



STANDAR MINIMUM
MINIMUM STANDARD

PROGRAM DIKLAT ATT – II
ENGINEER OFFICER CLASS – II

BERDASARKAN
BASED ON

KEPUTUSAN BERSAMA
JOINT MINISTERIAL DECREE

MENHUB, MENDIKNAS, DAN MENAKERTRANS
MINISTER OF COMMUNICATIONS, MINISTER OF NATIONAL EDUCATION,
AND MINISTER OF MANPOWER AND TRANSMIGRATION

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TENTANG
CONCERNING

SISTEM STANDAR MUTU KEPELAUTAN INDONESIA
INDONESIAN SEAFARERS QUALITY STANDARD SYSTEM (QSS)

ANNEX – A Part 1

Dokumen ini diperlukan oleh para auditor sebagai “referensi audit mutu internal dan eksternal”
This document is required as “internal and external quality audit reference” by the Auditors

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MINIMUM STANDARDS FOR SEAFARER'S EDUCATION AND TRAINING PROGRAMS

Following standards and guidelines for Maritime Education and Training shall apply to the following courses:

1. Deck Officer Class II (ANT II)
2. Engineer Officer Class II (ATT II)

Article 1 Authorization

Institutes are only authorized to provide that kind of Maritime Education and Training (MET) for which they have received explicit accreditation / authorization from the appropriate authorities of the RI.

Article 2 Mission Statement

The Mission Statement of a MET Institute shall be formulated as such, that it at least addresses the commitment to comply with the appropriate requirements as set forth in the STCW Convention and the National regulations.

Article 3 Education and training strategies

MET Institutes shall possess a Framework Strategic Plan which contains directives and actions that are to be undertaken in order to attain strategic objectives concerning the management, provision and sustainability of maritime education and training and related requirements.

The strategic objectives shall be formulated as such that they are at least in line with the appropriate requirements of the STCW Convention.

With regard to the training strategies, the standards for training methodology and techniques as recommended in the Guidance on the Implementation of the IMO Model Courses and in the respective IMO Model Courses itself shall be observed.

Article 4 Organization

The organizational structure of the training institute shall meet the following criteria:

1. Maritime training programs may be offered by institutions that are offering other degree courses outside the maritime field.
2. To guarantee the quality of the maritime education and training programs the institute shall develop policies and strategies to ensure adequate training and education at all times.
3. The management responsibilities in the organization of the institute, as far as the maritime education and training programs concerned, shall be defined in a clear and transparent manner.
4. In order to administer the maritime training programs:
 - 4.1. There shall be a Maritime Education Office headed by a full time dean to administer the maritime programs.
 - 4.2. The dean must possess relevant academic degrees, experiences and credentials as follows:

- a. Holder of a Management Level Certificate as described in STCW 78 as amended in 1995 and 1997;
 - b. Seagoing experience of at least two years in a management level capacity on board ocean going ships or job experience at Directorate General of Sea Communication/Maritime Industry for five years;
 - c. Holder of a bachelor degree relevant to the maritime education and training programs;
 - d. Two years of teaching experience.
5. In order to guarantee the suitability of infrastructure and the proper functioning of machinery, equipment and apparatus, a "Maintenance Division" (including maintenance plans) shall be incorporated in the institute's organization.
 6. An "Internal Assurance Review - Unit" shall be available in order to address:
 - planning, design, presentation and evaluation of programs,
 - teaching, learning and communication activities.

Article 5 Instructor requirements

Requirements for instructors are as follows:

1. Instructors for General Subjects shall possess a diploma for Postgraduate Work or Diploma IV and should teach only subjects of their specialization.
2. Instructors for Professional Subjects on management level as defined in tables A-II/2 and A-III/2 of STCW 78 as amended in 1995 and 1997 shall possess an ANT I or ATT I Certificate.
3. Instructors for Professional Subjects on management level shall have a seagoing experience of at least two years in a management capacity on board ocean going ships of 3,000 GT or 3,000 kW respectively.
4. Instructors for Professional Subjects on management level shall have at least one year teaching experience on operational level subjects.
5. Instructors solely designated to supervise laboratory classes on Professional Subjects are not required to possess an appropriate Certificate of Competence on ANT I or ATT I level. Laboratory instructors shall have professional qualifications and relevant experience in their field of operation.
6. All Professional Subject Instructors shall have successfully completed approved training programs in accordance with the requirements of IMO Model Course 6.09 and IMO Model Course 3.12.
7. Instructors conducting subjects involving the use of simulators must have received appropriate guidance in instructional techniques and have gained practical operational experiences on the particular type of simulator being used.
8. Newly appointed instructors for Professional Subjects shall have completed the required training program in accordance with IMO Model Course 6.09 within 12 months from their appointment. During the 12-month period they are allowed to handle subjects on operational level as assistant instructor under the supervision of a qualified instructor.

Article 6 Development program requirements

To ensure adequate and up-to-date education and training the institute must provide an instructors development program for professional advancement. This program shall be made available to all faculty members and may contain any of the following:

1. Orientation period for new instructors;
2. Scholarship/Fellowship Grants;
3. Tuition Fee Supplement/Discount;
4. In-Service Training;
5. Instructor On-the-Job Training Program.

Article 7 Instructors teaching load

As a general rule, the maximum full-time load of an instructor is 40 hours a week. An instructor with a very satisfactory teaching performance may be allowed to handle six additional hours per week provided that the subject preparation is limited to two.

The maximum number of teaching hours per day shall be limited to 8 hours with sufficient time allowance for lunch and break periods.

With respect to the maximum number of days per week for part-time instructors, the teaching load must be in relation to the amount of hours given. For guidance the following formula shall be used. $\% \text{ Full-time load} \times 0,05 = \text{maximum number of days per week}$.

Article 8 Faculty requirements

The institute shall provide a directive for the faculty for the maritime programs containing information and policies on:

1. Hiring, retention, promotion and separation;
2. Functions and responsibilities;
3. Ranking system;
4. Evaluation;
5. Salary rates;
6. Faculty benefits;
7. Code of conduct/ethics.

Article 9 Instructor – Student Ratio

The number of maritime instructors for each program shall not be less than three. There shall be a minimum of two senior instructors and one assistant instructor. The minimum number of general subject instructors is two.

The total minimum number of instructors for the maritime programs at an institute shall meet the following minimum ratio of instructor – student = 1 : 20.

The maximum number of students per class is 30 persons for theoretical subjects. During laboratory sessions and group activities the class will be divided into groups of maximum 10 persons per instructor/supervisor.

Article 10 Curriculum

For each MET program the institute shall follow the appropriate curriculum as provided or approved by the Education and Training Agency.

Annex A – Part 1 (Minimum Standards) contains the prescribed curricular structure and description of the various subjects, which are made an integral part of these minimum standards for MET programs.

Justified improvements/changes to the core curriculum are allowed, after approval by the Education and Training Agency.

MET Institutes that do not possess facilities to conduct applicable prerequisite training programs as prescribed in Chapter II, IV, V and VI of STCW 95 and which form a part of the ANT II and/or ATT II curricula shall:

- Make up an adequate Memorandum of Agreement (MOA) with a third party that is accredited by the Administration of the RI to conduct the to be out-boarded training program(s).
- Keep detailed records to prove actual implementation of the MOA.
- Report applicable MOA's in due time to Badan Diklat/Pusdiklat Laut before the start of each annual study year.

If MET Institutes do possess facilities, then they are subjected to the separate criteria, rules and regulations concerning accreditation and authorization to issue the required Certificates or documented evidence, as promulgated by the responsible authority (Dir. Gen. Sea Communications).

It is the responsibility of the institute that all students will receive the compulsory training programs.

Article 11 Administrative documentation

Every institute offering maritime programs shall maintain in their files up-to-date records of the following:

1. Articles of incorporation and by-laws
2. Certificate of title of the school site
3. Documents of ownership of the school building
4. Proposed budget for the succeeding school year
5. Copy of accountants report of previous budget year
6. Certificate of recognition/permit of the courses
7. Curriculum
8. Organizational and personnel chart
9. List and curriculum vitae of school administrators, academic teaching and non teaching staff
10. List of laboratory facilities, equipment and materials
11. School prospectus
12. Statistics on enrolment and graduates for the last five years
13. Statistics of performance in National examinations
14. Safety occupation permit
15. Fire and/or disaster plan
16. Class and teachers program for the current school year
17. Room utilization schedule

Article 12 Students admission, selection and retention

Institutes offering maritime programs shall observe the following admission and selection criteria.

Students' general admission requirements:

1. Medically fit;
2. Pass eyesight and hearing examination as prescribed by the Administration;
3. Valid birth certificate and Personal Identity Card or other legal identity card;
4. For deck officers be the holder of an ANT III Certificate of Competence followed by 12 months sea going experience as watch keeping officer on ships of between 500 GT and 3,000 GT. For engineer officers be the holder of an ATT III Certificate of Competence followed by 12 months sea going experience as watch keeping officer on ships powered by main propulsion machinery between 750 kW and 3,000 kW propulsion power.

Article 13 School Tests and Examination system

The institute shall develop and apply a test and examination system in accordance with national standards and policies. A committee shall be established to verify whether the contents and level of the exams are in compliance with the relevant evaluation criteria as required by STCW 95.

Examinations may be conducted in writing or oral. In case of oral exams two qualified examiners shall be present during the examination.

Procedures and guidelines shall be developed and applied with respect to enouncements of examination dates and the selection of questions that are to be drawn-up well ahead of the to be executed examinations.

The institute shall keep files concerning all exams executed, including lists of participants, questions and answers and results.

The institute shall develop procedures and guidelines for appeals and resists of examinations.

Article 14 Feedback from students and industry

The institute shall develop a feedback program from graduate students and shipping companies employing graduate students. Feedback may be performed by means of interviews or questionnaires. The aim of the feedback program is to evaluate the school performance in relation to the demands from the industry.

Results of the program shall be published in school magazines.

Article 15 Research and Development Program

Every institute shall have R & D provisions in order to encourage their instructors and students to undertake research for the improvement of MET programs.

Article 16 Quality Management System

The institute shall develop and implement a quality management system in accordance with one of the following quality standard models:

1. TQM;
2. ISO 9002: 2000 (E);

3. SNI 19-19002;
4. QMET;

or any other model that is approved by the National Standardization Institution.

Article 17 Campus/public spaces/offices /class room and laboratories

The set-up of the campus shall be designed to create an effective learning environment. Attention shall be paid to the avoidance of disturbance from outside sources like noise and smells as well as avoidance of mutual interference between class rooms, workshops ...etc. The campus and buildings shall be supplied with appropriate provisions, safety measurers and procedures in the following:

1. Fire escape
2. Fire alarm systems
3. Campus security force
4. First aid facilities

On the campus site the following supporting facilities shall be available:

1. Administrative rooms/building
2. Instructor room
3. Canteen/cafeteria
4. Library
5. Toilets for male and female
6. Track and field and/or gymnasium
7. Sufficient dormitories to accommodate the number of intern students admitted to the school

To conduct maritime training programs the school shall as a minimum have availability of the following laboratory rooms:

1. Computer laboratory room;
2. Chemistry laboratory room;
3. Physics laboratory room;
4. Machine shops with tool rooms;
5. Seamanship laboratory room;
6. Navigation laboratory room
7. Cargo handling laboratory
8. Automation laboratory
9. Electric and Electronic laboratory;
10. Radar/ARPA simulator room*;

General requirements for spaces in use:

- Well lighted.
- Well ventilated.
- Safe electrical wiring.
- Shielded against outside noise.
- No usage of building material that might be harmful for the health.

Classroom requirements:

Minimum requirements in addition to the general requirements are:

- 7 x 8 m² for a class of 30 students.
- Adequately furnished (White/black board, instructor podium, chairs and tables).

