i.e. cross track error, safety depths, safety contour, guard rings;
- 3 Determine the availability of appropriate charts and their coverage;
- 4 Understand the limitations and potential dangers of over-reliance on ECDIS.

.6 Fuel consumption and range.

- 1 Determine total distance to travel and fuel consumption;
- 2 Determine the safe fuel reserve required;
- 3 Determine fuel required at departure port.

.7 Execution and monitoring.

- 1 Fixes vessel's position by visual and/or radar fixes;
- 2 Fix vessel's position by electronic navigational aids;
- 3 Determine course to steer to make good a desired course;
- 4 Effectively monitor the vessels progress on an electronic chart;
- 5 Compare positions obtained by different methods;
- 6 Activate 'contingency arrangements' when proven necessary due to steering, engine breakdowns etc;
- 7 Maintain the vessel in a safe position;
- 8 Monitor other vessels in the vicinity by radar/ARPA;
- 9 Comply correctly with the appropriate collision regulations.

.8 Conduct arrival briefing.

- 1 Understand the importance of arrival briefings;
- 2 Identify the information to be discussed at an arrival briefing.

TOPIC 2 KNOWLEDGE OF INTERNATIONAL REGULATIONS FOR THE PREVENTION OF COLLISION AT SEA (IRPCS)

.1 Application of the Collision Regulations – conduct exercises on an approved simulator.

- 1 Appreciate the need for early and substantial action and dangers of assumptions made on inadequate information;
- 2 Understand the importance of using radar in clear visibility to appreciate its capabilities and limitations;

- 3 Take suitable action within the Rules to avoid close quarter situation with vessels in sight of one another. (*Where a simulator with visuals is not available then alternative methods must be used*);
- 4 Take action to avoid close quarter situation with vessels detected by radar alone but not observed visually;
- 5 Determine a safe speed taking into account all prevailing conditions;
- 6 Whilst conducting a simulated passage, analyse potential collision risks with multi-vessel encounter, determine and execute best action to avoid a close quarter situation with all the vessels. The target vessels should be approaching own ship from all directions including overtaking;
- 7 Conduct a pre-planned coastal passage on the simulator in clear and/or reduced visibility to test navigation and chartwork skills.

TOPIC 3 SEARCH AND RESCUE

.1 Principles of search and rescue – practical application of search and rescue.

- 1 Understand the basic contents and use of IAMSAR Manual;
- 2 Conduct a simulated multiple ship SAR exercise to include at least three ships;
- 3 Appoint OSC (On Scene Co-ordinator) for exercise clear of coastal control;
- 4 Delegate responsibilities;
- 5 Establish a datum;
- 6 Conduct full communications and instructions;
- 7 Initiate multiple ship search patterns;
- 8 Establish inter-ship communications to prepare for recovery;
- 9 Understand how the use of ECDIS can aid the search patterns;
- 10 Follow standard international SAR procedures;
- 11 This exercise should reflect the implications of GMDSS and other additional facilities available to assist SAR.

TOPIC 4 RADAR

.1 Radar display – setting up radar display.

- 1 Setting up the display;
- 2 Demonstrate effective use of brilliance and gain on a rasterscan display;
- 3 Demonstrates the correct use of tuning (manual & AFC);
- 4 Align correct heading and test accuracy;
- 5 Select correct range, speed, display mode;
- 6 Understand the importance of selecting correct pulse length;
- 7 Understand correct use of enhance and anti-rain clutter controls;
- 8 Understand and manipulate anti-sea clutter control, auto and manual;
- 9 Adjust for optimum setting of all other controls.

.2 Understand the significance of video processing.

- 1 Understand use and limitations of correlation;
- 2 Understand use and limitations of interference rejection.

.3 Understand modes of operation.

- 1 TM and RM, north up, head-up and course-up;
- 2 Understand the significance and advantages of ground and sea stabilised.

.4

General radar knowledge.

- 1 Understand the minimum required range and bearing discrimination;
- 2 Understand the effects of PRF and pulse length and their effects on the display;
- 3 Comprehend the maximum and minimum range of the standard marine radar;
- 4 Understand the effects of the position of scanner;
- 5 Understand the factors affecting target responses to radar;
- 6 Realise the significance of spot size of targets and target identification;
- 7 Analyse the factors affecting radar echo responses;
- 8 Understand the different wavelength of transmission and their significance;
- 9 Analyse the significance of target trails.

.5

Use of radar in navigation.

- 1 Obtain radar bearings and ranges to fix the vessel's position;
- 2 By use fixed and variable range markers;
- 3 Appreciate the accuracy of the bearing marker and the use of bearings;
- 4 Understand the effects of heading marker misalignment;
- 5 Appreciate need for regular cross-referencing bearing and range markers;
- 6 Use the radar with parallel indexing for different index ranges;
- 7 Understand the importance of cross-checking the accuracy of radar against other means of navigation;
- 8 Operate ARPA radar interfaced with an ECDIS;
- 9 Transfer target information from ARPA to ECDIS and its limitations;
- 10 Understand the principle and limitations of overlaying radar picture onto ECDIS.

.6

Radar performance and false echoes.

- 1 Understand the use of performance monitors and PM aids;
- 2 Understand the effects of precipitation on the radar display;
- 3 Understand the effects of other meteorological conditions on detection and display;
- 4 False echoes and how to reduce their effects,
 - reflected echoes;
 - multiple echoes;
 - second trace returns;
 - side lobes effects;
 - radar to radar interference;
 - blind/shadow sectors
 - overhead cables and their effect on range and detection.

.7

Safety precautions with radar equipment.

- 1 Dangers of working in the vicinity of the radar scanner;
- 2 Dangers of high voltages within the transceiver;
- 3 Code of Safe Working Practices with reference to working on radar equipment.

.8

Practical radar plotting.

- 1 Perform paper and real-time simulator relative plotting of more than one target;
- 2 Interpret target movements and comply with collision avoidance under Collision Regulations;
- 3 Understand the effects of changes of course and/or speed of a target vessel;
- 4 Appreciate the hazards of small changes compared with substantial changes of course or speed;
- 5 Understand the effects of inaccuracies of course and speed inputs into a plot and to a true motion and relative motion display;
- 6 Understand the effects of changes in course or speed or both by own ship on the tracks of other vessels on the display;
- 7 Appreciate the relationship of speed to the frequency of observations;
- 8 Plots to include alterations of course and speed.

TOPIC 5 ARPA

Introduction

The ARPA content of this course must follow the contents of the MCA approved ARPA course the syllabus and structure being clearly defined.

Aim

The aim of the course is to provide training in the fundamentals and operation of ARPA radar equipment and in the interpretation and analysis of information obtained from this equipment. To comply with IMO and statutory requirements, the ARPA radar must be under the control of a person qualified in the operational use of ARPA.

Objectives

At the end of the course the officer must be capable of effectively using ARPA equipment as a safe aid to navigation and collision avoidance through the ability to:

- Follow procedures for operating the equipment and maintaining the display;
- Obtain and analyse the data provided;
- Take action as required for the safe conduct of navigation based on correct interpretation and analysis of ARPA data.

Format of the course

To achieve the objectives of the course and to cover the syllabus topics, the course shall consist of demonstrations, instruction and intensive simulator exercises on the use of ARPA. Practical real-time exercises followed by a de-brief and discussion of actions taken during the exercises are an essential feature to enable the student to acquire and demonstrate proficiency in the operation of the equipment.

