



SUB-COMMITTEE ON STANDARDS OF
TRAINING AND WATCHKEEPING
30th session
Agenda item 12

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ANY OTHER BUSINESS

Education, training and certification of Marine Electrician Officers in Poland

Submitted by Poland

SUMMARY

Executive summary:	This document provides information on Marine Electrician Officers' education and training at the Gdynia Maritime Academy - Faculty of Marine Electrical Engineering
Action to be taken:	Paragraph 16
Related documents:	STW 24/36 paragraph 15.4, STW 25/3/5

1 For over 30 years future Marine Electrician Officers have had their education and training at the Gdynia Maritime Academy at Faculty of Marine Electrical Engineering. They study electrical engineering with a specialisation in Ship Electro-automation at two levels: 4-year engineering vocational, B.Sc. degree oriented courses and additional M.Sc. degree oriented courses which last for 1 year. During the first period students have to complete at least 9 months on-board training documented in an approved training record book.

2 According to the rules of the Ministry of National Education, the graduates of this Faculty obtain a Diploma and the title of Electrical Engineer (B.Sc. or M.Sc. as appropriate). If they have had a full year's seagoing practice, they receive according to the rules of the Ministry of Transport and Maritime Economy the Certificate of Marine Electrician Officer.

The structure of Faculty of Marine Electrical Engineering and its co-operating departments

3 The academic staff of three electrical departments conduct the studies within the Electrical Engineering field:

- The Department of Ship Automation
- The Department of Marine Electrical Power Engineering
- The Department of Marine Radio-electronics

and are supported by other departments, such as:

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- The Department of Marine Propulsion Plants
- The Department of Mathematics
- The Department of Physics
- The Department of Foreign Languages
- The Department of Computer Science
- The Department of Humanities
- The Department of Physical Education
- The Fire Fighting Centre
- The Survival Training Centre
- The Department of Military Education and Training

Teaching staff

4 The staff of the Faculty of Marine Electrical Engineering for Ship the Electro-automation specialisation consists of 70 persons, including:

- 6 Professors
- 18 Assistant Professors
- 8 Assistants and Senior Assistants
- 7 Lecturers and Senior Lecturers
- 21 Technicians

22 persons of this staff hold the Certificate of Marine Electrician Officer.

Teaching facilities

5 The Faculty operates the following laboratories:

- At the Department of Ship Automatic Control:
 - Basics of automatic control engineering
 - Elements of automatic control engineering
 - Automation of ship control processes
 - Electro-navigation equipment
 - Microcomputer systems
 - Digital techniques
 - New cargo carriage and operation systems
 - Fundamentals of electronics and power electronics
 - Ship electrical drives control systems
 - Automation of ship power generating systems
 - Microcomputer control systems
 - Programmable logic controllers
- At the Department of Electrical Power Engineering:
 - Basics of electrical engineering
 - Ship electrical power engineering
 - Heavy currents
 - Ship electrical equipment
 - Diagnostics of ship electrical equipment and appliances
 - Basics of electrical installation arrangements

- Theory and operation of electrical machines
- Diagnostics and repair of electrical machines
- Basics of electrical metrology
- Ship operational metrology
- Operation and diagnostics of electronic arrangements
- Materials technology.

6 In the laboratory of “Automation of ship control processes” there are several computer simulators of ship systems including: Remote control of main engine, Main engine safety system, Engine Control Room monitoring system, Bilge separator, Oil purifier automatic control.

7 In the laboratory of “Ship electrical power engineering” there is a simulator of ship*s electrical power plant with a real main switchboard.

The structure of studies

8 Candidates admitted to the first year of studies go through a “Basic sea survival” course and “First aid at sea” course and then join the vessel to go through one week*s on-board training, which is held during the summer holidays preceding the commencement of their studies. The shipboard apprenticeship constitutes an integral part of the entrance exams to the Academy. After having received a credit in the shipboard apprenticeship the students commence their regular studies.

9 The curriculum of the vocational oriented courses (see annex) covers the following groups of subjects:

(a) general and basic science subjects including:

Physical education, English language, Mathematics, Physics, Computer science, Safe working practices, Basic and advanced ship fire-fighting training, Environmental protection, Personal survival techniques, Personal safety and social responsibilities, Work and management science, Lectures on humanistic sciences, Military training, Seminar in vocational diploma thesis;

(b) Profession-specific subjects including:

Materials technology, Fundamentals of mechanical constructions, Electrical machines, Fundamentals of automatic control, Digital engineering, Fundamentals of electronics and power electronics, Ship operational metrology, Ship electrical power generation and distribution, Microcomputer control systems, Ship automatic control systems, Ship deck machinery, Electro-navigational equipment, Ship communication equipment, High voltage technology, Technical operation and diagnostics of ship electrical equipment, Naval architecture and ship construction, Ship propulsion systems and auxiliary machinery, Ship refrigeration systems.