Laboratory/workshop requirements:

Minimum requirements in addition to the general requirements are:

- Enough space, allowing 2 square meters per student.
- If sensitive electronic equipment is installed:
 - Air-conditioning.
 - Dehumidifier.
 - AVR and UPS
 - Electric-fire extinguishers.
- If machinery is installed:
 - Emergency-stop power supply.
 - CO2 extinguishers.
 - First aid kit.
 - Safe storage of combustibles.
- If work clothing is prescribed:
 - Lockers.
 - Washing facilities.

Note:

Specific equipment inventories per laboratory/workshop are described in the respective equipment lists.

In case a MET Institute does not possess one or more of the above-mentioned laboratory or workshop facilities to carry out related competence training, then the use of proper facilities (incl. qualified instructors) of other accredited parties is in principle allowed.

It is the prerogative of the Komite Nasional Pengawasan Mutu Pelaut Indonesia to decide which facilities may be boarded out and which ones not.

If applicable, the Institute shall:

- make up an adequate Memorandum of Agreement (MOA) concerning the use of the required facilities with a third party that is accredited by the Admin. of the RI
- Keep detailed records to prove actual implementation of the MOA.
- Report applicable MOA's in due time to Badan Diklat/Pusdiklat Laut before the start of each annual study year.

Article 18 General teaching means.

As a general rule, the institute shall provide the necessary audiovisual equipment in support of the teaching-learning process such as:

1. Video equipment;
2. Overhead projectors;
3. Slide projector;
4. Sound system;
5. LCD projectors;
6. Screens.

There shall always be sufficient stock of consumables, supporting (hand) tools and other materials for laboratory experiments and execution of practical exercises as prescribed in the lesson plans.

Article 19 Library and Internet facilities

Institutes offering MET programs shall have a library with professional library staff, books and publications that in terms of relevancy and quantity are adequate to suit the maritime studies.

Next to the reference books, video's and PC software as mentioned in the equipment (library) list, the library holdings shall at least contain the following requirements:

1. General reference/education books required for any type of higher education;
2. Supporting reference material on modern nautical and technical subjects;
3. Relevant publications of the International Maritime Organization;
4. Magazines and publications related to the marine industry;

The students and instructors shall have access to the Internet for documentary purposes. Each institute shall have available a minimum of one Internet station per one hundred students.

Item no.	Equipment	Amount
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Function : Marine Engineering at the Management Level

EQUIPMENT		
1	Physical and chemical properties of fuels and lubricants	
1.1	Test kit for fuels and lubricants including:	-
	• Viscosity test	1
	• Water content test	1
	• Compatibility test	1
	• Flash point test	1
	• Cloud point	1
	Ample consumables for fuels and lubricants test kit	10
1.2	Samples of crude and refined fuel oils	1
1.3	Samples of different lubrication cans	1
1.4	Photographs about defects due to poor lubrication	1 set
2	Technology of materials	
2.1	Annealing oven	1
2.2	Test equipment for destructive testing of materials including:	-
	• Tensile test	1
	• Brinell hardness test	1
	• Vickers hardness test	1
	• Bending test	1
	• Rockwell hardness test	1
	• Notched-bar impact test	1
	• Examples of destructive testing	1 set
2.3	Test equipment for non-destructive testing of materials including:	-
	• Magnetic particle identification	1
	• Ultrasound testing	1
	• Crack testing with dye's	1
	• Examples of non-destructive testing	1 set
	Consumables for crack testing	5
2.4	Examples of non-metallic materials	1 set
3	Water testing and treatment	
3.1	Water test kit for boiler water and cooling water	1
	Ample consumables for water test kit	1 set

Item no.	Equipment	Amount
TEXTBOOKS (IMO recommendations)		
T11	Derrett, D.R. Schip Stability for Masters and Mates, 4th ed. Butterworth-Heinemann. 1984	1
T13	Hannah-Hillier, J. Applied Mechanics. Harlow Longman. 1995	1
T23	Jackson, L. Instrumentation and Control Systems, 4th ed. Thomas Reed Publications Ltd. 1992	1
T24	Jackson, L and Morton, T.D. General Engineering Knowledge for Marine Engineers, 5th ed. Thomas Reed Publications Ltd. 1990	1
T26	Joel, R. Basic Engineering Thermodynamics in S.I. Units, 5th ed. Harlow Longman. 1996	1
T35	Morton, T.D. Motor Engineering Knowledge for Marine Engineers, Thomas Reed Publications Ltd. 1994	1
T37	Munro-Smith, R. Ships and Naval Architecture. The Institute of Marine Engineers, 1977	
T52	Taylor, D.A. Merchant Ship Construction. 3rd ed. The Institute of Marine Engineers, 1992	1
T57	Wilbur, G.T. and Night, D.A. Pounder's Marine Diesel Engines, 6th ed. Butterworth. 1984	1
VIDEO CASSETTES / VCD (IMO recommendations)		
V1	IMO – Safer shipping and cleaner seas	1
V2	Chemical water treatment	1
V3	Fuel oil burner theory and diagnostics	1
V4	Handling and treatment of heavy fuels	1
V5	Microbial problems in fuels	1

Function : Electrical, Electronic and Control Engineering at the Management Level

EQUIPMENT		
1	Electric Electronic Laboratory	
1.1	Demonstration models:	-
	• Model of an atom	1
	• Apparatus to demonstrate static electricity	1
	• Examples of electrical diagrams	10
	• Iron filings	1 kg
	• magnets	1 set
	• Solenoids (different windings and thickness of wire)	1 set
	• Solenoid with iron core	1
	• Induction coil	1
	• Sensitive ampere meter (galvano-meter)	1
1.2	Workbench with scaffolding and component racks including:	-
	• Lamps; also watertight ones	5 set
	• Common switches	5 set

	• Fuses	5 set
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Item no.	Equipment	Amount
	• Emergency switch	5 set
	• Switch with self-holding contact	5 set
	• Wiring with safety connectors	5 set
	• Circuit breakers	5 set
	• Earth lamp model	5 set
	• Thermo-electrical couple	5 set
	• Diodes	5 set
	• Resistors	5 set
	• Thyristors	5 set
1.3	Transformer	1
1.4	Electrical, electronic meters:	-
	• Voltmeter	5
	• Ammeter	5
	• Power meter	5
	• Multi-meter (digital and analogue)	5
	• Clamp meter	5
	• Insulation tester	1
1.5	Lead-acid and alkaline batteries:	-
	• Models of alkaline batteries	1 set
	• Models of lea-acid batteries	1 set
	• Distilled water	1 ltr.
	• Vaseline	1
	• Hydrometer	1
	• Cell tester	1
	• Maintenance tools	1 set
	• Battery charger	1
1.6	Oscilloscope	1
1.7	Audio generator	1
1.8	Generators:	-
	• AC generator	1
	• DC generator	1
1.9	Electrical motors:	-
	• DC motor	1
	• AC single phase motor	1
	• AC three phase motor	1
	• Motor starters	1 set
	• Motor switches; including star-delta	1 set
1.10	Consumables:	-
	• Ample availability of a selection of marine cable	1 set
2	Automation and control laboratory	
2.1	Hydraulic unit with component racks:	-
	• Components	1 set
	• Hydraulic hoses (snap-on system)	1 set

	<ul style="list-style-type: none"> Hydraulic control system 	1
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Item no.	Equipment	Amount
2.2	Pneumatic unit with component racks:	-
	<ul style="list-style-type: none"> Components 	1 set
	<ul style="list-style-type: none"> Pneumatic hoses (snap-on system) 	1 set
	<ul style="list-style-type: none"> Pneumatic control system 	1
2.3	PLC-unit	1
2.4	Controllers:	-
	<ul style="list-style-type: none"> Level control apparatus 	1
	<ul style="list-style-type: none"> Flow control apparatus 	1
	<ul style="list-style-type: none"> Boiler sequence controller 	1
	<ul style="list-style-type: none"> Load boiler display 	1
	<ul style="list-style-type: none"> Load elevator 	1
2.5	Photo electric cell	1
2.5	Desktop PC + CD-ROM + CD-writer	1
TEXTBOOKS (IMO recommendations)		
T23	Jackson, L. Instrumentation and Control Systems, 4rd ed. Thomas Reed Publications Ltd. 1992	1
T28	Kraal, E.G.R. Basic Electrotechnology for Engineers, 3rd ed. Thomas Reed Publications Ltd. 1985	1
T58	Wilbur, G.T. and Night, D.A. Pounder's Marine Diesel Engines, 6th ed. Butterworth. 1984	1
VIDEO CASSETTES / VCR (IMO recommendations)		
V1	Machinery alarms and protection devices	1

Function : Maintenance and Repair at the Management Level

EQUIPMENT		
1	Engine Room*	-
1.1	Tool grinder; double ended	1
1.2	Milling machine including accessories:	2
	<ul style="list-style-type: none"> Machine vice 	2
	<ul style="list-style-type: none"> Shell cutters 	2 set
	<ul style="list-style-type: none"> Mill cutters 	2 set
	<ul style="list-style-type: none"> Arbors for shell and mill cutters 	2 set
	<ul style="list-style-type: none"> Side and face cutters 	2 set
	<ul style="list-style-type: none"> Arbors for side and face cutters 	2 set
1.3	Shaping machine including accessories:	2
	<ul style="list-style-type: none"> Machine vice 	2
	<ul style="list-style-type: none"> Straight edge cutting tool 	5
	<ul style="list-style-type: none"> Roughing tool 	5

	• Parting tool	5
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Item no.	Equipment	Amount
1.4	Centre lathe machine including accessories:	5
	• 3-Jaw chuck	5
	• 4-Jaw chuck	5
	• Face plate	5
	• Carrier	5
	• Drill chuck	5
	• Straight knife tool	10
	• Straight roughing tool	10
	• Parting tool	10
	• Round-nose tool	10
	• Threading tool	5
	• Boring tool; straight	10
	• Boring tool; thread	5
1.5	Measuring tools :	-
	• Inner radius gauge	2
	• Outer radius gauge	2
	• Thread pitch gauge mm	2
	• Thread pitch gauge inch	2
	• Dial indicator	2
	• Dial magnetic stand	2
	• Steel calliper	10
	• Vernier calliper	10
	• Right-angled block precision	1
	• Outside micrometer	10
	• Inside micrometer	1 set
	• Height gauge	1
1.6	Anvil	1
1.7	Hand, or hydraulic press	1
1.8	Common hand tools:	-
	• Hand scraper ± 400 mm	5
	• Triangle hand scraper ± 350 mm	5
	• Drive pinch punches	1 set
	• Open end spanners	1 set
	• Ring spanners	1 set
	• Socket wrench	1 set
	• Allan keys	1 set
	• Torque wrench	1
	• Pipe spanners	1 set
	• Wrench bars for pipe spanners	1 set
	• Screwdriver, different size	1 set
	• Pliers, different models	1 set
1.9	Tool cabinet with tools for maintenance purpose	1
1.10	Diesel engine maintenance:	-

	• Main diesel engine (working)	1
	• Diesel engine for overhaul	1

Item no.	Equipment	Amount
	• Camshaft and rocker arm	1 set
	• Crank shaft including bearings	1 set
	• Piston(s), push rod, bearings	1 set
	• Injector test pump	1
1.11	Auxiliaries:	-
	• AC generator and alternator	1
	• DC generator and distribution system	1
	• Air compressor	1
	• Purifier/ Separator	1
	• Refrigerating plant	1
	• TJ burner simulator	1
	• Fresh water generator	1
	• Package boiler	1
	• Boiler cooling tower	1
	• Pump system (GS, ballast, bilge pumps) and its pipes	1 set
	• Emergency pumps	1
	• Air conditioning machine, room heater and ventilation system	1
1.12	Test equipment for destructive testing of materials	1
1.13	Manufacturer workshop manuals of each diesel engine	1
1.14	Consumables:	-
	• Waste cotton	5kg
	• Oil tube	1
	• Lubrication oil	10 ltr
	• Grease	2kg
	• Diesel oil	50 ltr
	• Kerosene	10 ltr
TEXTBOOKS (IMO recommendations)		
T23	Jackson, L. Instrumentation and Control Systems. 4th ed. Thomas Reed Publications Ltd. 1992	1
T24	Jackson, L and Morton, T.D. General Engineering Knowledge for Marine Engineers, 5th ed. Thomas Reed Publications Ltd. 1990	1
T28	Kraal, E.G.R. Basic Electrotechnology for Engineers, 3rd ed. Thomas Reed Publications Ltd. 1985	1
T58	Wilbur, G.T. and Night, D.A. Pounder's Marine Diesel Engines, 6th ed. Butterworth. 1984	1
T70	Code of Safe Working Practices for Merchant Seamen, The Stationary Office Publications Centre. 1998	1
VIDEO CASSETTES / VCD (IMO recommendations)		
V1	Machinery alarms and protection devices	1
V2	Welding safety	1
V3	Permit to work	1