Due attention must be given to:

- The need to act at all times in accordance with the provisions of the Collision Regulations and the Basic Principles and Operational Guidance for the Keeping of a Safe Navigational Watch;
- The dangers inherent in over reliance on ARPA data;
- The capabilities and limitations of the system and those factors which can affect the system's performance and accuracy;
- Real-time plotting, associated with collision avoidance manoeuvring using a simulator is an essential part of this section of the course;

Design of exercises

The exercises should require the participants to illustrate the principles of keeping a safe navigational watch, chartwork and collision avoidance. The design and conduct of the exercises should be progressive and the later exercises designed to stretch the ability of the participants.

Automatic radar plotting aids

The theoretical and practical content of the course will incorporate the following:

- .1 Understand the possible risks of over-reliance on ARPA.**
 - 1 Explains the importance of keeping a visual lookout;
 - 2 Discuss the limitations of the equipment;
 - 3 Understands the need to retain the principles and guidance of keeping a navigation watch.
- .2 Principle types of ARPA system and their display characteristics.**
 - 1 Understands the use of ground and sea stabilised displays;
 - 2 Appreciates the dangers of ground stabilised displays when using the ARPA for anti-collision purposes;
 - 3 Appreciates the minimum IMO performance standards for ARPA.

- .3 Understand the factors affecting system performance and accuracy.**
- 1 Explains the effects of inaccurate speed and/or course inputs;
 - 2 Discuss factors which influence the true and relative vector accuracy;
 - 3 Appreciates the use and accuracy of ground and sea stabilised vectors;
 - 4 Appreciate tracking capabilities and limitations;
 - 5 Understand the possibility of target swap and it's effects;
 - 6 Appreciates the processing delays on an ARPA;
 - 7 Understands the operational warnings (tests and alarms), their benefits and limitations.
- .4 Manual and automatic acquisition of targets.**
- 1 Demonstrate an ability to acquire targets manually;
 - 2 Acquire targets using auto-acquisition;
 - 3 Explain clearly the difference between true and relative vectors;
 - 4 Understand the use of true and relative vectors, graphical representation of target information and danger areas;
 - 5 Use of information on past positions of targets tracked.
- .5 Setting up and maintaining displays.**
- 1 Explain the dangers and effects of incorrectly adjusted controls;
 - 2 Discuss the factors affecting the selection of speed input (ground/sea stabilising);
 - 3 Discuss the use of common system operational tests e.g. performance monitors.
- .6 Obtaining information from the ARPA display including:**
- 1 Demonstrate an ability to identify critical echoes;
 - 2 Demonstrate an ability to determine the relative and true course and speed of targets;
 - 3 Demonstrate an ability to determine the CPA and TCPA of targets;
 - 4 Detection of velocity alterations of targets and its limitations;
 - 5 Discuss the effects of own ship alterations and the use of the trial manoeuvre facility.
- .7 Application of the International Regulations for Preventing Collisions at Sea.**
- 1 Understand the correct application of the Collision Regulations with simulated exercises.
- .8 Appreciate the factors involved in decision making based on ARPA and other navigational information.**
- 1 Applies the Collision Rules correctly based on ARPA information.
- .9 Introduction to mapping.**
- 1 Understand the basic ideas of mapping;
 - 2 Appreciate the alternative methods provided to lock the map and the inherent dangers associated with each method;
 - 3 Appreciates the potential dangers of the use of ARPA mapping facility.
- .10 Interfacing ARPA with other systems.**
- 1 Understands the ability to transfer data between navigational aids and the limitations, i.e. ARPA to ECDIS, GPS to ARPA and ECDIS;
 - 2 Appreciates the dangers and limitations of data transfer between equipment.

Master Less than 500gt (Yacht)

Seamanship and Meteorology (Master, Yachts)

Duration

This module must take place over 5 days or 30 hours of formal instruction.

Content

The course is divided into five sections:

- 1 – Seamanship;
- 2 – Navigation and Passage Planning;
- 3 – Meteorology;
- 4 – MARPOL;
- 5 – Code of Safe Working Practices.

Assessment

Assessment will be by written 2½ hour examination of five questions with one question drawn from each Topic of this syllabus. The pass mark will be 60%.

TOPIC 1 SEAMANSHIP

- .1 Understands the dangers and precautions necessary during heavy weather.**
 - 1 Explain the precautions necessary when heavy weather is forecast;
 - 2 Explain the dangers of synchronous rolling;
 - 3 Describe the dangers to the vessel and crew of heavy rolling and pitching, with particular reference to structural damage and injury to personnel;
 - 4 Aware of the dangers of running before a following sea;
 - 5 Appreciate the dangers of excessive speed in adverse conditions;
 - 6 Describe the procedure for heaving to, bow and stern to the sea;
 - 7 Explain the dangers of squalls to small vessels.
- .2 Understand conduct of heavy weather emergencies.**
 - 1 Describe the precautions when launching and manoeuvring a rescue boat or survival craft in heavy weather;
 - 2 Discuss the handling of a disabled vessel in heavy weather. Use of sea anchors and drogues.
- .3 Understand precautionary measures for maintaining buoyancy.**
 - 1 Explain the importance of ensuring water-freeing arrangements are maintained with particular reference to deck drains and scuppers;
 - 2 Aware of the importance of securing anchors and chains with reference to closing the hawse and spurling pipes;
 - 3 Dangers of side openings and shell doors;
 - 4 Aware of the importance of securing jet-skis, tenders etc., instructions to the crew and routine checks;
 - 5 Aware of the practical aspect of keeping records regarding watertight integrity.
- .4 Understand procedures when towing and being towed.**
 - 1 Explain the selection of suitable towing points;
 - 2 Outline the procedure for preparing to tow or be towed including the selection of suitable gear;
 - 3 Discuss the various methods of passing and securing a tow;
 - 4 Explain the methods of steering a vessel under tow and when being towed;
 - 5 Explain the procedure of letting go a tow.

5

Ship handling

- 1 Discuss methods of handling a vessel in rivers, estuaries, restricted waters and in harbours;
- 2 Aware of the effects of weather, tide, headreach, stopping distance and currents;
- 3 Discuss the considerations when approaching a dock or berth;
- 4 Understand the effect experienced when manoeuvring in shallow waters, including reduction of underkeel clearance by squat, rolling and pitching;
- 5 Aware of the sources of manoeuvring data;
- 6 Understand the cause and effect of interaction between passing vessels;
- 7 Use and limitations of manoeuvring and propulsion systems;
- 8 Explain the procedures and precautions necessary when embarking and disembarking a pilot;
- 9 Explain the Mediterranean moor.

.6

Understand procedures for bringing a vessel to anchor.

- 1 Explain the factors that affect the choice of anchorage, including the expected weather and the quality of the holding ground;
- 2 Understand how to anchor using one or two anchors;
- 3 Explain how to achieve a running moor;
- 4 Discuss procedures for clearing a fouled anchor;
- 5 Explains the requirement for an anchor watch, actions when dragging anchor and when anchoring in heavy weather;
- 6 Explain actions required when anchoring in deep water.

.7

Understanding of navigational dangers.

- 1 Be aware of dangers likely to be encountered in shallow waters;
- 2 Be aware of dangers likely to be encountered in and near reefs.

.8

Actions in emergency situations.

- 1 Explain action to assist a ship or aircraft in distress, including sources of information;
- 2 Explain actions to be taken if grounding is imminent, and after grounding;
- 3 Discuss refloating a grounded vessel with and without assistance;
- 4 Explains the procedure for beaching a vessel;
- 5 Explain the action to be taken after a collision;
- 6 Discuss measures to preserve stability and trim in event of damage;
- 7 Understand man overboard manoeuvres;
- 8 Explain the necessity to keep records and make reports to meet statutory and organisational requirements.