10 The curriculum also covers apprenticeship placements on-board vessels to the number required to obtain the Certificate of Marine Electrician Officer.

Apprenticeship placements

11 The following apprenticeship placements are available:

Candidate*s apprenticeship	- on-board training vessels	- 1 week
After the first year of study	- on-board training vessels	- 5 weeks
After the second year of study	- on-board training vessels	- 6 weeks
7 th Semester	- on-board seagoing vessels	- 6 months

12 On-board training is carried out in the engine department of Polish and foreign flag vessels. During the time spent on-board, student should work as an apprentice electrician under the supervision of an electrical engineer officer for 3 months and the last 3 months under the supervision of the officers in charge of engineering watch.

13 Every student should follow an approved programme of on-board training which:

- (a) ensures that during the required period of seagoing service the candidate receives systematic practical training and experience in the tasks, duties and responsibilities of electrical engineer officer and of an officer in charge of an engine-room watch;
- (b) is closely supervised and monitored by a qualified and certificated electrical or mechanical engineer officer aboard the ships in which the approved seagoing service is performed; and
- (c) is adequately documented in a training record book, the same book as for engine cadets.

14 After leaving the ship and coming back to Academy, students are examined by the Faculty Committee for Practice Matters, appointed by Dean of Faculty of Marine Electrical Engineering. There are three members of the Committee – two electrical engineer officers and one mechanical engineer officer. At the final assessment of the student, the Committee takes into account:

- an evaluation of the student and mark given by the ship*s staff;
- the student*s report on his seagoing service;
- the results of an exam taken before the committee.

15 The Training Record Book includes a curriculum of seagoing practice for prospective Marine Electrician Officers.

Action requested of the Sub-Committee

16 The Sub-Committee is invited to take note of the information provided.

ANNEX

Gdynia Maritime Academy - Faculty of Marine Electrical Engineering
Specialization: Ship Electroautomation - Syllabus of Studies

Nº	Subject	Number of hours			
		Lecture	Exercise	Laboratory	Total
1	Physical education		192		192
2	English Language			336	336
3	Mathematics	128	112		240
4	Physics	64	16	64	144
5	Theoretical Electrotechnics	128	96	32	256
6	Computer Science	32		48	80
7	Materials Technology	32		32	64
8	Fundamentals of Mechanical Constructions	48	16	48	112
9	Electrical Machines	64		48	112
10	Fundamentals of Automatic Control	80	16	64	160
11	Digital Control	32	32	32	96
12	Fundamentals of Electronics and Power Electronics	96		64	160
13	Operational Ship Metrology	64		64	128
14	Ship Electrical Drives Control Systems	80	16	80	176
15	Ship Electrical Equipment	64		32	96
16	Ship Electrical Power Generation and Distribution	48		32	80
17	Microcomputer Control Systems	32		48	80
18	Ship Automatic Control Systems	64		48	112
19	Ship Deck Machinery	32	16		48
20	Electro-Navigational Equipment	32		32	64
21	Ship Communication Equipment	32		16	48
22	High Voltage Technology	32		16	48
23	Technical Operation and Diagnostics of Ship Electrical Equipment	32		128	160
24	Naval Architecture and Ship Construction	16			16

N°	Subject	Number of hours			Total
		Lecture	Exercise	Laboratory	
25	Marine Propulsion Systems and Auxiliary Machinery	80		32	112
26	Ship Refrigeration Systems	32		16	48
27	Mechanical Workshop Training			64	64
28	Safe Working Practices	32			32
29	Basic and Advanced Ship Fire Fighting Training	22		32	54
30	Environmental Protection	16			16
31	Personal Survival Techniques		44		44
32	Work and Management Science	16			16
33	Lectures on Humanistic Science	32	32		64
34	Seminar in Vocational Diploma Thesis		32		32
35	Seagoing Practice			7 months	
36	First Aid at Sea		12		12
37	Personal Safety and Social Responsibilities		27		27
38	Military Training		400		400

Total: 3890 hrs at Academy and 9 months of sea practice