V4	Safety construction survey	1
V5	Safety equipment survey	1
V6	The ISM audit	1

Item no.	Equipment	Amount
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Function : Controlling the operations of the ship and care for the persons on board at management level

EQUIPMENT		
1	Cut-away 3-D models showing the structure parts of the ship	1 set
2	Photographs, drawings and plans illustrating types of ships and construction details	1 set
3	Floating ship stability model for demonstrating movement of centre of gravity and free surface effects	1
4	Marine hydrometer	1
TEXTBOOKS (IMO recommendations)		
T. 1	Ship stability for masters and mates, Derett, 4 th ed, 1984	1
T. 2	Maritime law, Hill, 1998	1
T. 3	Merchant ship construction, Taylor, 2 nd ed, 1985	1
T. 4	Watchkeeping safety and cargo management in port,, Roberts, 1995	1
T. 5	Code of safe working practices for merchant seaman, 1998	1
CASSETTES / VCD (IMO recommendations)		
V. 1	Ship stability CD-ROM	1
V. 2	Entry into enclosed spaces	1
V. 3	Permit to work	1
V. 4	Prevention and reaction to marine oil spills under MARPOL	1
V. 5	Oil pollution regulations and the oil record book	1
V. 6	Being prepared-getting ready for surveys	1

General function : Computer room

C.1	Class room with air conditioner and class room equipment	for 30 persons
C.2	Desktop PC and appropriate application program	12
C.3	Desktop PC and Modem	1
C.4	Desktop PC and CD ROM	1
C.5	Desktop PC and CD Writer	1
C.6	Notebook/Laptop (optional)	1
C.7	AVR (Stabilizer)	15
C.8	Printer	1
C.9	Consumables for printer (cartridge, toner)	1 set
C.10	Scanner	1
C.11	UPS (Uninterruptible Power Supply)	1
C.12	Server/Main frame (optional)	1

Notes:

* Workshops can be combined

** One electrical saw-machine for cut-off purpose can be placed in the material stock

STANDARD COMPETENCE FOR ATT – II CERTIFICATE

a. Function : Marine engineering at the management level

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
<p>Plan and schedule operations.</p>	<p>Theoretical knowledge: Thermodynamics and heat transmission; Mechanics and hydro-mechanics; Operating principles of ship power installations (diesel, steam and gas turbine) and refrigeration; Physical and chemical properties of fuels and lubricants; Technology of materials; Naval architecture and ship construction, including damage control.</p>	<p>Thermodynamics and Heat Transmission: 1. Steady flow energy equation 2. First and second law of thermodynamics 3. Vapours 4. Behaviour of gases 5. Thermal efficiency 6. Steam plant 7. Nozzles 8. Engine trial data 9. Refrigeration 10. Heat transfer 11. Air compressors.</p>	<p>Examination and assessment of evidence obtained from one or more of the following: <ul style="list-style-type: none"> • approved in- service training • approved training ship experience • approved simulator training, where appropriate. </p>	<p>The planning and preparation of operations is suited to the design parameters of the power installation and to the requirements of the voyage.</p>

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
<p>Start up and shut down main propulsion and auxiliary machinery, including associated systems.</p>	<p>Theoretical knowledge: Thermodynamics and heat transmission; Mechanics and hydro-mechanics; Operating principles of ship power installations (diesel, steam and gas turbine) and refrigeration; Physical and chemical properties of fuels and lubricants; Technology of materials; Naval architecture and ship construction, including damage control.</p>	<p>Mechanics and Hydro-mechanics: 1. Friction 2. Inertia 3. Circulation motion 4. Periodic motion 5. Dynamic of rotation 6. Work and energy 7. Impulse and momentum 8. Hydrostatics 9. Hydraulics; Operating principles of ship power installations and refrigeration: 1. Diesel engine performance 2. Refrigeration and air conditioning; Physical and chemical properties of fuels and lubricants: 1. Production of oils from crude oil 3. Physical and chemical</p>	<p>Examination and assessment of evidence obtained from one or more of the following: <ul style="list-style-type: none"> • approved in- service training • approved training ship experience • approved simulator training, where appropriate. </p>	<p>The methods of preparing the start-up and of making available fuels, lubricants, cooling water and air are the most appropriate; Checks of pressures, temperatures and revolutions during the start-up and warm-up period are in accordance with technical specifications and agreed work plans; Surveillance of main propulsion plant and auxiliary systems is sufficient to maintain safe operations; The methods of preparing the shut down and of supervising the cooling down of the engine are the most appropriate.</p>

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
		<p>properties of oils</p> <ol style="list-style-type: none"> 4. Combustion 5. Combustion equipment 6. Oil purification 7. Lubricating oils 8. Lubrication 9. Lubrication problems and testing 10. Greases; <p>Technology of Materials and Mechanics:</p> <ol style="list-style-type: none"> 1. Metallurgy of steel and cast iron 2. Testing and properties of materials 3. Heat treatment of metals 4. Alloying elements in irons and steel 5. Non-ferrous metals 6. Non-metallic materials 7. Welding 8. Direct stress and strain 9. Strain energy 10. Stress in pressure vessels 11. Shear and torsion 12. Shear force and 13. Shear force and 		

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
		bending moments 14. Bending beams 15. Combined bending and direct stress; Naval architecture and ship construction, including damage control: 1. Movement of the centre of gravity 2. Flotation 3. Transversal static stability 4. Effect of liquids on stability 5. Correcting the angle of loll 6. TPC and displacement curves 7. Form coefficients 8. Areas and volumes of ship shapes 9. KB, BM and metacentric diagrams 10. List 11. Moments of static stability 12. Trim 13. Dry-docking and		

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
		grounding 14. Damage control 15. Ship motion 16. Vibration in ships 17. Rudders 18. Resistance, powering and fuel consumption 19. Propulsion and rudders 20. Ship structures.		
Operate, monitor and evaluate engine performance and capacity. Operation and maintenance of auxiliary machinery, including pumping and piping systems, auxiliary boiler plant and steering-gear systems; Operation, testing and maintenance of control systems; Operation and maintenance of cargo-handling equipment and	<p>Practical knowledge : Operation and maintenance of:</p> <ul style="list-style-type: none"> • marine diesel engines • marine steam propulsion plant • marine gas turbines; <p>Operation and maintenance of auxiliary machinery, including pumping and piping systems, auxiliary boiler plant and steering-gear systems;</p> <p>Operation, testing and maintenance of control systems;</p> <p>Operation and maintenance of cargo-handling equipment and</p>	<p>Operation and maintenance of marine diesel engines:</p> <ol style="list-style-type: none"> 1. Engine components 2. Engine lubrication 3. Fuel injection 4. Scavenging and supercharging 5. Starting and reversing 6. Cooling systems 7. Diesel engine control 8. Compressed air 9. Multi-engine propulsion arrangement. 	Examination and assessment of evidence obtained from one or more of the following: <ul style="list-style-type: none"> • approved in- service training • approved training ship experience • approved simulator training, where appropriate. 	The methods of measuring the load capacity of the engines are in accordance with technical specifications; Performance is checked against bridge orders; Performance levels are in accordance with technical specification.

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
<p>Maintain safety of engine equipment, systems and services.</p>	<p>deck machinery.</p> <p>Practical knowledge:</p> <p>Operation and maintenance of:</p> <ul style="list-style-type: none"> • marine diesel engines • marine steam propulsion plant • marine gas turbines; <p>Operation and maintenance of auxiliary machinery, including pumping and piping systems, auxiliary boiler plant and steering-gear systems;</p> <p>Operation, testing and maintenance of control systems;</p> <p>Operation and maintenance of cargo-handling equipment and deck machinery.</p>	<p>Operation and maintenance of auxiliary machinery , including pumping and piping systems, auxiliary boiler plant and steering gear systems:</p> <ol style="list-style-type: none"> 1. Waste heat utilisation 2. Types of boiler 3. Safety valves 4. Boiler water levels 5. Boiler defects 6. Corrosion in boilers 7. Use of seawater in boilers 8. Use of fresh water in boilers 9. Water treatment 10. Water testing 11. Principles of operation of evaporators 12. Evaporator materials 13. Control of evaporators 14. Steering gear 15. Shafting; <p>Operation, testing and</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> • approved in- service training • approved training ship experience. 	<p>Arrangements for ensuring the safe and efficient operation and condition of the machinery installation are suitable for all modes of operation.</p>

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
		<p>maintenance of control systems:</p> <ol style="list-style-type: none"> 1. Principles of pneumatic control 2. Controllers 3. Control Circuits 4. Remote control-diesel propulsion 5. Air supply 6. Monitoring systems; <p>Operation and maintenance of cargo handling equipment and deck machinery:</p> <ol style="list-style-type: none"> 1. Deck machinery. 		
<p>Manage fuel and ballast operations.</p>	<p>Operation and maintenance of machinery, including pumps and piping systems.</p>	<p>Operation and Maintenance of machinery, including pumps and piping systems:</p> <ol style="list-style-type: none"> 1. Ballast 2. Bilge 3. Fire main 4. Prevention of pollution by the sea 5. Sewage and sludge. 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> • approved in-service training • approved training ship experience • approved simulator training, where appropriate. 	<p>Fuel and ballast operations meet operational requirements and are carried out so as to prevent pollution of the marine environment.</p>

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
Use internal communication systems.	Operation of all internal communication systems on board.	<p>Operation of all communication systems on board:</p> <ol style="list-style-type: none"> Internal communication systems on board. 	<ul style="list-style-type: none"> Examination and assessment of evidence obtained from one or more of the following: <ul style="list-style-type: none"> approved in-service training approved training ship experience approved simulator training, where appropriate approved laboratory equipment training. 	<p>Transmission and reception of messages are consistently successful;</p> <p>Communication records are complete, accurate and comply with statutory requirements.</p>

b. Function: Electrical, electronic and control engineering at the management level

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
Operate electrical and electronic control equipment.	<p>Theoretical knowledge:</p> <p>Marine electro-technology, electronics and electrical equipment;</p> <p>Fundamentals of automation, instrumentation and control systems;</p> <p>Practical knowledge:</p> <p>Operation, testing and maintenance of electrical and electronic control equipment, including fault diagnostics.</p>	<p>Marine electro-technology, electronics and electrical equipment:</p> <ol style="list-style-type: none"> 1. Application of Ohm’s and Kirchoff’s Laws 2. Electromagnetism; <p>Fundamentals of automation, instrumentation and control systems:</p> <ol style="list-style-type: none"> 1. Control theory. 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> • approved in-service training • approved training ship experience • approved simulator training, where appropriate • approved laboratory equipment training. 	<p>Operation of equipment and system is in accordance with operating manuals;</p> <p>Performance levels are in accordance with technical specifications.</p>
Test, detect faults and maintain and restore electrical and electronic control equipment to operating condition.	<p>Theoretical knowledge:</p> <p>Marine electrotechnology, electronics and electrical equipment;</p> <p>Fundamentals of automation, instrumentation and control systems;</p>	<p>Operation, testing and maintenance of electrical and electronic control equipment, including fault diagnostics:</p> <ol style="list-style-type: none"> 1. Practical work 2. Power-factor improvement 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> • approved in-service training • approved training 	<p>Maintenance activities are correctly planned in accordance with technical, legislative, safety and procedural specifications;</p> <p>The effect of malfunctions on associated plant and</p>