.9

Response in emergency.

- 1 Define and plan strategic procedures in event of an emergency;
- 2 Discuss the allocation of resources and emergency duties to teams and individuals;
- 3 Explain the practical use of contingency plans;
- 4 Explain the organisation and benefits of drills, musters and other emergency training;
- 5 Discuss the possible effect of emergency action on the external environment;
- 6 Discuss crowd control and the handling of passengers and personnel;
- 7 Explain the actions necessary when preparing to abandon ship, and when abandoning ship;
- 8 Explain the risk of precipitated abandoning of the vessel.

.10 Action required in the event of loss of essential systems.

- 1 Discuss action to be taken in the event of loss of steering;
- 2 Explain the operation of emergency steering systems;
- 3 Understands the rigging a jury rudder;
- 4 Actions to be taken in a drifting vessel.

.11 Dry-docking with and without damage.

Understand the practical aspect of emergency docking and undocking.

TOPIC 2 NAVIGATION

.1 Watchkeeping.

- 1 Explains the basic procedures for the keeping of a safe navigational watch;
- 2 Establishing a navigational policy; including watchkeeping arrangements and hours of work;
- 3 Understand the importance of handing over, relieving and maintenance of a watch in accordance with established principles and procedures;
- 4 Discuss the Watchkeeper's role and responsibilities with particular reference to maintaining a lookout, monitoring traffic, the vessel and environment;
- 5 Explain the responsibilities and duties of lookouts;
- 6 Understands precautions necessary when changing over from hand to automatic steering and vice-versa;
- 7 Explains the possible dangers in the use of VHF in collision avoidance;
- 8 Practical application of the International Regulations for the Prevention of Collisions at Sea;
- 9 State the importance of correct log book entries and other record maintenance activities;
- 10 State the necessity for clear Bridge communication with respect to alteration of course and/or speed;
- 11 An understanding of the importance of Masters standing instructions and standing orders.

TOPIC 3 METEOROLOGY

.1 Assessing the weather.

- 1 Demonstrates an elementary knowledge of atmospheric stability and lapse rates;
- 2 Explain the process of cloud formation and understands the classification of clouds;
- 3 Explain local and regional effects of heating and cooling;
- 4 Can give simple explanations of the causes of local variations, with special reference to:-
 - Land and sea breezes;
 - Monsoons;
 - Katabatic winds;
- 5 Describe the weather associated with the principle pressure systems e.g anti-cyclones and depressions;
- 6 Explain the formation of permanent and semi-permanent high and low pressure areas;
- 7 States the relationship between pressure distribution and wind;
- 8 A simple understanding of air masses and their properties;
- 9 Discuss the weather associated with rising and falling pressure;
- 10 Understands the terms 'pressure tendency' and 'pressure gradient';
- 11 Demonstrate an ability to interpret simple marine weather forecasts;
- 12 Understands the dangers of navigation in or near ice;
- 13 Explains the formation of ice accretion on vessels and the associated dangers;
- 14 Demonstrate an understanding of the formation of Tropical Revolving Storms and the avoidance of these storms;

- 15 A knowledge of the types of weather message including synoptic, prognosis, analysis and common weather chart symbols;
- 16 Demonstrate a knowledge of the organisations providing meteorological information to shipping;
- 17 Assess the reliability of weather forecasts with respect to elapsed time and forecast duration;
- 18 Explain the use of weather messages to deduce the probable weather and changes in the weather.

TOPIC 4 MARPOL

.1 Regulatory requirements.

- 1 Demonstrates an understanding of the IMO Conventions concerning safety of life at sea and the protection of the environment;
- 2 Demonstrates a knowledge of SOPEP Manual;
- 3 Demonstrates a knowledge of the Oil Record Book and its contents including record keeping;
- 4 Discuss the Garbage Management Plan including the requirement for record keeping;
- 5 Explain the requirements and limitations associated with at sea garbage disposal areas;
- 6 Explain the problems associated with garbage segregation, onboard storage and landing garbage in port;
- 7 Discuss the precautions required necessary to protect the marine environment;
- 8 Explain the practical prevention of oil spills with particular reference to bunkering operations;
- 9 Understands the action to be taken in the event of an accidental spillage;
- 10 Demonstrate an understanding of anti-pollution procedures and associated equipment.

TOPIC 5 CODE OF SAFE WORKING PRACTICES

.1 Personal Hygiene and Safety.

- 1 Understands the importance of complying with health and hygiene requirements;
- 2 Discuss personal care in hot climates;
- 3 Understands the importance of regular inspections of accommodation.

.2 Code of Safe Working Practices.

- 1 Explain the use of the Code of Safe Working Practices;
- 2 Describe the advice concerning the maintenance and use of Personal Protective Equipment (PPE);
- 3 Discuss responses to breaches of health and safety requirements;
- 4 State personal responsibility for ensuring safe working practices, safe work area and following safety procedures;
- 5 Discuss the importance of minimisation of unhelpful interruption to, and digression from planned work;
- 6 Demonstrates an understanding of the principles of a Permit to Work system(s);
- 7 Understands the danger involved in the entry into enclosed spaces and the precautions necessary;
- 8 Explains the dangers involved in working overside and at height and the precautions necessary;
- 9 Understands the safety precautions when using chemicals that are potentially hazardous to health together with a knowledge of sources of information;
- 10 Explain the safety precautions when using powered tools;
- 11 Explain the importance of safety briefings.

.3

Role and responsibility of the Safety Officer;

- 1 Explain the requirement for and importance of safety meetings;
- 2 Explain a procedure for hazard identification;
- 3 Discuss the requirements for practical aspects of safety inspections;
- 4 Explain the importance of keeping records;
- 5 Explain the powers of the Safety Officer.

.4

Reporting of unsafe practices and incidents.

- 1 Explain the requirement for near miss reporting;
- 2 Demonstrate an understanding of accident investigation;
- 3 Action on encountering an unsafe operation;
- 4 Explain the importance of rectifying and eliminating unsafe conditions and potential hazards.

.5

Principles of planning work activities, setting objectives and priorities to ensure requirements are met.

- 1 Explain the principles of risk assessment;
- 2 Discuss the importance of onboard working relationships;
- 3 Explain the importance of correct allocation of manpower resources;
- 4 Explain the strategies for encouraging effective working relationships;
- 5 Defining realistic proposals for actions and objectives;
- 6 Demonstrates an understanding of the procedure for handling disagreements and disputes;
- 7 Demonstrate an understanding of complaints procedures.

Master Less than 500 gt (Yacht)

Stability (Master, Yachts)

Duration

The course must take place over five days or 30 hours of formal instruction.

Content

The course will consist of five sections:

- 1 – Basic principles;
- 2 – List and related problems;
- 3 – Curves of statical stability;
- 4 – Loll and related problems;
- 5 – Dry docking and longitudinal stability.

Assessment

Assessment will be by a written 2½ hour examination with one question being drawn from each Topic of this syllabus. The pass mark will be 60%.

TOPIC 1 BASIC PRINCIPLES

.1 Understands basic principles of hydrostatics and related terms.

- 1 Calculates the displacement of a vessel given the length, breadth, draught, relative density and block coefficient.

.2 Appreciates fineness of hull form and resistance to forward motion.

- 1 Defines block coefficient and appreciates its influence with regard to resistance forward motion;
- 2 Outlines how fluid flow causes resistance to forward motion with regard to skin friction, wave making and eddy resistance (only);
- 3 Has a basic understanding of planing;
- 4 Outlines the hull forms required for semi-displacement and planing craft;
- 5 Explains the principles of squat;
- 6 Explains the principles of ship to ship interaction;
- 7 Explains the principles of ship to shore interaction.

.4 Understands the concept of statical stability.

- 1 Draws a sketch of a vessel in stable equilibrium to show the positions of G and B when heeled to an angle up to deck edge immersion;
- 2 Explains, with reference to the sketch in 4.1, how the forces through G and B create a righting lever and righting moment and how the magnitude of GZ is influenced by the vessel's beam.

.5 Understands the concept of initial stability.

- 1 Defines the transverse metacentre (M) and initial metacentric height (GM).
- 2 States that KM is influenced by the (beam)³;
- 3 Shows that the vessel will have a restoring moment if G is below M and an upsetting moment if G is above M;
- 4 Appreciates the magnitude of GM with regards to safety, stiff and tender motion.

TOPIC 2 LIST AND RELATED PROBLEMS

- .1
- 1 Draws a diagram to show that the force lines through G & B lie in the same vertical when at an angle of list and that the ship oscillates about this equilibrium angle;
 - 2 Draws a diagram of an upright vessel with G off the centreline to show that the angle of list can be assessed as $\tan \theta = GG_1/GM$;
 - 3 States that an angle of list is influenced by the magnitude of GM;
 - 4 Explains how to correct list by adding, removing and transferring weights.
- .2 **Understands the inclining experiment and rolling test.**
- 1 States the reasons for conducting an inclining experiment and rolling test;
 - 2 Gives elementary explanation of the procedures involved in conducting an inclining experiment and rolling test;
 - 3 Prepares a check list of precautions to be observed before and during an inclining experiment and rolling test in order to ensure an accurate result.
- .3 **Recognises the effect of slack tanks on the centre of gravity.**
- 1 Understands that a slack tank causes a reduction in GZ and explains that this can be considered as a free surface correction resulting in an increased KG and virtual loss of GM;
 - 2 States that the Virtual GM = Solid GM minus Free Surface Correction;
 - 3 States that Free Surface Correction = $\frac{\text{Free Surface Moment} \times \text{Relative Density}}{\text{Displacement}}$;
 - 4 Obtains Free Surface Moment from Stability Data Book and calculates correction and Virtual GM.

TOPIC 3 CURVES OF STATICAL STABILITY

- .1
- 1 Uses GM to obtain the slope of the curve at the origin of the GZ curve;
 - 2 Sketches a GZ curve for a vessel in stable equilibrium and identifies the following information given on the curve: range of positive stability, maximum GZ and angle at which it occurs, angle of vanishing stability, approximate angle of deck edge immersion, dynamical stability;
 - 3 Sketches a curve for a vessel in stable equilibrium given initial GM, maximum GZ and angle at which it occurs and angle of vanishing stability;
 - 4 Distinguishes between curves for stiff and tender vessels;
 - 5 Explains how a change in KG (with reference to comparison between departure and arrival conditions) affects the shape and main features of the curve;
 - 6 Explains how a change in freeboard affects the shape and main features of the GZ curve;
 - 7 States the criteria for minimum stability identified in the Code with regards to GM, maximum GZ and angle at which it occurs;
 - 8 Defines and describes dynamical stability;
 - 9 States that a simplified stability curve or table of maximum KG's can be provided to ensure that the minimum stability criteria are met;
 - 10 Uses simplified stability information in conjunction with simple loading/discharging problems including an allowance for free surface effect;
 - 11 Explains the effect of a steady and gusting beam wind on a motor and sailing vessel and how the respective angles of heel can be assessed from the GZ curve using a constant wind-heeling lever.

TOPIC 4 LOLL AND RELATED PROBLEMS

- .1
- 1 States that when GM is negative an upsetting moment is created and, provided the negative GM is not too large, the vessel will attain stable equilibrium at an angle of loll;
 - 2 Compares the dangers that can arise to a vessel when lying at an angle of loll in still water and at sea;

- 3 States that loll is corrected by achieving a positive GM and that this must be achieved under a controlled manner;
- 4 States that loll can be corrected by removing weights from the high side first and adding to the low side first and explains the danger of reversing the procedures;
- 5 Explains procedure and the response of the vessel if loll is corrected by filling a sub-divided centreline tank;
- 6 Distinguishes between list and loll.

.2 Recognises the danger of slack tanks with tender vessels.

- 1 Explains the factors affecting free surface effect with reference to FSM, RD, displacement, position of tank in vessel, depth of liquid in the tank and the effect of longitudinal sub-division.

TOPIC 5 DRY-DOCKING AND LONGITUDINAL STABILITY

- .1**
- 1 Explains the use of a docking plan;
 - 2 Explains the preparation of the yacht and dry dock prior to dry-docking;
 - 3 Explains the need for an acceptable trim and adequate GM with reference to the buoyancy lost at the waterline being transferred to the point of contact at the keel and that the rise in KG (loss of GM) can be considered as a weight removed from the keel;
 - 4 Explains the importance of aligning the support structure and lifting equipment with the vessel's main strength members.

.2 Understands the stability data supplied to yachts.

- 1 Demonstrates an awareness of the contents of the stability data supplied to yachts.

.3 Understands terms used in longitudinal stability.

- 1 Defines forward perpendicular, after perpendicular, length between perpendiculars, length overall;
- 2 Defines trim, change of trim, longitudinal centre of flotation and MCTC.

.4 Solves problems involving loading, discharging and shifting weights.

- 1 Demonstrates the effect on the C of G when loading, discharging and transferring weights;
- 2 Calculates, by taking moments about the keel, the final position of KG when loading and discharging weights and obtains GM.

Master Less than 500 gt (Yacht)

Business and Law (Master, Yachts)

Duration

The course must take place over five days or 30 hours of formal instruction. It is desirable that candidates be given course notes in advance and engage in pre course study.

Content

The course is divided into three sections:

- 1 – Legal Framework;
- 2 – Safety Management;
- 3 – Contracts.

Assessment

Assessment will be by a written 2½ hour examination of five questions with one question being drawn from Topic 1 and two each from Topic's 2 and 3 of this syllabus. The pass mark will be 60%.

TOPIC 1 LEGAL FRAMEWORK

.1 General.

- 1 Can distinguish acts which might be considered to be civil and criminal wrongs and give examples of each in the context of yacht operation;
- 2 Understands, in simple terms, the role of civil and criminal law;
- 3 Can describe in general terms the concepts of 'negligence', 'duty of care', (and specifically 'reasonable care') 'non delegable responsibility' and 'vicarious liability';
- 4 Understands what is meant by summary procedure, the purpose of the statutory scale of fines and can describe some of those offences giving rise to fines in excess of the statutory maximum on summary conviction;
- 5 Understands the structure of UK marine administration from Parliament, MCA, the role of Merchant Shipping Acts, Statutory Instruments, MSNs, MGNs, MINs and Codes of Practice in the administration of maritime policy. Distinguishes the role of the MCA from that of the MAIB;
- 6 Understands the role of the Official Logbook and is able to;
 - Explain the nature of this record as part of the public records of the United Kingdom;
 - State which ships must keep it;
 - State the rules governing the recording of information, including the practice of annexing documents/information;
 - State, with reference to yachts, when this record must start and when it must be transferred to the Registrar at Cardiff;
 - Understand, given the considerable detail of the information to be recorded, the need to have a copy of the Official Log Book Regulations for reference when making entries;
 - Demonstrate a working knowledge of the information to be recorded in the Official Log Book relevant to the operational management of a yacht and its crew;
 - Understand the nature of the entries to be made in the narrative section of the Official Log Book.