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	<p>Practical knowledge:</p> <p>Operation, testing and maintenance of electrical and electronic control equipment, including fault diagnostics.</p>	<ol style="list-style-type: none"> 3. Poly-phase supplies 4. AC generators 5. Automatic voltage regulation 6. AC switch gear 7. Generator protection 8. Single and parallel operation of generator 9. Transformers 10. Rectification 11. Distribution 12. Circuit protection 13. Cables 14. DC and AC motors 15. Motor control and protection 16. Cells and batteries 17. Lamps 18. Tanker electrical safety systems. 	<p>ship experience</p> <ul style="list-style-type: none"> • approved simulator training, where appropriate • approved laboratory equipment training. 	<p>systems is accurately identified, ship's technical drawings are correctly interpreted, measuring and calibrating instruments are correctly used and actions taken are justified.</p>

c. Function: Maintenance and repair at the management level

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
Organise safe maintenance and repair procedures.	<p>Theoretical knowledge:</p> <p>Marine engineering practice;</p> <p>Practical knowledge:</p> <p>Organising and carrying out safe maintenance and repair procedures.</p>	<p>Organize safe maintenance and repair procedures:</p> <ol style="list-style-type: none"> Preparation for maintenance Planned maintenance. 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> approved in-service training approved training ship experience approved workshop training. 	<p>Maintenance activities are correctly planned and carried out in accordance with technical, legislative, safety and procedural specifications;</p> <p>Appropriate plans, specifications, materials and equipment are available for maintenance and repair;</p> <p>Action taken leads to the restoration of plant by the most suitable method.</p>
Detect and identify the cause of machinery malfunctions and correct faults.	<p>Practical knowledge:</p> <p>Detection of machinery malfunction, location of faults and action to prevent damage.</p>	<p>Detect and identify the cause of machinery malfunctions and correct faults:</p> <ol style="list-style-type: none"> Unplanned maintenance. 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> approved in-service 	<p>The methods of comparing actual operating conditions are in accordance with recommended practices and procedures;</p>

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
			training <ul style="list-style-type: none"> • approved training ship experience • approved simulator training, where appropriate. 	Actions and decisions are in accordance with recommended operating specifications and limitations.
Ensure safe working practices.	Practical knowledge: Safe working practices.	Safe working practices: 1. Safety management.	Examination and assessment of evidence obtained from one or more of the following: <ul style="list-style-type: none"> • approved in-service training • approved training ship experience. 	Working practices are in accordance with legislative requirements, codes of practice, permits to work and environmental concerns.

d. Function : Controlling the operation of the ship and care for person on board at the management level

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
<p>Control trim, stability and stress.</p>	<p>Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability;</p> <p>Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken;</p> <p>Knowledge of IMO recommendations concerning ship stability.</p>	<p>Fundamental principles of ship construction, trim and stability:</p> <ol style="list-style-type: none"> 1. Shipbuilding materials 2. Welding 3. bulkheads 4. Watertight and weathertight doors 5. Corrosion and its prevention 6. Surveys and dry-docking 7. Stability; <p>Effect on trim and stability in the event of damage and flooding:</p> <ol style="list-style-type: none"> 1. Effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> • approved in-service experience • approved training ship experience • approved simulator training, where appropriate. 	<p>Stability and stress conditions are maintained within safe limits at all times.</p>

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
<p>Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and the protection of the marine environment.</p>	<p>Knowledge of international maritime law embodied in international agreements and conventions;</p> <p>Regard shall be paid especially to the following subjects:</p> <ul style="list-style-type: none"> • certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of their legal validity • responsibilities under the 	<p>be taken</p> <p>2. Theories affecting trim and stability;</p> <p>Knowledge of IMO recommendations concerning ship stability:</p> <p>1. Responsibilities under the relevant requirements of the International Conventions and Codes.</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> • approved in-service experience • approved training ship experience • approved simulator training, where appropriate. 	<p>Procedures for monitoring operations and maintenance comply with legislative requirements;</p> <p>Potential non-compliance is promptly and fully identified;</p> <p>Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment.</p>

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
	<ul style="list-style-type: none"> • relevant requirements of the International Convention on Load Lines • responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea • responsibilities under the International Convention for the Prevention of Pollution from Ships • maritime declarations of health and requirements of the International Health regulations • responsibilities under international instruments affecting the safety of the ship, passengers, crew and cargo • methods and aids to prevent pollution of the marine environment by ships • knowledge of national legislation for implementing international agreements and 	<ol style="list-style-type: none"> 3. Responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea 4. Responsibilities under the International Convention for the Prevention of Pollution from Ships 5. Maritime declarations of health and the requirements of the International Health Regulations 6. Responsibilities under international instruments affecting the safety of the ship, passengers, crew and cargo 7. Methods and aids to prevent pollution of the marine environment by ships 8. National legislation For implementing 		

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
<p>Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems.</p>	<p>A thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea); Organization of fire and abandon ship drills; Maintenance of operational condition of life-saving, fire-fighting and other safety systems; Actions to be taken to protect and safeguard all persons on board in emergencies; Actions to limit damage and save the ship following a fire, explosion, collision or grounding.</p>	<p>agreements and conventions. Knowledge of life-saving appliance regulations; Organisation of fire and abandon ship drills; Maintenance of operational condition of life-saving, fire fighting and other safety systems; Actions to be taken to protect and safeguard all persons on board in emergencies; Actions to limit damage and save the ship following a fire, explosion, collision or grounding.</p>	<p>Examination and assessment of evidence obtained from practical instruction and approved in-service training and experience.</p>	<p>Procedures for monitoring fire-detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures.</p>
<p>Develop emergency and damage control plans and handle emergency</p>	<p>Preparation of contingency plans for response to emergencies; Ship construction, including</p>	<p>Preparation of contingency plans for response to emergencies; Ship construction</p>	<p>Examination and assessment of evidence obtained from approved in-service training and experience.</p>	<p>Emergency procedures are in accordance with the established plans for emergency situations.</p>

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	SUBJECT AREA	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
situations.	<p>damage control;</p> <p>Methods and aids for fire prevention, detection and extinction;</p> <p>Functions and use of life-saving appliances.</p>	<p>including damage control;</p> <p>Methods and aids for fire protection, detection and extinction;</p> <p>Functions and use of life-saving appliances.</p>		
Organize and manage the crew.	<p>A knowledge of personnel management, organization and training on board ship;</p> <p>A knowledge of related international maritime conventions and recommendations, and national legislation.</p>	<p>Personnel management, organization and training on board ship:</p> <ol style="list-style-type: none"> 1. Personnel management 2. Organization of staff 3. Training on board ships; <p>Related international maritime conventions and national legislation:</p> <ol style="list-style-type: none"> 1. Related international maritime conventions and national legislation. 	<p>Examination and assessment of evidence obtained from approved in-service training and experience.</p>	<p>The crew are allocated duties and informed of expected standards of work and behaviour in a manner appropriate to the individuals concerned;</p> <p>Training objectives and activities are based on an assessment of current competence and capabilities and operational requirements.</p>



FORMAT AUDIT MUTU
QUALITY AUDIT FORM

PROGRAM DIKLAT ATT – II
ENGINEER OFFICER CLASS – II

BERDASARKAN
BASED ON

KEPUTUSAN BERSAMA
JOINT MINISTERIAL DECREE

MENHUB, MENDIKNAS, DAN MENAKERTRANS
MINISTER OF COMMUNICATIONS, MINISTER OF NATIONAL EDUCATION,
AND MINISTER OF MANPOWER AND TRANSMIGRATION

NO : KM. 41/2003 – 5/U/KB/2003 – KEP.208 A/MEN/2003
11 SEPTEMBER 2003

TENTANG
CONCERNING

SISTEM STANDAR MUTU KEPELAUTAN INDONESIA
INDONESIAN SEAFARERS QUALITY STANDARD SYSTEM (QSS)

ANNEX – A Part 2

NAME OF INSTITUTE	
CITY ADDRESS	
EMAIL ADDRESS	
TELEPHONE	
WEBSITE	
DATE OF AUDIT	

DAFTAR ISI – AUDIT FORM
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Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

OVERALL ASSESSMENT EDUCATION AND TRAINING			
BLOCKS	SCORE PER BLOCK	WEIGHING FACTOR	CORRECTE D SCORE
1. ORGANIZATION AND STAFF RESOURCES (OS)		3	
2. INFRA-PROVISIONS TEACHING FACILITIES (ITF)		1	
3. MARINE ENGINEERING AT THE MANAGEMENT LEVEL (ED 1)		5	
4. ELECTRIC, ELECTRONIC AND CONTROL SYSTEMS AT THE MANAGEMENT LEVEL (ED 2)		5	
5. MAINTENANCE AND REPAIR AT THE MANAGEMENT LEVEL (ED 3)		5	
6. CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL (ED 4)		5	
7. EQUIPMENT (EQ)		5	
SUBTOTALS			
		29	

OVERALL SCORE

REMARKS AND RECOMMENDATIONS:

Date :
 Name :
 Signature :

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

		ORGANIZATION AND STAFF RESOURCES		
		Organizational and managerial structures		
COM	OS	Description	Points	actual
			max	
1		Mission Statement	10	
2		Education and training strategies	70	
3		Organization	50	
4		Instructor requirements	50	
5		Development program requirements	30	
6		Instructors teaching load	70	
7		Faculty requirements	70	
8		Instructor – Student Ratio	30	
9		Curriculum	90	
10		Administrative documentation	50	
11		Students admission, selection and retention	50	
12		School Tests and Examination system	80	
13		Feedback from students and industry	40	
14		Research and Development Program	30	
15		Quality Management System	30	
16		Campus/Building/Public spaces/Offices	50	
17		General teaching means	70	
18		Library and Internet facilities	70	
		Subtotals	940	

Actual Points Obtained
Maximum Obtainable Points **940**
ASSESSMENT SCORE OS

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

ORGANIZATION AND STAFF RESOURCES - OS										
COM	Organizational and managerial structures	column 2	column 3		column 4	Comments	File Code		OS	
			Subjects	Suitability in % (see par. 3.1.2)			Available	Points		
column 1			yes	no			max	actual		
1	Mission Statement						10			
2	Education and training strategies						70			
3	Organization						50			
4	Instructor requirements						50			
5	Development program requirements						30			
6	Instructors teaching load						70			
7	Faculty requirements						70			
8	Instructor – Student Ratio						30			
9	Curriculum						90			
10	Administrative documentation						50			
11	Students admission, selection and retention						50			
12	School Tests and Examination system						80			
13	Feedback from students and industry						40			
14	Research and Development Program						30			
15	Quality Management System						30			
16	Campus/Building/Public spaces/Offices						50			
17	General teaching means						70			
18	Library and Internet facilities						70			
Totals							940			

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

ORGANIZATION AND STAFF RESOURCES - OS

COM	Organizational and managerial structures	File Code	
		COM	OS

REMARKS AND RECOMMENDATIONS:

Actual points obtained	940	Assessment score OS
Maximum obtainable points		

Assessor 1
 Name: _____ Date: _____ Signature: _____
 Function: _____

Assessor 2
 Name: _____ Date: _____ Signature: _____
 Function: _____

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

INFRA-PROVISIONS FOR TEACHING FACILITIES - ITF

REMARKS AND RECOMMENDATIONS:

Actual points obtained
Maximum obtainable points

130 **Assessment score ITF**

Assessor 1

Name:
Function:

Date:

Signature:

Assessor 2

Name:
Function:

Date:

Signature:

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER

A-III/2	ED 1	Description	Points	
			max	actual
		Marine engineering at the management level	417	
A-III/2	ED 1.1	Use appropriate tools for fabrication and repair operations typically performed on ships	164	
A-III/2	ED 1.2	Operate, monitor and evaluate engine performance and capacity. Maintain safety of engine equipment, systems and service	18	
A-III/2	ED 1.3	Manage fuel and ballast operations	1	
A-III/2	ED 1.4	Use internal communication systems		
		Subtotals	600	

Actual Points Obtained
Maximum Obtainable Points 600

ASSESSMENT SCORE ED 1

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
MARINE ENGINEERING AT THE MANAGEMENT LEVEL										
Plan and schedule operations. Start up and shut down main propulsion and auxiliary machinery, included associated systems										
Thermodynamics and heat transmission										
column 1	column 2		column 3		column 4		column 5		column 6	
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)		Item properly examined		Points		
		yes	no	% covered (par 5.1.4 d)	method	yes	no	max	actual	
1	Steady flow energy equation								3	
2	First and second law of thermodynamics								1	
3	Vapouring								3	
4	Behaviour of gases								12	
5	Thermal efficiency								2	
6	Steam plant								6	
7	Nozzles								3	
8	Engine trial data								9	
9	Refrigeration								6	
10	Heat transfer								6	
11	Air compressors								6	
12										
13										
14										
15										
16										
17										
18									57	

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STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
MARINE ENGINEERING AT THE MANAGEMENT LEVEL										
Plan and schedule operations. Start up and shut down main propulsion and auxiliary machinery, included associated systems										
Mechanics and hydromechanics										
column 1	column 2	column 3		column 4	column 5		column 6		File Code	
no.	Description topics per subject	yes	no	Examination method (use legend 1)	yes	no	if no, indicate (use legend 2)	max	actual	Points
1	Friction							5		
2	Inertia							6		
3	Circulation motion							18		
4	Periodic motion							9		
5	Dynamic of rotation							12		
6	Work and energy							9		
7	Impulse and momentum							7		
8	Hydrostatics							8		
9	Hydraulics							12		
10										
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14										
15										
16										
17										
18										
								86		

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
MARINE ENGINEERING AT THE MANAGEMENT LEVEL									
Plan and schedule operations. Start up and shut down main propulsion and auxiliary machinery, included associated systems									
Operating principles of ship power installations and refrigeration									
column 1	column 2	column 3		column 4	column 5		column 6		File Code
no.	Description topics per subject	yes	no	Examination method (use legend 1)	yes	no	if no, indicate (use legend 2)	max	actual
1	Diesel engine performance							6	
2	Refrigeration and air conditioning							18	
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18								24	

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
MARINE ENGINEERING AT THE MANAGEMENT LEVEL										
Use appropriate tools for fabrication and repair operations typically performed on ships										
Physical and chemical properties of fuels and lubricants										
column 1	column 2	column 3		column 4	column 5		column 6		File Code	
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points		A- III/2 ED 1.1	
		yes	no		% covered (par. 5.1.4 d)	yes	no	if no, indicate (use legend 2)		max
1	Production of oils from crude oil								1	
2	Physical and chemical properties of oils								6	
3	Combustion								6	
4	Combustion equipment								2	
5	Oil purification								4	
6	Lubricating oils								3	
7	Lubrication								4	
8	Lubrication problems and testing								6	
9	Greases								1	
10										
11										
12										
13										
14										
15										
16										
17										
18										
									33	

Name Institute:
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STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
MARINE ENGINEERING AT THE MANAGEMENT LEVEL										
Use appropriate tools for fabrication and repair operations typically performed on ships										
Technology of materials										
column 1	column 2			column 3		column 4	column 5		column 6	
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points		File Code	
		yes	no		% covered (par. 5.1.4 d)	yes	no	max		actual
1	Metallurgy of steel and cast iron								3	
2	Testing and properties of materials								18	
3	Heat treatment of metals								3	
4	Alloying elements in irons and steel								2	
5	Non-ferrous metals								2	
6	Non-metallic materials								2	
7	Welding								6	
8	Direct stress and strain								15	
9	Strain energy								3	
10	Stress in pressure vessels								4	
11	Shear and torsion								9	
12	Shear force and bending moments								12	
13	Bending beams								12	
14	Combined bending and direct stress								3	
15										
16										
17										
18										
									94	

Name Institute :
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STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
MARINE ENGINEERING AT THE MANAGEMENT LEVEL										
Use appropriate tools for fabrication and repair operations typically performed on ships										
Naval architecture and ship construction, including damage control										
column 1	column 2	column 3		column 4	column 5		column 6			
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points			
		yes	no		% covered (par 5.1.4 d)	yes	no	if no, indicate (use legend 2)	max	actual
1	Movement of the centre of gravity								3	
2	Flotation								3	
3	Transversal static stability								9	
4	Effect of liquids on stability								6	
5	Correcting the angle of loll								1	
6	TPC and displacement curves								2	
7	Form coefficients								2	
8	Areas and volumes of ship shapes								1	
9	KB, BM and metacentric diagrams								6	
10	List								3	
11	Moments of static stability								9	
12	Trim								6	
13	Dry-docking and grounding								3	
14	Damage control								15	
15	Ship motion								3	
16	Vibration in ships								2	
17	Rudders								3	
18	Resistance, powering and fuel consumption								10	
19	Propulsion and rudders								6	
20	Ship structures.								30	
									123	

Name Institute: _____
 Address : _____
 Date of audit : _____

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		File Code	
F: 1	MARINE ENGINEERING AT THE MANAGEMENT LEVEL	A-III/2	ED 1.1
C: 1.1	Use appropriate tools for fabrication and repair operations typically performed on ships		
		maximum points	actual points
S: 1.1.1	Thermodynamics and heat transmission	57	
S: 1.1.2	Mechanics and hydromechanics	86	
S: 1.1.3	Operating principles of ship power installations and refrigeration	24	
S: 1.1.4	Physical and chemical properties of fuels and lubricants	33	
S: 1.1.5	Technology of materials	94	
S: 1.1.6	Naval architecture and ship construction, including damage control	123	
		417	

Actual Points Obtained	417	Assessment Score ED 1.1
Maximum Obtainable Points		

Assessor 1	
Name: _____	Signature: _____
Function: _____	Date: _____

Assessor 2	
Name: _____	Signature: _____
Function: _____	Date: _____

Name Institute :
 Address :
 Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
MARINE ENGINEERING AT THE MANAGEMENT LEVEL									
Operate, monitor and evaluate engine performance and capacity. Maintain safety of engine equipment, systems and service									
Operation and maintenance of marine diesel engines									
column 1	column 2	column 3		column 4	column 5		column 6		File Code
no.	Description topics per subject	yes	no	Examination method (use legend 1)	yes	no	if no, indicate (use legend 2)	max	actual
1	Engine components							24	
2	Engine lubrication							4	
3	Fuel injection							6	
4	Scavenging and supercharging							9	
5	Starting and reversing							3	
6	Cooling systems							3	
7	Diesel engine control							6	
8	Compressed air							6	
9	Multi-engine propulsion arrangement							3	
10									
11									
12									
13									
14									
15									
16									
17									
18									
								64	

Name Institute:
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Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER															
MARINE ENGINEERING AT THE MANAGEMENT LEVEL															
Operate, monitor and evaluate engine performance and capacity. Maintain safety of engine equipment, systems and service															
Operation and maintenance of auxiliary machinery, including pumping and piping systems, auxiliary boiler plant and steering gear systems															
no.	Description topics per subject	column 1		column 2		column 3		column 4		column 5		column 6			
		yes	no	% covered (par. 5.1.4 d)	Examination method (use legend 1)	Item properly examined	yes	no	if no, indicate (use legend 2)	max	actual	Points	File Code		
F: 1														A-III/2	ED 1.2
C: 1.2															
S: 1.2.2															
1	Waste heat utilisation														
2	Types of boiler														
3	Safety valves														
4	Boiler water levels														
5	Boiler defects														
6	Corrosion in boilers														
7	Use of seawater in boilers														
8	Use of fresh water in boilers														
9	Water treatment														
10	Water testing														
11	Principles of operation of evaporators														
12	Evaporator materials														
13	Control of evaporators														
14	Steering gear														
15	Shafting.														
16															
17															
18															
															65

Name Institute:
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Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
MARINE ENGINEERING AT THE MANAGEMENT LEVEL										
Operate, monitor and evaluate engine performance and capacity. Maintain safety of engine equipment, systems and service										
Operation, testing and maintenance of control systems										
column 1	column 2	column 3		column 4	column 5		column 6		File Code	
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points		A-III/2 ED 1.2	
		yes	no		% covered (par. 5.1.4 d)	yes	no	max		actual
1	Principles of pneumatic control								6	
2	Controllers								6	
3	Control Circuits								9	
4	Remote control-diesel propulsion								3	
5	Air supply								3	
6	Monitoring systems								2	
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
									29	

Name Institute:
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Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
MARINE ENGINEERING AT THE MANAGEMENT LEVEL										
Operate, monitor and evaluate engine performance and capacity. Maintain safety of engine equipment, systems and service										
Operation and maintenance of cargo handling equipment and deck machinery										
column 1	column 2	column 3		column 4	column 5		column 6			
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points			
		yes	no		% covered (par. 5.1.4 d)	yes	no	max	actual	
1	Deck machinery								6	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										6

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		File Code	
F: 1	MARINE ENGINEERING AT THE MANAGEMENT LEVEL	A-III/2	ED 1.2
C: 1.2	Operate, monitor and evaluate engine performance and capacity. Maintain safety of engine equipment, systems and service		
	maximum points	actual points	
S: 1.2.1	Operation and maintenance of marine diesel engines	64	
S: 1.2.2	Operation and maintenance of auxiliary machinery, including pumping and piping systems, auxiliary boiler plant and steering gear systems	65	
S: 1.2.3	Operation, testing and maintenance of control systems	29	
S: 1.2.4	Operation and maintenance of cargo handling equipment and deck machinery	6	
Actual Points Obtained		164	
Maximum Obtainable Points		164	Assessment Score ED 1.2

Assessor 1
 Name:
 Function:

Date: Signature:

Assessor 2
 Name:
 Function:

Date: Signature:

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
MARINE ENGINEERING AT THE MANAGEMENT LEVEL									
Manage fuel and ballast operations									
Operation and maintenance of machinery, including pumps and piping systems									
column 1	column 2	column 3		column 4	column 5		column 6		File Code
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		max	actual	
		yes	no	% covered (par. 5.1.4 d)	yes	no			
1	Ballast						2		
2	Bilge						2		
3	Fire main						2		
4	Prevention of pollution by the sea						8		
5	Sewage and sludge						4		
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
							18		

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		File Code	
F: 1	MARINE ENGINEERING AT THE MANAGEMENT LEVEL	A-III/2	ED 1.3
C: 1.3	Manage fuel and ballast operations		
S: 1.3.1	Operation and maintenance of machinery, including pumps and piping systems	maximum points 18	actual points
		18	
Actual Points Obtained		18	Assessment Score ED 1.3
Maximum Obtainable Points			

Assessor 1

Name:
Function:

Date:

Signature:

Assessor 2

Name:
Function:

Date:

Signature:

Name Institute: _____

Address : _____

Date of audit : _____

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
MARINE ENGINEERING AT THE MANAGEMENT LEVEL									
Use internal communication systems									
Operation of all internal communication systems on board									
no.	Description topics per subject	column 3		Examination method (use legend 1)	column 5		column 6		File Code
		yes	no		yes	no	max	actual	
1	Internal communication systems on board								ED 1.4
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									1

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		File Code
F: 1	MARINE ENGINEERING AT THE MANAGEMENT LEVEL	
C: 1.4	Use internal communication systems	
S: 1.4.1	Operation of all internal communication systems on board	actual points
	1	maximum points
		1
Actual Points Obtained		
Maximum Obtainable Points		
	1	Assessment Score ED 1.4