.2 Arrival, departure and security.

- 1 Circumstances giving rise to a mandatory health report, procedure to be followed before arrival, on arrival and until health clearance is obtained. The role of the International Maritime Declaration of Health;
- 2 A general understanding of the possible consequences of carrying stowaways. Action to be taken to prevent stowaways and action to be taken upon discovery of stowaways;

- 3 Is aware of the advice of the MCA concerning the carriage of firearms in British registered vessels. Recommended precautions in circumstances where armed robbery or piracy are a threat in the context of the Master's duty of care.

.3

International law.

- 1 Understands the role of the base line in defining territorial waters (but not full details of how it is drawn), appreciates that interpretations of UNCLOS rules in this respect can vary in different countries;
- 2 Understands the rights and obligations of flag state and coastal state in internal and territorial waters and on the high seas for the enforcement of international conventions. (Not contiguous zone, exclusive economic zone, exclusive fishing zones nor the continental shelf.) Can describe what is meant by 'freedom of the high seas';
- 3 The importance of the geographical position of the yacht, the nationality of the crew and of the flag of the yacht in determining criminal jurisdiction;
- 4 Understands how international conventions can be policed, the nature of 'innocent passage' and when this may be denied, can describe in general terms the role of Port State Control organisations;
- 5 Understands the general principles of the allocation of nationality to ships, the role of the UK Register in Cardiff and the use of the Certificate of Registry in the operation of a yacht;
- 6 Can describe the procedure to apply for a Certificate of Registry (COR) in the UK, the procedure if the Certificate is lost and upon sale of the vessel;
- 7 Can distinguish a United Kingdom registered ship and a British ship. Has a general understanding of the relationship between Britain and the Crown Dependencies and Dependent Territories.

TOPIC 2

SAFETY MANAGEMENT

.1

Safety certificates and documents.

- 1 Describes the purpose of the Load Line Certificate and:
 - Which vessels are required to carry one;
 - Period of validity;
 - Timing of required surveys;
 - General subject matter of the surveys;
 - Purpose of 'conditions of assignment';
 - Circumstances under which the Load Line Certificate is automatically cancelled.
- 2 Describes the SOLAS certification that may be required for yachts, specifically:
 - Passenger and Safety Certificate;
 - Cargo Ship Safety Construction Certificate;
 - Cargo Ship Safety Equipment Certificate;
 - Safety Radio Certificate;
 - Safe Manning Document;
 - ISM Certificate of Compliance.

For all certificates; the sizes or types of yacht to which they apply, the period of validity, surveys required, issuing authority and general subject matter.

- 3 Understands the definition of a 'pleasure vessel' and a vessel 'engaged in trade' in the context of the current regulations governing 'vessels operated commercially for sport or pleasure' recognises that large non commercial yachts are subject to minimum safety standards as Class XII vessels;
- 4 Understands that no yacht can carry more than 12 passengers without special dispensation and can define the word 'passenger' in this context;
- 5 Understands the principal constraints of the MARPOL Convention, specifically:
 - That it applies to all yachts;
 - Can identify the annexes in force, the particular pollutants covered by each of these annexes as relevant to pleasure yacht operation;
 - Can define an Annex 1 substance;

- Can explain the total prohibition on the discharge of Annex 1 substances into any sea area;
 - Explain the circumstances in which certain discharges of Annex 1 substances may be excused;
 - Recognise that all ships must be constructed and equipped so as to prevent pollution by Annex 1 substances and that certain ships must carry certificates to prove this;
 - Identify which pleasure yachts must carry an International Oil Pollution Prevention Certificate and a SOPEP;
 - State the period of validity of the above Certificate, describe the surveys required to maintain its validity and identify authorized issuing authorities;
 - Can state the structure and function of the SOPEP;
 - State which pleasure yachts must maintain an Oil Record Book in an approved form;
 - Describe the above Oil Record Book and state in outline the information to be recorded in this book;
 - Describe an Annex V substance;
 - Explain the rules governing the disposal of Annex V substances;
 - State which pleasure yachts must maintain a Garbage Record Book and have a Garbage Management Plan;
 - Explain the use of the Codes of Practice for Commercially Operated Yachts in the application of MARPOL to the operation of pleasure yachts.
- 6 Certificate of compliance with a Commercial Code. ('Blue' 'Yellow' or 'Megayacht') Which vessels need it, Issuing Authority, how long valid for and surveys required.

.2

Statutory safety duties.

- 1 Understands the meaning of a distress alert, can define 'distress' in the context of SOLAS and can describe the duty of the Master to respond to signals of distress, actions to be taken upon receipt of such a signal, circumstances when Master is released from his obligation to respond;
- 2 Action to be taken after a collision with regard to standing by the other vessel and exchanging information, responsibilities to limit pollution, records required to be kept;
- 3 Action to be taken in the event of yacht sustaining material damage with regard to possible consequences for statutory certificates and insurance;
- 4 Definition of a reportable accident, major injury, serious injury and dangerous occurrence. Can describe the initial report following an accident and the required follow up reports. Describes actions required after each type of incident. Is aware of the different ways that the MAIB can respond to such reports;
- 5 Duty to report dangers to navigation, can list the six categories and describe the action to be taken;
- 6 Can distinguish between compulsory and non compulsory pilotage. Understands the relationship between Master, pilot and owner. Understands what should be provided to assist the pilot upon arrival at the boarding station, on the bridge and during the pilotage.

.3

Safety organisation.

- 1 Understands the role of Master, Safety Officer and Safety Representative. Can describe the role of the Safety Committee. Can summarise, in general terms, the duties of employer and employee under the current Merchant Shipping (Health and Safety) Regulations;
- 2 Understands, in general terms, the role of the ISM Code. Can describe the purpose of risk assessment and how this might be applied in a yachting context;
- 3 Describes the Code of Safe Working Practices for Merchant Seaman and explains its use in the management of safety onboard a yacht;
- 4 States which yachts must carry copies of the Code and how many copies are required;
- 3 Can describe an example of a permit to work procedure as might be used in the work environment of a yacht.

.4

Seaworthiness and safe manning.

- 1 Understands the Master's responsibility to ensure the seaworthiness of his vessel at the commencement of each voyage and the consequences of attempting to proceed to sea in an unsafe and unseaworthy condition;
- 2 Shows appreciation that possession of valid statutory certificates does not, in itself, prove seaworthiness. Understands that the concept of 'seaworthiness' can have a much broader definition in the civil courts;
- 3 Demonstrates an understanding of the principles by which a vessel may be deemed to be safely manned in accordance with the STCW Convention;
- 4 Explains the application of United Kingdom manning regulations to a pleasure yacht, and the use of codes of practice for commercially operated yachts as an alternative to these regulations;
- 5 States the duties of Master and Chief Engineer under United Kingdom merchant shipping regulations as they relate to the organising and maintenance of safe navigational and engineering watches;
- 6 Explains the use of standing orders as part of the process of safe delegation and supervision of delegated responsibilities and understands the Master's responsibilities to ensure that the navigation bridge is manned by an adequate number of suitably qualified people to deal with prevailing circumstances.