Assessor 1

Name:
 Function:

Date:

Signature:

Assessor 2

Name:
 Function:

Date:

Signature:

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER												
ELECTRICAL, ELECTRONIC AND CONTROL ENGINEERING AT THE MANAGEMENT LEVEL												
Operate electrical and electronic control equipment												
Marine electrotechnology, electronics and electric equipment												
no.	Description items per subject	column 3		column 4	column 5		column 6		File Code			
		yes	no		Examination method (use legend 1)	yes	no	if no, indicate (use legend 2)	max	actual	A-III/2	ED 2.1
1	Application of Ohm's and Kirchoff's Laws										18	
2	Electromagnetism										2	
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18											20	

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
ELECTRICAL, ELECTRONIC AND CONTROL ENGINEERING AT THE MANAGEMENT LEVEL									
Operate electrical and electronic control equipment									
Fundamentals of automation, instrumentation and control systems									
column 1	column 2	column 3		column 4	column 5		column 6		File Code
no.	Description items per subject	yes	no	% covered (par. 5.1.4 d)	Examination method (use legend 1)	yes	no	if no, indicate (use legend 2)	max actual
1	Control theory								12
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									12

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		
F: 2	ELECTRICAL, ELECTRONIC AND CONTROL ENGINEERING AT THE MANAGEMENT LEVEL	File Code
C: 2.1	Operate electrical and electronic control equipment	A-III/2 ED 2.1
	maximum points	actual points
S: 2.1.1	Marine electrotechnology, electronics and electric equipment	20
S: 2.1.2	Fundamentals of automation, instrumentation and control systems	12
		32

Actual Points Obtained	32	Assessment Score ED 2.1
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Assessor 1	Assessor 2
Name:	Name:
Function:	Function:
Date:	Date:
Signature:	Signature:

Assessor 1	Assessor 2
Name:	Name:
Function:	Function:
Date:	Date:
Signature:	Signature:

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
ELECTRICAL, ELECTRONIC AND CONTROL ENGINEERING AT THE MANAGEMENT LEVEL									
C: 2.2 Test, detect fault and maintain and restore electrical and electronic control equipment to operating condition									
S: 2.2.1 Operation, testing and maintenance of electrical and electronic control equipment, including fault diagnostics									
column 1	column 2	column 3		column 4	column 5		column 6		File Code
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		max	actual	A-III/2 ED 2.1
		yes	no		% covered (par. 5.1.4 d)	yes			
1	Practical work						40		
2	Power-factor improvement						5		
3	Poly-phase supplies						11		
4	AC generators						9		
5	Automatic voltage regulation						2		
6	AC switch gear						9		
7	Generator protection						6		
8	Single and parallel operation of generator						2		
9	Transformers						3		
10	Rectification						9		
11	Distribution						3.5		
12	Circuit protection						3		
13	Cables						1.5		
14	DC and AC motors						3		
15	Motor control and protection						7		
16	Cells and batteries						5		
17	Lamps						3		
18	Tanker electrical safety systems						6		
							128		

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
MAINTENANCE AND REPAIR AT THE MANAGEMENT LEVEL										
Organize safe maintenance and repair procedures										
Organize safe maintenance and repair procedures										
column 1	column 2	column 3		column 4	column 5		column 6		File Code	
no.	Description topics per subject	yes	no	Actually instructed % covered (par. 5.1.4 d)	Examination method (use legend 1)	yes	no	Item properly examined if no, indicate (use legend 2)	max	Points actual
1	Preparation for maintenance								6	
2	Planned maintenance								4	
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
									10	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER						
F: 3	MAINTENANCE AND REPAIR AT THE MANAGEMENT LEVEL	File Code				
C: 3.1	Organize safe maintenance and repair procedures	A-III/2 ED 3.1				
S: 3.1.1	Organize safe maintenance and repair procedures	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">maximum points</td> <td style="width: 50%; text-align: center;">actual points</td> </tr> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">10</td> </tr> </table>	maximum points	actual points	10	10
maximum points	actual points					
10	10					
10						
Actual Points Obtained						
Maximum Obtainable Points						
10	10	Assessment Score ED 3.1				

Assessor 1

Name:
 Function:

Date:

Signature:

Assessor 2

Name:
 Function:

Date:

Signature:

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
MAINTENANCE AND REPAIR AT THE MANAGEMENT LEVEL									
Detect and identify the cause of machinery malfunctions and correct faults									
Detect and identify the cause of machinery malfunctions and correct faults									
column 1	column 2	column 3		column 4	column 5		column 6		File Code
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		max	actual	A-III/2 ED 3.2
		yes	no		% covered (par. 5.1.4 d)	yes			
1	Unplanned maintenance							40	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
								40	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER								
		File Code						
F: 3	MAINTENANCE AND REPAIR AT THE MANAGEMENT LEVEL							
C: 3.2	Detect and identify the cause of machinery malfunctions and correct faults	A-III/2 ED 3.2						
S: 3.2.1	Detect and identify the cause of machinery malfunctions and correct faults	<table border="0" style="width: 100%;"> <tr> <td style="width: 35%;"></td> <td style="text-align: center;">maximum points</td> <td style="text-align: center;">actual points</td> </tr> <tr> <td></td> <td style="text-align: center;">40</td> <td></td> </tr> </table>		maximum points	actual points		40	
	maximum points	actual points						
	40							
40								
Actual Points Obtained								
Maximum Obtainable Points								
40	40	Assessment Score ED 3.2						

Assessor 1

Name:
 Function:

Date:

Signature:

Assessor 2

Name:
 Function:

Date:

Signature:

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
MAINTENANCE AND REPAIR AT THE MANAGEMENT LEVEL									
F: 3									
C: 3.3									
S: 3.3.1									
Ensure safe working practices									
Safe working practices									
column 1	column 2	column 3		column 4	column 5		column 6		File Code
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points		A-III/2 ED 3.3
		yes	no		% covered (par. 5.1.4 d)	yes	no	max	
1	Safety management							10	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									10

Name Institute:
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STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		
		File Code
F: 3	MAINTENANCE AND REPAIR AT THE MANAGEMENT LEVEL	
C: 3.3	Ensure safe working practices	A-III/2 ED 3.3
S: 3.3.1	Safe working practices	actual points
	maximum points	
	10	
		10
Actual Points Obtained		
Maximum Obtainable Points		10
Assessment Score ED 3.3		

Assessor 1

Name:
 Function:

Date:

Signature:

Assessor 2

Name:
 Function:

Date:

Signature:

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL									
Control trim, stability and stress									
Fundamental principles of ship construction, trim and stability									
column 1	column 2	column 3	column 4	column 5			column 6		File Code
no.	Description topics per subject	Actually instructed	Examination method (use legend 1)	yes	no	if no, indicate (use legend 2)	max	actual	A-III/2 ED 4.1
		yes	no	yes	no				
1	Shipbuilding materials						3		
2	Welding						3		
3	bulkheads						4		
4	Watertight and weathertight doors						3		
5	Corrosion and its prevention						4		
6	Surveys and dry-docking						2		
7	Stability						83		
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
							102		

Name Institute:

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Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER											
CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL											
Control trim, stability and stress											
Effect on trim and stability in the event of damage and flooding											
column 1	column 2		column 3			column 4		column 5		column 6	
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points		File Code		
		yes	no		% covered (par 5.1.4 d)	yes	no	max	actual	A-III/2	ED 4.1
1	Effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken									9	
2	Theories affecting trim and stability									2	
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
										11	

Name Institute:
 Address :
 Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER													
CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL													
Control trim, stability and stress													
S: 4.1.3 Knowledge of IMO recommendations concerning ship stability													
no.	Description topics per subject	column 1		column 2		column 3		column 4		column 5		column 6	
		yes	no	% covered (par 5.1.4 d)	Examination method (use legend 1)	yes	no	if no, indicate (use legend 2)	max	actual	Points	File Code	
1	Responsibilities under the relevant requirements of the International Conventions and Codes.											2	
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18												2	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER	
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL
C: 4.1	Control trim, stability and stress
	File Code
	A-III/2 ED 4.1

	maximum score	actual score
S: 4.1.1 Fundamental principles of ship construction, trim and stability	102	
S: 4.1.2 Effect on trim and stability in the event of damage and flooding	11	
S: 4.1.3 Knowledge of IMO recommendations concerning ship stability	2	
115		

Actual Points Obtained	115	Assessment Score ED 4.1
Maximum Obtainable Points		

<u>Assessor 1</u>		
Name:	Date:	Signature:
Function:		

<u>Assessor 2</u>		
Name:	Date:	Signature:
Function:		

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL									
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and the protection of the									
International maritime law embodied in international conventions									
column 1	column 2	column 3			column 4	column 5		column 6	
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points		
		yes	no		% covered (par 5.1.4 d)	yes	no	max	actual
1	Certificates and documents required under international conventions								1
2	Responsibilities under the International Convention on Load Lines								1
3	Responsibilities under the International Convention for the Safety of Life at Sea								2
4	Responsibilities under the International Convention for the Prevention of Pollution from Ships								3
5	Maritime declarations of health / International Health Regulations								4
6	Responsibilities affecting safety of ship, passengers, crew and cargo								23
7	Methods and aids to prevent pollution of marine environment by ships								2
8	National legislation for implementing agreements and conventions								0
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
									36

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		File Code
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL	A-III/2
C: 4.2	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and the protection of the	ED 4.2
S: 4.2.1	International maritime law embodied in international conventions	actual score
		36
Actual Points Obtained		
Maximum Obtainable Points		36
Assessment Score ED 4.2		

Assessor 1

Name:

Function:

Date:

Signature:

Assessor 2

Name:

Function:

Date:

Signature:

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL									
Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other									
S: 4.3.1 Knowledge of life-saving appliance regulations									
no.	Description topics per subject	column 3		Examination method (use legend 1)	column 5		column 6		File Code
		yes	no		% covered (par 5.1.4 d)	yes	no	if no, indicate (use legend 2)	
1	Knowledge of life-saving appliance regulations							2	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18								2	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL								File Code	
C: 4.3	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other								A-III/2	ED 4.3
S: 4.3.2	Organisation of fire and abandon ship drills IMO Model Course 2.03 and 1.23. SCTW 1995 Code sections A-VI/3 and A-VI/2								column 6	
column 1	column 2		column 3			column 4		column 5		column 6
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points			
		yes	no		% covered (par 5.1.4 d)	yes	no	max	actual	
1	Organisation of fire and abandon ship drills								10	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										10

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL								File Code	
C: 4.3	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other								A-III/2	ED 4.3
S: 4.3.3	Maintenance of operational condition of l-s, f-f and other s systemsdIMO Model Course 2.03 and 1.23. SCTW 95 Code sections A-VI/3 and A-VI/2								column 6	
column 1	column 2		column 3			column 4		column 5		column 6
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points			
		yes	no		% covered (par 5.1.4 d)	yes	no	max	actual	
1	Maintenance of operational condition of life-saving, fire-fighting and other safety systems								10	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
									10	

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL								File Code	
C: 4.3	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other								A-III/2	ED 4.3
S: 4.3.4	Actions to be taken to protect and safeguard all persons on board in emergencies									
column 1	column 2		column 3			column 4		column 5		column 6
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)		Item properly examined		Points		
		yes	no	% covered (par 5.1.4 d)	yes	no	if no, indicate (use legend 2)	max	actual	
1	Actions to be taken to protect and safeguard all persons on board in emergencies							4		
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18								4		

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL								File Code	
C: 4.3	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other								A-III/2	ED 4.3
S: 4.3.5	Actions to limit damage and save the ship following a fire, explosion, collision or grounding								column 6	
column 1	column 2		column 3			column 4		column 5		column 6
no.	Description topics per subject		Actually instructed		Examination method (use legend 1)		Item properly examined		Points	
	yes	no	% covered (par 5.1.4 d)	yes	no	if no, indicate (use legend 2)	max	actual		
1									4	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
									4	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

MASTER AND CHIEF OFFICER		File Code	
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL	A-III/2	ED 4.3
C: 4.3	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other		
		maximum score	actual score
S: 4.3.1	Knowledge of life-saving appliance regulations	2	
S: 4.3.2	Organisation of fire and abandon ship drills	10	
S: 4.3.3	Maintenance of operational condition of l-s, f-f and other s systems	10	
S: 4.3.4	Actions to be taken to protect and safeguard all pedrsons on board in emergencies	4	
S: 4.3.5	Actions to limit damage and salve the ship following a fire, explosion, collision or grounding	4	
		30	
Actual Points Obtained		30	Assessment Score ED 4.3

Assessor 1
 Name:
 Function:

Date: Signature:

Assessor 2
 Name:
 Function:

Date: Signature:

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL										
Develop emergency and damage control plans and handle emergency situations										
Preparation of contingency plans for response to emergencies										
no.	Description topics per subject	column 3		column 4	column 5		column 6		File Code	
		yes	no		Examination method (use legend 1)	Item properly examined	yes	no		max
		% covered (par 5.1.4 d)			if no, indicate (use legend 2)		Points			
1	Preparation of contingency plans for response to emergencies								9	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18									9	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL								
C: 4.4	Develop emergency and damage control plans and handle emergency situations								
S: 4.4.2	Ship construction including damage control								
column 1	column 2	column 3		column 4	column 5		column 6		File Code
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points		A-III/2 ED 4.4
		yes	no		% covered (par 5.1.4 d)	yes	no	max	
1	Ship construction including damage control							4	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18								4	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL									
Develop emergency and damage control plans and handle emergency situations									
Methods and aids for fire protection, detection and extinction IMO Model Course 2.03 and STCW 1995 Code section A-VI/3									
column 1	column 2	column 3		column 4	column 5		column 6		File Code
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		max	actual	Points
		yes	no		% covered (par 5.1.4 d)	yes			
1	Methods and aids for fire protection, detection and extinction							10	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
								10	

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER												
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL											
C: 4.4	Develop emergency and damage control plans and handle emergency situations											
S: 4.4.4	Functions and use of life-saving appliances IMO Model Course 1.23 and STCW 1995 Code section A-VI/2-1											
column 1	column 2		column 3			column 4		column 5		column 6		
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points		File Code			
		yes	no		% covered (par 5.1.4 d)	yes	no	if no, indicate (use legend 2)	max	actual	A-III/2	ED 4.4
1	Functions and use of life-saving appliances										6	
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												6

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		File Code	
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL	A-III/2	ED 4.4
C: 4.4	Develop emergency and damage control plans and handle emergency situations		
	maximum score		actual score
S: 4.4.1	Preparation of contingency plans for response to emergencies	9	
S: 4.4.2	Ship construction including damage control	4	
S: 4.4.3	Methods and aids for fire protection, detection and extinction	10	
S: 4.4.4	Functions and use of life-saving appliances	6	
		29	
Actual Points Obtained		29	Assessment Score ED 4.4

Assessor 1
 Name: _____ Date: _____ Signature: _____
 Function: _____

Assessor 2
 Name: _____ Date: _____ Signature: _____
 Function: _____

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL									
Organise and manage the crew									
Personnel management, organization and training on board ship									
column 1	column 2	column 3	column 4	column 5		column 6		File Code	
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		Points	max	actual
		yes	no		% covered (par 5.1.4 d)	yes			
1	Personnel management							10	
2	Organization of staff							9	
3	Training on board ships							12	
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
								31	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL									
Organise and manage the crew									
Related international maritime conventions and national legislation									
column 1	column 2	column 3		column 4	column 5		column 6		File Code
no.	Description topics per subject	Actually instructed		Examination method (use legend 1)	Item properly examined		max	actual	Points
		yes	no		% covered (par 5.1.4 d)	yes			
1	Related international maritime conventions and national legislation							2	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									2

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		File Code	
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL	A-III/2	ED 4.5
C: 4.5	Organise and manage the crew		
S: 4.5.1	personnel management, organization and training on board ship	maximum score	actual score
S: 4.5.2	Related international maritime conventions and national legislation	31	
		2	
		33	
Actual Points Obtained		33	Assessment Score ED 4.5
Maximum Obtainable Points			

Assessor 1

Name:
 Function:

Date:

Signature:

Assessor 2

Name:
 Function:

Date:

Signature:

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL										
Organise and manage the provision of medical care on board										
Medical publications										
column 1	column 2	column 3		column 4	column 5		column 6		File Code	
no.	Description topics per subject	yes	no	% covered (par 5.1.4 d)	Examination method (use legend 1)	yes	no	if no, indicate (use legend 2)	max	actual
1	International Code of Signals (medical section)								0.5	
2	Medical First Aid Guide for Use in Accidents Involving Dangerous Goods								0.5	
3	International Medical								3	
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18									4	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		File Code	
F: 4	CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL	A-III/2	ED 4.6
C: 4.6	Organise and manage the provision of medical care on board Medical publications		
S: 4.6.1	Medical publications	maximum score 4	actual score
		4	

Actual Points Obtained	4	Assessment Score ED 4.6
Maximum Obtainable Points		

Assessor 1

Name:
Function:

Date:

Signature:

Assessor 2

Name:
Function:

Date:

Signature:

Name Institute:
 Address :
 Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		
A-III/2	EQ	Equipment
File Code		Description
		Points
		max
		actual
A-III/2	Com	Common equipment at the management level
A-III/2-C	EQ-Cr	Computer room
A-III/2	Com	Management level
A-III/2-C	EQ-Tb	Textbooks
A-III/2-C	EQ-Vc	Video cassettes and VCD
A-III/2	EQ 1	Marine engineering at the management level
A-III/2-1	EQ-Pc	Physical and chemical properties of fuels and lubricants
A-III/2-1	EQ-Tm	Technology of materials
A-III/2-1	EQ-Wt	Water testing and treatment
A-III/2	EQ 2	Electrical, electronic and control system at the management level
A-III/2-2	EQ-EI	Common electric / electronic laboratory
A-III/2-2	EQ-AI	Automation and control laboratory
A-III/2	EQ 3	Maintenance and repair at the management level
A-III/2-3	EQ-MS	Common machine shop equipment and engine room
A-III/2	EQ 4	Controlling the operations of the ship and care for the persons on board at the management level
A-III/2-4	EQ-Cn	Controlling equipment
Subtotals		3009

Actual Points Obtained
Maximum Obtainable Points 3009

ASSESSMENT SCORE EQ

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER			
COM EQ-Cr	Common equipment at the management level Computer room	File Code	
		A-III/2-C	EQ-Cr
EQ-Cr	Computer room	maximum points 120	actual points
		120	
Actual Points Obtained		120	Assessment Score EQ-Cr
Maximum Obtainable Points		120	Assessment Score EQ-Cr
<u>Assessor 1</u>			
Name:		Date:	
Function:		Signature:	
<u>Assessor 2</u>			
Name:		Date:	
Function:		Signature:	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER										
EQ-Li EQ-Tb	Library-textbooks and video cassettes/VCD Textbooks					column 3		column 4	File Code	
	Description items per subject and quantity					Available quantity	suitability in %	Comments	max	actual
column 1	column 2	column 3	column 4	column 5	column 6	column 7	column 8	column 9	column 10	column 11
no.	Description items per subject and quantity					Available quantity	suitability in %	Comments	max	actual
T7	Flood, C.R. Fabrication, Welding and Metal Joining Processes. Butterworth, 1981	1							5	
T10	Theory and Practice seamanship	1							5	
T11	Derrett, D.R. Schip Stability for Masters and Mates, 4th ed. Butterworth-Heinemann. 1984	1							5	
T12	Hall, D.T. Practical Marine Electrical Knowledge. Witherby & Co Ltd. 1984	1							5	
T12*	Ship construction	1							5	
T13	Hannah-Hillier, J. Applied Mechanics. Harlow Longman. 1995	1							5	
T19	Maritime law, Hill, 1998	1							5	
T21	International Labour Office. Accident Prevention on Board Ships at Sea and in Port, 2nd ed. Geneva, ILO, 1996	1							5	
T23	Jackson, L. Instrumentation and Control Systems. 4th ed. Thomas Reed Publications Ltd 1992	1							5	
T24	Jackson, L and Morton, T.D. General Engineering Knowledge for Marine Engineers. 5th ec. Thomas Reed Publications Ltd. 1990	1							5	
T26	Joel, R. Basic Engineering Thermodynamics in S.I. Units. 5th ed. Harlow Longman. 1996	1							5	
T28	Kraal, E.G.R. Basic Electrotechnology for Engineers, 3rd ed. Thomas Reed Publications Ltd. 1985	1							5	
T30	International medical guide for ships	1							5	
T31	International safety guide for oil tankers and terminals	1							5	
T35	Morton, T.D. Motor Engineering Knowledge for Marine Engineers, Thomas Reed Publications Ltd. 1994	1							5	
T35*	Stability and trim for ship's officer	1							5	
T37	Munro-Smith, R. Ships and Naval Architecture. The Institute of Marine Engineers, 1977	1							5	
T41	Pritchard, R.T. Technician Workshop Processes and Materials, Hodder and Stoughton. 1979	1							5	

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		
EQ-Li EQ-Tb	Library-textbooks and video cassettes/VCD Textbooks	File Code
		A-III/2-C EQ-Tb
EQ-Tb	Textbooks	maximum points 150 actual points
Actual Points Obtained		150
Maximum Obtainable Points		150 Assessment Score EQ-Tb

Assessor 1

Name:
Function:

Date:

Signature:

Assessor 2

Name:
Function:

Date:

Signature:

Name Institute:

Address :

Date of audit :

STUDY-LINE ATTI

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
EQ-Li EQ-Vc	Library-textbooks and video cassettes/VCD			Video cassettes/VCD			File Code		
	column 1	column 2	column 3	column 4	column 5	A-III/2-C	EQ-Vc		
no.	Description items per subject and quantity			Available quantity	suitability in %	Comments	max	actual	
VID 202	IMO – Safer shipping and cleaner seas	1					5		
VID301	Preparing the defence	1					5		
x	Ship stability CD-ROM	1					5		
9	Centrifugal pumps – theory and operation	1					5		
143	Handling and treatment of heavy fuels	1					5		
150	Internal care of marine boilers	1					5		
167.1/6	Practical marine electrical knowledge series	1					5		
322	Microbial problems in fuels	1					5		
442-444	Basic marine lubrication series	1					5		
463	SOLAS Chapter III series part 5 SOLAS Amendments	1					5		
467	Shipping casualty emergency response	1					5		
489	Onboard training by design	1					5		
495	Welding safety	1					5		
528	Machinery alarms and protection devices	1					5		
501,502	Tanker practices – Part 1 & 2 Pumping cargo	1					5		
534	Entry into enclosed spaces	1					5		
537	The culture gap	1					5		
539	Chemical water treatment	1					5		
544-546	Being prepared-getting ready for surveys	1					5		
556	Personal safety in the engine room	1					5		

564-571	First aid and medical care on board series	1					5
575	The ISM audit	1					5
591	Prevention and reaction to marine oil spills under MARPOL	1					5
597	Who needs it? Personal protective equipment	1					5
604	Fuel oil burner theory and diagnostics	1					5
606	Oil pollution regulations and the oil record book	1					5
607-612	Management for seafarers series	1					5
621	Permit to work	1					5
629	STCW & Flag state implementation	1					5
644	Man overboard	1					5
649	Engine resource management	1					5
							155