TOPIC 3

CONTRACTS

.1

Contracts of salvage.

- 1 Can define and explain the elements of a valid claim for salvage in Admiralty Law in the absence of any contractual obligation to pay for the services involved;
- 2 Distinguishes between contracts for assistance based on salvage principles and contracts of hire (towage);
- 3 Explains the advantages and disadvantages to both parties in the use of each of the above forms of contract with reference to the practicality of negotiating and using such contracts at sea;
- 4 Explains the practical use of Lloyds Open Form of salvage contract, how it can be negotiated and its' advantages to both parties;
- 5 Explains the interpretation of the expression 'a place of safety' as used in Lloyds Open Form of salvage agreement and the need, wherever possible, to agree a 'place of safety';
- 6 Explains who has the legal right to control the acceptance or rejection of assistance to ships and the possible consequences of attempting to usurp this control;
- 7 States the legal definition of the word 'derelict';
- 8 Understands the definitions contained in the International Convention on Salvage;
- 9 Understands the 'Duties of the Salvor' and the 'Duties of the Master/Owner';
- 10 Explains the contents of Articles 13 and 14 of the International Convention on Salvage.

.2

Contracts of Employment (Crew Agreements).

- 1 The Candidate will understand and be able to apply the United Kingdom regulations as they relate to the opening and closing of crew contracts aboard pleasure yachts and be able to state the circumstances in which a pleasure yacht must have an approved crew agreement;
- 2 States that crew members are entitled to and are required to contract on the basis of an approved crew agreement;
- 3 Describes the standard form of approved crew agreement for pleasure yachts and explain how the various documents can be obtained;
- 4 Explains the relationship between an approved crew agreement and any other associated collateral contracts relating to the employment of a particular crew member;

- 5 Describes a procedure for engaging a crew under the standard form of approved crew agreement so as to comply with United Kingdom regulations;
- 6 States the legal obligations of a Master as they relate to the maintenance of crew lists;
- 7 Describes a procedure for terminating a seaman's employment under the standard form of yacht crew agreement so as to comply with United Kingdom regulations;
- 8 Defines, with regard to pleasure yachts, those persons onboard who are passengers as opposed to crew;
- 9 State the statutory obligations of an employer as they relate to the maintenance and repatriation of seaman;
- 10 Describes a procedure to be followed so as to comply with all United Kingdom regulations relevant to a crew member who:
 - Dies at sea;
 - Is injured at sea onboard a yacht;
 - Incapacitated due to illness and discharged to hospital.
- 11 The Candidate will demonstrate a practical understanding of United Kingdom employment law as it relates to yacht crew and be able to:
 - Understand and interpret the elements of the Code of Conduct as it relates to pleasure yachts;
 - Understand and distinguish between Paragraphs 8, 9, 10 and 11 of the Code of Conduct. (Breaches and dealing with breaches of the Code);
 - Understand fully Paragraph 5 of the Code of Conduct (Conduct in case of emergencies);
 - Explain the meaning of fair dismissal, unfair dismissal and wrongful dismissal;
 - Understand and explain the remedies for unfair dismissal;
 - Understand the conditions for the termination of employment within the context of the crew agreement at the:
 - Request of the Master;
 - Request of the individual;
 - Direct request of the Owner.

.3

Yacht charter agreements.

- 1 Can distinguish between 'bareboat' (Demise) and 'standard' time yacht charter party agreements;
- 2 Can describe the consequences of these types of agreement for the Owner and Charterer in terms of their:
 - Responsibilities;
 - Liabilities;
 - Degree of operational control.
- 3 Understands the consequences of these contracts for the legal status of the yacht and the effect that this has on the requirement to submit to merchant shipping regulations for a 'pleasure vessel' or a 'commercial vessel'. The role of the codes of practice in this context, particularly with regard to the manning scales they contain.

.4

Marine insurance.

- 1 Recognises the voluntary and contractual nature of the insurance of yachts;
- 2 Distinguishes between the insurance of a yacht and the insurance of other forms of Owners' liabilities;
- 3 Explains the following insurance principles:
 - Indemnity, subrogation and contribution;
 - Actual total loss;
 - Presumed total loss;
 - Constructive total loss;
 - Deductibles.
- 4 States what is meant by a warranty in an insurance policy and understands the effect on the policy of a breach of warranty;

- 5 Recognises that hull insurance policies place various restrictions on the use of a yacht, in particular the use of the yacht to save or assist in saving property;
- 6 Recognises the change/loss of classification, change of flag or ownership and demise chartering, could all result in automatic termination of hull insurance;
- 7 Recognises that cover in the nature of war risk must be negotiated specifically;
- 8 Describes the duty of an assured (Sue and Labour Clause) and can explain its significance to the Master of a yacht in need of assistance;
- 9 Explains why Underwriters prefer assistance to ships at sea to be negotiated on the basis of Lloyds Open Form;
- 10 Describes the function of organisations known as P & I Clubs;
- 11 States the type of risks that yacht owners usually insure with P & I Clubs;
- 12 Describes, in general terms, the likely sequence of events after a major claim. Can describe what must be done immediately after an incident and subsequently, in order to act in the owner's best interests.

Master Less than 500 gt (Yachts)

Oral Syllabus (Master,Yachts)

TOPIC 1 NAVIGATION

.1 Plan and conduct safe navigation.

- 1 Demonstrate an ability to undertake voyage planning, taking into consideration:
 - Restricted waters;
 - Meteorological conditions through the interpretation of a synoptic chart, and to forecast local area weather and the characteristics of various weather systems;
 - Restricted visibility;
 - The requirements of ship routeing and mandatory reporting systems;
 - Reporting in accordance with ship reporting systems;
 - Limitations of electronic chart systems including ECDIS and RCDS navigational chart systems;
 - Port radio information services: knowledge of the type of service available to aid vessels entering ports, berthing, VTIS and VTS systems as indicated in the Admiralty List of Radio Signals – Vessel Traffic Services, Port Operations and Pilot Stations;
 - Maritime buoyage systems – IALA region 'A'.

.2 Establish and maintain safe watchkeeping arrangements and procedures.

- 1 A thorough knowledge of the principles of navigational watchkeeping at sea, including under pilotage and watchkeeping at anchor and in port;
- 2 A thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea;
- 3 Knowledge of principles of establishing a safe engineering watch at sea, anchor and in port.

.3 Compasses.

- 1 Compasses commonly fitted onboard the ship concerned – variation and deviation, causes and effects, siting of other equipment with reference to magnetic compasses;
- 2 Knowledge of the purpose of correctors/corrections;
- 3 Actions to be taken when disabled and in distress, abandoning ship, survival procedure, use of rockets and rocket apparatus;
- 4 Measures to be taken following collision, grounding and heavy weather.

.4 Manoeuvre the ship and operate small ship power plants.

- 1 Anchoring and working anchors and cables in all circumstances;
- 2 Proper procedures for berthing and unberthing;
- 3 Knowledge of factors affecting safe manoeuvring and handling;
- 4 Knowledge of the operation of small ship power plants and auxiliaries.

TOPIC 2 RESPONSE TO EMERGENCIES

.1 Response to navigational emergencies.

- 1 Damage and leaks including the possibility of beaching a ship;
- 2 Towing and being towed;
- 3 Knowledge of emergency steering systems;
- 4 Knowledge of search and rescue procedure, assisting a ship or aircraft in distress, rescuing the passengers and crew of a disabled ship or ditched aircraft;

- 5 Use of the International Aeronautical and Marine Search and Rescue (IAMSAR) Manual (Volume III), Distress and Emergency Signals;
- 6 Emergency communications within the GMDSS Regulations.

.2 Response to other emergencies.

- 1 Methods of dealing with fire onboard ship; prevention of fire at sea and in port;
- 2 Use and maintenance of fire-fighting equipment, fire dampers, doors, screens, and detection equipment;
- 3 The organisation and direction of fire-fighting drill training;
- 4 Launch and manage survival craft, recover rescue boats at sea;
- 5 The organisation and direction of lifeboat and liferaft drill training;
- 6 Understand the fundamental actions to be taken in the event of partial loss of intact buoyancy;
- 7 Precautions for the protection and safety of passengers in emergencies;
- 8 Appreciation of action to be taken when emergencies arise in port;
- 9 Sources of medical information available.

TOPIC 3 ON BOARD SHIP OPERATIONS

.1 Pollution prevention requirements.

- 1 Precautions to be taken to prevent pollution of the marine environment as required by the MARPOL Convention, including Restricted Areas;
- 2 Take appropriate action in response to pollution incidents onboard and found at sea;
- 3 Knowledge of the contents of the SOPEP Manual, Garbage Management Plans and anti-pollution equipment;
- 4 Master's duties, obligations and liabilities, including the keeping of records.

.2 Seaworthiness of the ship.

- 1 Precautions to be taken before the onset of heavy weather, management of small ships in heavy weather, handling a disabled ship;
- 2 Understand the fundamentals of watertight integrity;
- 3 Preparations for dry-docking and undocking, with or without damage – general procedure and precautions to be observed;
- 4 Working knowledge of stability and trim information.

.3 Legislative requirements.

- 1 Contents and the use of Merchant Shipping Notices, Marine Guidance Notes, Marine Information Notes and the Annual Summary of Admiralty Notices to Mariners;
- 2 Knowledge of the application of current Merchant Shipping, Health and Safety legislation, including the Code of Safe Working Practices for Merchant Seaman, and the main elements of risk assessment;
- 3 Knowledge of the relevant IMO conventions concerning safety of life at sea and protection of the marine environment;
- 4 Crew agreements, the Official Log Book and the law relating to entries, inspection of living quarters and storerooms, complaints procedure;
- 5 Reports required by the Marine Accident Investigation Branch (MAIB);
- 6 Load-line marks – entries and reports in respect of freeboard, draft and allowances;
- 7 The requirements of the regulations concerning life-saving and fire-fighting appliances;
- 8 Application of hours of work and rest legislation;
- 9 The law relating to the reporting of dangers to navigation;
- 10 A knowledge of the Master's obligations with respect to pilotage;
- 11 Purpose and application of the International Safety Management (ISM) Code;
- 12 Purpose of Flag State and Port State Control.

Master (Limited to 3,000 gt) Yachts

Oral Syllabus (Master, Yachts)

TOPIC 1 NAVIGATION

.1 Plan and conduct safe navigation.

- 1 Passage planning with respect to the use of navigational publications including navigational charts (including ECDIS and RCDS, sailing directions, light lists, tide tables, radio navigational warnings and ships' routeing information;
- 2 The requirements of ship routeing and mandatory reporting systems;
- 3 IALA systems of maritime buoyage;
- 4 Electronic Navigational Systems – limitations and sources of error, methods of correction;
- 5 Radar and ARPA – practical use of, modes of operation, limitations, sources of error and parallel indexing;
- 6 Sources of meteorological information, ability to use and interpret information obtained from ship borne meteorological instruments, (the instruments supplied by the Meteorological Office will be taken as standard), knowledge of characteristics of various weather systems, reporting and recording systems.

.2 Establishing safe navigational watchkeeping arrangements and procedures.

- 1 A thorough knowledge of the principles of navigational watchkeeping at sea, including under pilotage, watchkeeping at anchor and in port;
- 2 A thorough knowledge of the content, application and intent of the International Regulations for Preventing Collisions at Sea;
- 3 Conduct in and near Traffic Separation Schemes and Vessel Traffic Services (VTS) areas;
- 4 Understand the use of bridge equipment, including course recorders, echo sounders and NAVTEX;
- 5 Knowledge of steering control systems, including automatic pilot, operational procedures and change-over from manual to automatic and vice versa, adjustment of controls for optimum performance;
- 6 Knowledge and application of the ICS Bridge Procedures Guide;
- 7 A knowledge of principles of establishing a safe engineering watch at sea, at anchor and in port.

.3 Compasses.

- 1 Use, care and limitations of the magnetic and gyro compasses and associated equipment including automatic pilots.

.4 Manoeuvre the ship.

- 1 Conning the ship, effects of wind and current and limited under keel clearance; interaction and squat;
- 2 Berthing and unberthing at jetties, quays, mooring buoys with/without tugs, with/without tidal stream, with/without wind;
- 3 Manoeuvres in restricted waters and open waters;
- 4 Embarking and disembarking pilots;
- 5 Limitations of remote control operation of marine power plant and auxiliary machinery;
- 6 Anchors: different types of anchors and their advantages and disadvantages, preparation for anchoring, anchoring in a tideway and in confined water, operation of anchoring with a single anchor and use of a second anchor, dragging anchor, clearing a foul anchor and hawse, hanging off an anchor, breaking and slipping cables, getting under way;
- 7 Navigation in the vicinity of ice, ice reporting and steps to be taken in the event of ice accretion;
- 8 Manoeuvres to launch and recover rescue boats/survival craft.

TOPIC 2 RESPONSE TO EMERGENCIES

.1 Response to navigational emergencies.

- 1 Measures to be taken following: accidental damage including collision, grounding, flooding or major mechanical damage, including the possibility of beaching a ship, protection of the marine environment;
- 2 Knowledge of the effect on trim and stability, and subsequent actions in the event of damage to and consequent flooding of a compartment;
- 3 Preparations and precautions for towing and being towed;
- 4 Use of the International Aeronautical and Marine Search and Rescue (IAMSAR) Manual (Volume III), distress and emergency signals; Search and Rescue (SAR) around the UK and world-wide;
- 5 Knowledge of the operation of emergency steering systems.

.2 Respond to other emergencies.

- 1 The organisation and direction of fire-fighting and abandon ship parties;
- 2 Methods of dealing with fire on board ship; prevention of fire at sea and in ports;
- 3 Action to be taken to prevent the spread of fire;
- 4 Operation, maintenance and testing of fire-fighting equipment, fire doors, dampers, screen and detection equipment;
- 5 Operation, maintenance and testing of watertight doors, sidescuttles and scuppers;
- 6 Launch, manage and ensure survival in survival craft, recover survival craft at sea and beach or land survival craft;
- 7 Operation, maintenance and testing of lifesaving appliances;
- 8 Knowledge of the contents of the SOLAS training manual;
- 9 Action to be taken when disabled and in distress;
- 10 Assisting a ship or aircraft in distress; rescuing the passengers and crew of a disabled ship or ditched aircraft;
- 11 Safety during helicopter operations.

.3 Communications.

- 1 Correct use of distress signals and awareness of penalties for misuse;
- 2 Emergency communications within the GMDSS regulations;
- 3 Sources of radio medical care.

TOPIC 3 ONBOARD SHIP OPERATIONS

.1 Compliance with pollution requirements.

- 1 Measures to be taken to prevent pollution in port and at sea;
- 2 Take appropriate action in response to pollution incidents onboard and found at sea;
- 3 Knowledge of the contents of the SOPEP Manual, Garbage Management Plan and use of provided anti-pollution equipment;
- 4 Practical knowledge of the requirements of the MARPOL Convention;
- 5 Knowledge of responsibilities, duties, obligations and liabilities in respect of pollution.

.2 Seaworthiness of the ship.

- 1 Preparations for sea prior to sailing with respect to watertight integrity and additional precautions to be taken before the onset of heavy weather;
- 2 Practical knowledge of the particular loadline items affecting seaworthiness;
- 3 Action in the event of ingress of water into the hull;
- 4 Preparation for dry-docking and undocking with and without damage, general procedure and precautions to be observed;
- 5 Use and care of deck machinery commonly fitted.

.3

Crew management.

- 1 Knowledge of personnel management, organisation and training including disciplinary procedures;
- 2 Application of hours of work and rest legislation.

.4

Maintain safety of ships crew and passengers.

- 1 Master's responsibility with respect to stowaways and the prevention of smuggling;
- 2 Precautions to safeguard against terrorism, piracy and armed robbery.

.5

Legislative requirements.

- 1 Knowledge of the application of current Merchant Shipping Health and Safety legislation, including the Code of Safe Working Practices for Merchant Seaman and the main elements of Risk Assessment;
- 2 Improvement and Prohibition Notices;
- 3 Safe manning, crew agreements, conditions of employment, Official Log Book and the law relating to entries;
- 4 Understanding of loadline marks, entries and reports in respect of freeboard, draft and allowances;
- 5 Routine inspection of living quarters, storerooms and complaints procedure;
- 6 Requirements for records including Oil Record Book;
- 7 Requirements for drills and training;
- 8 The requirements of the regulations concerning fire-fighting appliances;
- 9 Knowledge of the requirements of the regulations concerning life-saving appliances;
- 10 Knowledge of the international conventions relevant to the operation of ships including certificates and other documents required to be carried onboard ship;
- 11 Requirements for statutory and classification surveys;
- 12 Reports required by the Marine Accident Investigation Branch (MAIB);
- 13 Obligations with respect to pilotage;
- 14 Towage and salvage agreements;
- 15 Purpose of Flag State and Port State Control;
- 16 Purpose and application of the International Safety Management (ISM) Code.

Survival Module (Yachts)

Duration

This course must take place over a minimum period of 3 days or 18 hours of formal instruction.

Assessment

The assessment shall be in two parts:

- 1) In course continuous assessment,
- 2) A final exercise designed to test understanding of the techniques learnt during the course and an oral/written examination to test the underpinning knowledge.

During the course assessment particular attention shall be given to the following operations:-

1. Take charge of a survival craft or rescue boat during and after launch;
2. Operate a survival craft engine;
3. Manage survivors and survival craft after abandoning ship;
4. Use locating devices, including communications and signalling apparatus and pyrotechnics;
5. Apply first aid to survivors.

TOPIC 1 EMERGENCIES AND DRILLS

- .1 Is aware of the situations that can give rise to an emergency at sea including man overboard, immobilisation (NUC), fire, collision, flooding, grounding and loss of vessel;
- .2 Understands the importance of taking the correct action in emergencies;
- .3 Elementary knowledge of marine escape systems;
- .4 Can explain the importance of escape routes;
- .5 Understands the value of drills and emergency exercises;
- .6 Understands the purpose of muster lists and muster stations;
- .7 Explains the importance of the correct management and care of passengers.

TOPIC 2 SURVIVAL CRAFT

- .1 Types of survival craft in common use including liferafts and lifeboats (open and enclosed);
- .2 An outline knowledge of launching apparatus in common use including various types of lifeboat davits;
- .3 Understands the operation and correct installation of hydrostatic release;
- .4 A knowledge of the SOLAS equipment to be carried in survival craft.

TOPIC 3 FIRST AID FOR SURVIVORS

- .1 Explains the initial treatment for burns, scalds, bleeding and fractures;
- .2 Demonstrate a knowledge of the cause, effects and treatment of heat illness (burns, strokes and exhaustion);
- .3 Demonstrate a knowledge of the cause, effect and treatment of frost injuries;
- .4 Demonstrate a knowledge of the cause, effect and treatment of hypothermia;
- .5 Is aware of the dangers of drinking sea water and urine;
- .6 Explains the management of survival supplies;
- .7 Understands the dangers of shock and its correct treatment;
- .8 Can explain the correct treatment of an unconscious survivor.

TOPIC 4 LIFEJACKETS AND IMMERSION SUITS

- .1 A knowledge of the various types of lifejackets in common use and the importance of correct donning;
- .2 Is aware of the requirements for a SOLAS lifejacket;
- .3 Is aware of the various types of immersion suits in common use, understands their use and the protection that they provide;
- .4 Explains the use of thermal protection aids;
- .5 Is aware of the use of lifebuoys and other man overboard life saving equipment.

TOPIC 5 ACTIONS IN SURVIVAL CRAFT

- .1 Is aware of the dangers of entering the water from a height;
- .2 Boarding a liferaft from a vessel and from the water;
- .3 Understands how to right a capsized liferaft;
- .4 Explains the correct actions required when boarding a survival craft;
- .5 Recovery of injured persons from the water;
- .6 Procedures for helicopter rescue;
- .7 Transfer of sick and injured persons to shore and to a ship.

TOPIC 6 DISTRESS SIGNALS AND COMMUNICATIONS

- .1 A thorough knowledge of distress signals in the International Regulations for the Preventing of Collisions at Sea, Annex 4;
- .2 Explains the use of distress rockets, hand flares and smoke floats;
- .3 Understands the SOLAS carriage requirements, operation and use of SARTs, EPIRBs and hand held VHF's;
- .4 Is aware of the contents and use of the IAMSAR Manual Vol. 3.

TOPIC 7 RESCUE BOATS

- .1 Explains the various types of boats that can be used for rescue purposes;
- .2 Demonstrate a knowledge of equipment suitable for rescue boats including that used for the recovery of persons from the water;
- .3 Methods of launching, crew equipment and training including operations in adverse weather conditions;
- .4 Explain the problems associated with the handling of rescue boats in emergency situations;
- .5 Demonstrate a knowledge of basic engine maintenance required for both inboard and outboard units.

TOPIC 8 PRACTICAL POOL SESSION

- .1 Demonstrate correct liferaft launching procedures;
- .2 Enter the water from a height of 3.0 meters, wearing a lifejacket;
- .3 Can demonstrate the correct method of righting a capsized liferaft;
- .4 Can demonstrate practical methods of individual and group survival;
- .5 Is aware of the correct method of entering the water from a liferaft;
- .6 Explains the correct actions to be taken after boarding a liferaft or survival craft;
- .7 Explain the correct method of preparation of a liferaft for helicopter rescue and the potential dangers involved.

TOPIC 9 PRACTICAL OPEN WATER SESSION

- .1 Demonstrate launching and recovery methods for rescue boats and show an understanding of the conduct of these operations in adverse weather;
- .2 Demonstrate basic boat handling and manoeuvring alongside a vessel;
- .3 Explain basic engine checks and describe the equipment to be carried.

- .4 Participate in emergency drills including man overboard, high-speed drills and towing other survival craft including liferafts;
- .5 Demonstrate the correct technique for the recovery of person from the water using the equipment available on board, initial treatment and transfer to ship or shore;
- .6 Demonstrate the correct initial treatment of persons recovered from the water and methods of transfer to ship or shore.