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STUDY-LINE ATT I

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER					
EQ-Li	Library-textbooks and video cassettes/VCD	File Code			
EQ-Vc	Video cassettes/VCD	A-III/2-C EQ-Vc			
EQ-Vc	Video cassettes/VCD	<table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">maximum points</td> <td style="text-align: center;">155</td> <td style="text-align: left;">actual points</td> </tr> </table>	maximum points	155	actual points
maximum points	155	actual points			
Actual Points Obtained		155			
Maximum Obtainable Points		155 Assessment Score EQ-Vc			
<p><u>Assessor 1</u> Name: _____ Date: _____ Signature: _____ Function: _____</p>					
<p><u>Assessor 2</u> Name: _____ Date: _____ Signature: _____ Function: _____</p>					

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT I

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		
F 1	MARINE ENGINEERING AT THE MANAGEMENT LEVEL	File Code
EQ-Pc	Physical and chemical properties of fuels and lubricants	A-III/2.1 EQ-Pc
EQ-Pc	Physical and chemical properties of fuels and lubricants	actual points maximum points 65
Actual Points Obtained		65
Maximum Obtainable Points		Assessment Score EQ-Pc

Name:	Signature:
Function:	Date:

Assessor 2	
Name:	Signature:
Function:	Date:

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT I

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER									
F 1	MARINE ENGINEERING AT THE MANAGEMENT LEVEL	EQ-Tm	Technology of materials	column 2	column 3	column 4	column 5	File Code	
								A-III/2.1	EQ-Tm
no.	Description items per subject and quantity			Available	Comments		Points		
				quantity	suitability in %			max	actual
2	Technology of materials								
2.1	Annealing oven			1				10	
2.2	Test equipment for destructive testing of materials including:			-					
	Tensile test			1				10	
	Brinell hardness test			1				10	
	Vickers hardness test			1				10	
	Bending test			1				10	
	Rockwell hardness test			1				10	
	Notched-bar impact test			1				10	
	Examples of destructive testing			1 set				10	
2.3	Test equipment for non-destructive testing of materials including:			-					
	Magnetic particle identification			1				20	
	Ultrasound testing			1				20	
	Crack testing with dye's			1				10	
	Examples of non-destructive testing			1 set				10	
	Consumables for crack testing			5				5	
2.4	Examples of non-metallic materials			1 set				10	
								155	

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STUDY-LINE ATTI

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		
F 1	MARINE ENGINEERING AT THE MANAGEMENT LEVEL	File Code
EQ-Tm	Technology of materials	A-III/2.1 EQ-Tm
EQ-Tm	Technology of materials	actual points
	155	maximum points
Actual Points Obtained		155
Maximum Obtainable Points		Assessment Score EQ-Tm
Assessor 1		
Name:		Signature:
Function:		Date:
Assessor 2		
Name:		Signature:
Function:		Date:

Name Institute:
Address :
Date of audit :

STUDY-LINE ATTI

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		
F 1	MARINE ENGINEERING AT THE MANAGEMENT LEVEL	File Code
		A-III/2.1 EQ-Wt
EQ-Wt	Water testing and treatment	actual points
	Water testing and treatment	maximum points 20
Actual Points Obtained		
Maximum Obtainable Points		20
		Assessment Score EQ-Wt

Assessor 1

Name:
Function:

Date:

Signature:

Assessor 2

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Function:

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Address :
Date of audit :

STUDY-LINE ATTI

F 2 EQ-EI		CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER				File Code	
		ELECTRICAL, ELECTRONIC AND CONTROL SYSTEMS AT THE MANAGEMENT LEVEL				A-III/2.2	EQ-EI
column 1		column 2	column 3	column 4	column 5		
no.	Description items per subject and quantity	Available quantity	suitability in %	Comments	Points		
					max	actual	
1	Common Electric Electronic Laboratory						
1.1	Demonstration models:	-					
	Model of an atom	1				2	
	Apparatus to demonstrate static electricity	1				10	
	Examples of electrical diagrams	10				5	
	Iron filings	1 kg				1	
	magnets	1 set				2	
	Solenoids (different windings and thickness of wire)	1 set				5	
	Solenoid with iron core	1				5	
	Induction coil	1				5	
	Sensitive ampere meter (galvano-meter)	1				10	
1.2	Workbench with scaffolding and component racks including:	-					
	Lamps; also watertight ones	5 set				10	
	Common switches	5 set				10	
	Fuses	5 set				10	
	Emergency switch	5 set				10	
	Switch with self-holding contact	5 set				10	
	Wiring with safety connectors	5 set				10	
	Circuit breakers	5 set				10	
	Earth lamp model	5 set				10	
	Thermo-electrical couple	5 set				10	

	Diodes	5 set					10	
	Resistors	5 set					10	
	Thyristors	5 set					10	
1.3	Transformer	1					10	
1.4	Electrical, electronic meters:	-						
	Voltmeter	5					10	
	Ammeter	5					10	
	Power meter	5					10	
	Multi-meter (digital and analogue)	5					10	
	Clamp meter	5					10	
	Insulation tester	1					10	
1.5	Lead-acid and alkaline batteries:	-						
	Models of alkaline batteries	1 set					10	
	Models of lea-acid batteries	1 set					10	
	Distilled water	1 ltr.					1	
	Vaseline	1					1	
	Hydrometer	1					5	
	Cell tester	1					5	
	Maintenance tools	1 set					10	
	Battery charger	1					10	
1.6	Oscilloscope	1					20	
1.7	Audio generator	1					20	
1.8	Generators:	-						
	AC generator	1					20	
	DC generator	1					20	
1.9	Electrical motors:	-						
	DC motor	1					20	

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STUDY-LINE ATT I

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		File Code
F 2 EQ-EI	ELECTRICAL, ELECTRONIC AND CONTROL SYSTEMS AT THE MANAGEMENT LEVEL Common Electric Electronic Laboratory	A-III/2.2 EQ-EI
EQ-EI	Common Electric Electronic Laboratory	maximum points 462
	actual points	
Actual Points Obtained		462
Maximum Obtainable Points		Assessment Score EQ-EI

Assessor 1

Name:
Function:

Date:

Signature:

Assessor 2

Name:
Function:

Date:

Signature:

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT I

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER						
F 2	EQ-Ac	ELECTRICAL, ELECTRONIC AND CONTROL SYSTEMS AT THE MANAGEMENT LEVEL			File Code	
		Automation and control laboratory			A-III/2.2	EQ-Ac
column 1		column 2	column 3	column 4	column 5	
no.	Description items per subject and quantity	Available		Comments	Points	
		quantity	suitability in %		max	actual
2	Automation and control laboratory					
2.1	Hydraulic unit with component racks:	-				
	Components	1 set			30	
	Hydraulic hoses (snap-on system)	1 set			20	
	Hydraulic control system	1			10	
2.2	Pneumatic unit with component racks:	-				
	Components	1 set			30	
	Pneumatic hoses (snap-on system)	1 set			20	
	Pneumatic control system	1			10	
2.3	PLC-unit	1			20	
2.4	Controllers:	-				
	Level control apparatus	1			20	
	Flow control apparatus	1			10	
	Boiler sequence controller	1			10	
	Load boiler display	1			10	
	Load elevator	1			10	
2.5	Photo electric cell	1			5	
2.5	Desktop PC + CD-ROM + CD-writer	1			30	
					235	

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STUDY-LINE ATT I

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		
F 2	ELECTRICAL, ELECTRONIC AND CONTROL SYSTEMS AT THE MANAGEMENT LEVEL	File Code
EQ-Ac	Automation and control laboratory	A-III/2.2 EQ-Ac
EQ-Ac	Automation and control laboratory	actual points
	maximum points	235
Actual Points Obtained		235
Maximum Obtainable Points		Assessment Score EQ-Ac

Assessor 1

Name:
 Function:

Date:

Signature:

Assessor 2

Name:
 Function:

Date:

Signature:

Name Institute:

Address :

Date of audit :

STUDY-LINE ATT I

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER MAINTENANCE AND REPAIR AT THE MANAGEMENT LEVEL Common Machine Shop Equipment and Engine Room									
F 3 EQ-Ms	column 1	column 2	column 3	column 4	column 5	File Code		Points	
						A-III/2.3	EQ-Ms	max	actual
no.	Description items per subject and quantity			Available	Comments	quantity	suitability in %		
1	Common Machine Shop Equipment and Engine Room								
1.1	Tool grinder; double ended			1					10
1.2	Milling machine including accessories:			2					80
	Machine vice			2					20
	Shell cutters			2 set					20
	Mill cutters			2 set					20
	Arbors for shell and mill cutters			2 set					20
	Side and face cutters			2 set					20
	Arbors for side and face cutters			2 set					20
1.3	Shaping machine including accessories:			2					40
	Machine vice			2					10
	Straight edge cutting tool			5					25
	Roughing tool			5					25
	Parting tool			5					25
1.4	Centre lathe machine including accessories:			5					250
	3-Jaw chuck			5					25
	4-Jaw chuck			5					25
	Face plate			5					25
	Carrier			5					25
	Drill chuck			5					25
	Straight knife tool			10					20

	Straight roughing tool	10				20
	Parting tool	10				20
	Round-nose tool	10				20
	Threading tool	5				10
	Boring tool; straight	10				20
	Boring tool; thread	5				10
1.5	Measuring tools :	-				
	Inner radius gauge	2				6
	Outer radius gauge	2				6
	Thread pitch gauge mm	2				6
	Thread pitch gauge inch	2				6
	Dial indicator	2				6
	Dial magnetic stand	2				6
	Steel calliper	10				20
	Vernier calliper	10				50
	Right-angled block precision	1				5
	Outside micrometer	10				30
	Inside micrometer	1 set				10
	Height gauge	1				10
1.6	Anvil	1				10
1.7	Hand, or hydraulic press	1				20
1.8	Common hand tools:	-				
	Hand scraper ± 400 mm	5				10
	Triangle hand scraper ± 350 mm	5				10
	Drive pinch punches	1 set				5
	Open end spanners	1 set				15
	Ring spanners	1 set				15
	Socket wrench	1 set				10

	Allan keys	1 set				10
	Torque wrench	1				20
	Pipe spanners	1 set				10
	Wrench bars for pipe spanners	1 set				10
	Screwdriver, different size	1 set				10
	Pliers, different models	1 set				10
1.9	Tool cabinet with tools for maintenance purpose	1				30
1.10	Diesel engine maintenance:	-				
	Main diesel engine (working)	1				100
	Diesel engine for overhaul	1				50
	Camshaft and rocker arm	1 set				5
	Crank shaft including bearings	1 set				5
	Piston(s), push rod, bearings	1 set				5
	Injector test pump	1				30
1.11	Auxiliaries:	-				
	AC generator and alternator	1				30
	DC generator and distribution system	1				30
	Air compressor	1				10
	Purifier/ Separator	1				30
	Refrigerating plant	1				10
	TJ burner simulator	1				10
	Fresh water generator	1				20

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STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		
F 3 EQ-Ms	MAINTENANCE AND REPAIR AT THE MANAGEMENT LEVEL Common Machine Shop Equipment and Engine Room	File Code
		A-III/2.3 EQ-Ms
EQ-Ms	Common Machine Shop Equipment and Engine Room	maximum points 1612 actual points
Actual Points Obtained		1612
Maximum Obtainable Points		Assessment Score EQ-Ms

Assessor 1

Name:
Function:

Date:

Signature:

Assessor 2

Name:
Function:

Date:

Signature:

Name Institute:
Address :
Date of audit :

STUDY-LINE ATT II

CHIEF ENGINEER OFFICER AND SECOND ENGINEER OFFICER		File Code	
F 4	CONTROLLING THE OPERATIONS OF THE SHIP AND CARE FOR PERSONS ON BOARD AT THE MANAGEMENT LEVEL	A-III/2.4	EQ-Co
EQ-Cn	Controlling equipment	maximum points 35	actual points
Controlling equipment			
Actual Points Obtained		35	Assessment Score EQ-Cn
Maximum Obtainable Points			

Assessor 1

Name:
 Function:

Date:

Signature:

Assessor 2

Name:
 Function:

Date:

Signature: