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WORLD MARITIME UNIVERSITY

MALMÖ, SWEDEN

A PROPOSAL FOR THE DEVELOPMENT OF  
A NATIONAL SAFETY TRAINING CENTRE

by

Aziz Y. Yildirim

Turkey

A paper submitted to the Faculty of the World Maritime University  
in partial satisfaction of the requirements for the award of a

MASTER OF SCIENCE DEGREE

in

MARITIME EDUCATION AND TRAINING (NAUTICAL).

The contents of this paper reflect my personal views and are not  
necessarily endorsed by the UNIVERSITY.

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## A C K N O W L E D G E M E N T S

Before I begin to mention the main contributors to this paper, I will like to give thanks to ALMIGHTY GOD.

I especially wish to acknowledge with sincere thank and gratitude the GOVERNMENT of TURKEY and in particular the MINISTRY OF TRANSPORT and COMMUNICATIONS and the D.B. TURKISH CARGO LINES for offering me this opportunity to study in Maritime Education and Training (Nautical) course for two years at World Maritime University.

I wish to offer my deep gratitude to my PROFESSOR GUNTHER ZADE who, with guidance, encouragement and support, patiently worked with me during these two years of study.

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Finally I owe my very sincere gratitude to all those who provided me with information and made it possible for me to complete this paper.

If I fail to mention any person by name who may have assisted me, it is not deliberate but that I can not accomodate every name on this page.

A PROPOSAL FOR THE DEVELOPMENT OF  
A NATIONAL SAFETY TRAINING CENTRE

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## P R E F A C E

The purpose of this paper is to improve the standard of maritime training in Turkey, in accordance with IMO, STCW Convention and also to promote Safety on board ships.

All whose business takes them either on or over the oceans should possess a knowledge of the means available to them to assist in saving lives in an emergency, and how to use them. For if they do not know beforehand, they will most certainly not know when sudden disaster unexpectedly strikes.

I also hope that this paper will provide useful information and direction for any persons who would like to set up Maritime Safety Training programme in his country.



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# CHAPTER

## CHAPTER ONE

### INTRODUCTION

#### 1.1 PROBLEM TO BE STUDIED

Turkey established its maritime institution and maritime administration before its independence in 1884.

Since its independence, Turkey has settled its position as a maritime country with both its domestic and ocean-going fleets flying its flag.

The total Turkish Merchant Fleet is around 5.8 million DWT (in 1986) and there are at present more than 830 ships in the Turkish Merchant Fleet. According to the maritime administration records, there are approximately 120,000 registered seafarers (officers and ratings), among of whom about 100,000 are ratings of the lowest grade and unfortunately without any proper education. The middle range seamen are about 16,000 according to the aforesaid record. They are able seamen and have technical education (intermediate level) and have had their training since their recruitment. There is an annual intake of more than 1,000 new entrants serving on foreign-going ships.

The high level seafarers, in other words officers, are about 4,000 and they all have proper, adequate maritime education.

Turkey as a maritime country has a lot of people who work and live in the maritime sector.

As one of many developing countries, Turkey has some

problems in harnessing its seafarers and utilizing them appropriately to maximum advantage. In connection with the Turkey Maritime Institution, which is managed by the Education and Training Agency, approximately 100 young deck officers, 50 young engine officers are produced every academic year. As stated by the Ministry of Transport and Communication the data shown above indicates that Turkey has enough seafarers. She has also just recently, on 26th May 1989 in fact, ratified the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978.

But the Turkish government also is responsible for marine affairs, so one department deals with the safety of life and property at sea and also with the protection of the marine environment, and qualifications and fitness for duties of the Turkish seafarers on board ships.

Based on the main reason above, it means that Turkish maritime education and training institutions which are managed by the Ministry of Transport and Communications have not yet implemented all of the requirements of the STCW 1978..

So in addition to the above, the standard of Turkish seafarers in operation is slightly higher than those of other countries. However, when it comes to personnel safety matters their standard is very low. The reason is that approximately 80% of Turkish seafarers come to sea already with some knowledge of the ship but not of the sea.

Based on the aforesaid factor, the problem we need to address is "Have the education and training of the Turkish seafarers met the International requirements?".

Our main maritime problems consist of eight different subjects, briefly;

- inadequate infrastructure;
- inadequate standards of maritime safety on board ships and prevention of pollution from ships, which cover not only the ships themselves but also the personnel manning of them, and then attention to allied maritime matters;
- shortage of marine officers and ratings with the needed qualifications and experience;
- lack of training facilities for marine officers and ratings;
- inadequate procedure/system for education and issue of certificates of competency or licences to merchant marine officer;
- inadequate procedure/system for issue of certificate of competency or licences to merchant marine ratings;
- inadequate present institutions facilities and programmes of training seafarers personnel;
- inadequately identified future training needs.

Many of these basic problems of my country exist because ;

- There has been a need to identify the very problems themselves.
- There has been the vital need to provide guidelines, proposals and suggestions to be attended to in order to overcome the problems and to lead the appropriate maritime administration and development.

The main purpose of seafaring has always been to carry

cargo or people to a destination as safely as possible. At any one time this task was solved to the extent that was allowed by the current advance in science, engineering, shipwright skills and training of seamen themselves.

Oars, sails, paddle wheels, propellers, water-jet are the milestones along the path of progress in propulsion. Power supply from muscle through wind, coal and oil to nuclear. Muscle, wind, steam, gas and later the atom were our power servants. A magnetic compass, chronometer, sextant, electric and radio navigation instruments and systems, the satellite positioning systems were steps in technological progress on the bridge. Perhaps no other sphere of human activities features such a combination of accomplishments owing to scientific, technical and humanitarian knowledge. And these were all summoned to help achieve the above mentioned main task. Has mankind been successful in this objective? Is man now more confident at sea in fighting the mighty elements? Has the occurrence of human casualties abated? Are losses of cargoes and ships fewer now? There are no simple answers to these questions.

Ships have changed beyond recognition, their size and speed have increased, shipping and cargo handling technologies have changed and service conditions for seamen have greatly improved. Nevertheless, statistics show that every year the sea takes a toll of over 200 ships. What are the causes? They are human error, force-majeurs and lack of human knowledge.

The efforts of seafarers and scholars in many countries to solve problems of improving safety of navigation at sea have been implemented in International Conventions that

aim at providing conditions for safe navigation and shipping. A list of conventions to which Turkey is a party is attached in Appendix.

A great deal is being done in Turkey to improve navigation safety, and casualties in the Turkish fleet are comparable to the world's average figures. Nonetheless, we are not satisfied with the present state of things. Reducing casualties is the task of the Turkish Ministry of Transport and Communications, the Turkish National Shipping Lines and private shipping lines.

Looking into the causes of accidents one can state with assurance that in many cases the primary cause is man himself, his insufficient professional training or practical experience, or even gross negligence. Hence, seafarers' training has to be upgraded with emphasis placed on practical training. The methods of teaching in any safety subject should bear the imprint of the direct link with practical experience at sea and lectures should be presented with illustrations from real cases.

## 1.2 OBJECTIVES

The shipping industry has, however, undergone radical changes over the last two decades. Ships have developed in size and complexity, enabling them to transport a wide range of new and often hazardous cargoes, and to handle the more familiar commodities with greater speed and efficiency.

Increase in maritime traffic and density in many parts of the world have increased risk of collision at sea. The sharp increase in size of vessels has amplified the

serious consequences of shiphandling-error and created a clear need for operational safety training for officers and ratings in every maritime country. Increased automation of power plants and cargo-handling systems have resulted in the installation of specialised electronics and hydraulics in many ships.

The trend to automation and the construction of highly specialised ships have caused a complete change of the bridge environment by the instrumentation especially electronic devices and integrated bridge control. We can teach the students all these new technical material during their education in the academy theoretically. But we should never teach students or seafarers about safety subjects such as fire-fighting, personal survival at sea and medical care/first aid at sea without practical training in the marine academy or training centre, so, we also need very well equipped and designed practical areas to demonstrate and to practice such dangerous positions in the sea or on board the vessel. It means that we should establish a highly qualified safety training centre and a fully equipped training vessel for the seafarers.

It is arguable that the development of practical training areas has moved ahead of training facilities, particularly when these are considered on a global scale. Courses are available in a number of important subjects but are held only in relatively few locations throughout the world and while they may be comprehensive, they can only treat subjects in general terms.

Taking training to the practical area and providing lectures and practical instruction in the seafarers' own working environment is a solution to many problems related

to safety training. There are number of distinct advantages associated with this method of instruction :

- 1 - Training can be related directly to the ship's safety and its equipment, thus providing considerable realism.
- 2 - Training can be focused on observed weak points, either in operational procedures or in general safe practices.
- 3 - Instruction is provided for all on board, whereas it is seldom possible to send everyone to a course ashore. Lectures are, of course, presented to suit the different levels of understanding, those for officers being more advanced than those for ratings.
- 4 - Training emergency response procedures are designed to develop the seafarers.

To plan and establish the infrastructure, needed to be able to meet these objectives, the Turkish government consulted the International Maritime Organisation (IMO), which provided the services of the Interregional sectorial support consultant in maritime training in order to make (an assessment of the needs of training seafarers to international standards. Relying upon this assistance, my government was requested to meet with the consultant of IMO. So, in October 1986 a meeting held in Istanbul between representatives of the Ministry of Transport, the Turkish National Shipping Lines and UNDP (Ankara/Turkey) confirmed that there were definite plans to establish a seafarer's training school in Istanbul in the near future ( at the latest the end of 1989). The proposed school will cater for seamen below officer's rank in such subjects as fire-fighting, safety at sea, first aid and cargo handling.



All the courses envisaged will be open to both the privately and government-owned shipping lines.

There are presently no existing facilities for the training of seafarers below officer's rank in Turkey that can train seamen to the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978.

### 1.3 SCOPE

There is an international requirement that all seafarers should be trained in personal survival, fire-fighting, and first aid in accordance with the IMO Convention on the Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978.

Following a review of the maritime training requirements for seafarers in relation to the international standards as set by the STCW 1978 Convention, the IMO consultants concluded that there is an outstanding need for the development of facilities to train seafarers in Turkey. To meet those requirements they strongly recommend the establishment of a maritime training centre in Istanbul.

The maritime training centre should provide training for all seafarers below the rank of officer (ratings), for both the national and private shipping lines.

But I think this project is not adequate for Turkey because we need another centre or at least expanded

training for officers. This proposed centre should also provide training for both deck and engineer officers of all national and private shipping lines.

With all the growing complexity of shipping activities, the STCW 1978 came into force to raise the standards of training in the world as a whole. All of these factors have created a need for increasing the level of training not only for personnel on board vessels but also for those at shore, this has become an expensive matter for all developing countries including Turkey.

This thesis will cover the following facilities needed for this centre building, equipment, practice areas, training facilities, seafarers, teachers / instructors, courses and certification. These will be necessary for the successful setting up of the training centre. This centre will be the author's next assignment after graduation from the World Maritime University.

So, he wants to give some energy and effort to the establishment of this centre very soon, because Turkish seafarers must start training in this kind of safety course very soon.

In the design of the "Maritime Safety Training Centre ", it is recommended that provisions are made for the development of two outside practical training areas for fire-fighting and personal survival exercises. These areas must be located as near as possible to the Marmara Sea and the required training facilities identified within the period of preparatory assistance.

For the early introduction of training at the new centre,

it is recommended that priority consideration is given to the selection and appointment of teachers and instructors. It is necessary to have sufficient and well trained teachers to conduct the courses in safety of life and property at sea and protection of the marine environment.

Two different examples of safety matters on board can be introduced during the voyage. If a fire starts in a ship during the voyage at sea, however, it is up to those working on the scene to extinguish the fire without any immediate help from the outside world. As a second example, it is essential for successful abandoning of a ship for the ship to have a well prepared safety plan and for the members of the crew to be acquainted with all their duties. The organisation should be easy to run and easily understood by all on board. Regular, well disposed drills involving the complete system and all persons on board should be carried out under conditions as realistic as possible. Regular drills are equally important in order to keep the level of proficiency of the crew as a team as high as possible. In order that they perform this task effectively, it is imperative that they receive proper training in fire-fighting and sea survival. It is essential that we provide this training in our new maritime training centre in Turkey.

The primary task of the centre will be to provide basic safety training for the ratings of the Turkish vessels.

The centre also will provide specialist training for officers, in fire party organisation on board, for fire-fighting and sea-survival and medical care co-ordination and management on board.

It is the aim of the basic safety training course to give personnel employed by contracting and servicing companies on board installations a basic working knowledge of life-saving appliances and survival techniques, basic fire-fighting procedures and first aid. This course will be divided into three phases that comply with the STCW 1978 Convention.

**The Survival Phase :** The survival phase itself will also be divided into three sections which are briefly described here:

- i- **Lifeboats :** Each trainee will take practical instruction in emergency procedures and drills and the use of all the survival craft and equipment.
- ii- **Liferafts :** Each trainee will take practical instruction in methods of launching and precautions to be taken before, during and after launching liferafts, jumping into the water from specific heights, righting a capsized liferaft and actions to be taken to conserve life on board a liferaft.
- iii- **Lectures and demonstrations :** Illustrated lectures and demonstrations will take on crew drills, emergency evacuation, equipment carried, dry and wet lifejacket and liferaft drills, practical firing of pyrotechnics and techniques of survival at sea and search and rescue organisation.

**Fire- Fighting Phase :** Trainees will take instruction in the theory of combustion, basic fire prevention and practical use of fire extinguishers. They will be introduced to compressed air breathing apparatus,

coupled with familiarisation exercises, hose running and basic fire exercises.

**First Aid and Medical Care :** Trainees will take basic instruction in first aid priorities in a disaster situation, emergency resuscitation, the physiological aspects of drowning, exposure by immersion, the elements, hypothermia and cold injuries.

So, well trained and qualified personnel and equipment are needed for such training purposes.

The system of education and training in developed countries has already undergone a modification by integrating with the national education system to prevent the wastage of such a cost oriented profession. But my country's education and training system is completely different from those because we have not yet been able to apply the International Standards System of maritime education and training which is recommended by the IMO.

In order to solve this problem, I have made a hypothesis which can be used as a starting point for the explanation of the author's viewpoint. "If the education and training of the Turkish seafarers meets the standard laid down by the STCW 1978, the qualities of Turkish seafarers could be raised and they could be employed on board ships of the private companies and the foreign shipping companies".

If the above condition is achieved, none of the Turkish seafarers needs to be unemployed for lack of proficiency, because they will have the international qualification which ensures the safety of life and property at sea and also the protection of the marine environment.

Of course, the hypothesis above has to be proved by supporting data which could be obtained by doing not only library research, but also field research.

I plan to study this problem in detail when I return to my country after graduation at the World Maritime University.

#### 1.4 BRIEF DESCRIPTION OF PROJECT

The project has been designed to develop national capability for modern training of ratings in maritime safety and other maritime specialised operational skills, and enhance maritime safety and efficiency in compliance with required international standards on maritime training. A national Maritime Safety Training Centre with a capability to train not less than 400 trainees per year, to provide basic training in personal survival, fire-fighting, first aid and medical care; and satisfy the required training needs of the shipping industry related to ratings training in accordance with the provisions of the STCW 1978 International Convention and other regulations applicable to ratings training will be developed. This includes the development of physical requirements: specialised training facilities, training equipment and installations and development of lecturers through proper training.

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CHAPTER

## CHAPTER TWO

### EXISTING MARITIME TRAINING FACILITIES AND RESOURCES

#### 2.1 INSTITUTIONS

In Turkey, the Nautical Education and Training is provided by the following institutions ;

1. The Naval Merchant Marine Academy and Training Centre (Istanbul).
2. The University Faculty of Marine Engineering ( all over Turkey).
3. The Anatolian Maritime Technical High School (Istanbul).
4. The Golcuk Endustri Meslek Lisesi (Kocaeli).
5. The Merkez Endustri Meslek Lisesi (Samsun).
6. The Turkish Navy.

#### 2.2. THE NAVAL MERCHANT MARINE ACADEMY AND TRAINING CENTRE

The academy for merchant marine officers at Istanbul is a Higher Technical School at the academic level educating future officers for the merchant marine. The graduates of the school are employed on board ships of the Turkish merchant marine as well as in the maritime administration. The duration of education and training in the academy is



four years. The four year period is split up into eight semesters. During the four-year programme, each year's education and training programme is divided into two parts, an academic part, and a practical training part. Each academic year consists of two semesters of 16 weeks each. At the end of every semester, an exam is held. The programs and lengths of practical training are different for each of the classes.

The differences in the academy's classes are as follows :

1st. year (Class I): At the end of 2nd semester after the exam, students go to sea for 6 weeks' practical training. This practical training consists of sailing, rowing, signalling, swimming, semaphore usage and seamanship.

2nd. year (Class II): At the end of 2nd semester after the exam, students go for 2 weeks' practical training dockyard apprenticeship, and a 4 week trip on board the training vessel of the Turkish Navy. The area covers the Aegean Sea, the Marmara Sea, the Black Sea and the Mediterranean Sea.

3rd. year (Class III): At the end of 2nd semester after the exam, students go for 2 weeks' practical training in a hospital for first-aid training.

4th. year (Class IV): During the 4th year, the students serve as cadets on board a Turkish merchant vessel for 23 weeks. They return to the academy for 9 weeks' academic training.

The diagram on the next page shows the classes offered by the academy.

## A C A D E M Y ' S   C L A S S E S

*	W H E N	*	W H A T	*	W H E R E	*
* CLASS *	End of 2nd	*	Preparation	*	Training	*
* I *	semester	*	to sea	*	vessel	*

DURATION    SIX    WEEKS

* CLASS *	End of 2nd	*	Apprenticeship*	*	Dockyard	*
* II *	semester	*	Cadet	*	*Training vessel*	*

DURATION    SIX    WEEKS

* CLASS *	End of 2nd	*	First Aid	*	Hospital	*
* III *	semester	*	Training	*		*

DURATION    TWO    WEEKS

* CLASS *	During the	*	Cadet	*	*Merchant vessel*	*
* IV *	4th Year	*	Student	*	Academy	*

DURATION    TWENTY THREE    WEEKS

Every year the number of students entering the academy is between 90 - 100 for the nautical studies and 30 - 35 for engineering studies. Of these, about 10% fail their exams or practical training tests.

## 2.2.1. ENTRANCE PREREQUISITES

The entrance prerequisites for the Turkish Naval Merchant Marine Academy and Training Centre are different in some respects to those of maritime institutions of other maritime countries because of the nature of management. The following are the basic prerequisites for entrance to the maritime academy of Turkey.

- To be Turkish by birth.
- To be in good health.
- To be single, not divorced or married.
- To be not more than 21 years of age on 1st July of the year of entry to the academy.
- To have a high school degree in physics and mathematical sciences. ( There are two science tracks in the secondary school in Turkey. Students choose either the literature or the science track).
- To be male.
- To have studied English in high school. ( There are three different foreign languages offered in the general education programme. Every student gets only one of them).
- To have never been in jail.
- To have no police or criminal record.
- To pass the selective examinations. ( inter-university exams, medical exams, academy exams).
- To have a minimum height (for 17 years of age) of 1.65m, (for 18 years of age) of 1.66m, (for 19 years of age) of 1.67m and (for 20 years of age) of 1.68m.
- To have a weight between  $X + 5$  or  $X - 15$  kg. ( For example ; for 1.65 m  $X=65$ , for 1.68 m  $X=68$  ).

## 2.2.2. THE ENTRANCE EXAMINATION

The entrance examination for the Merchant Marine Academy of Turkey is divided into three parts, namely ;

1. the inter - university entrance examination,
2. physical and medical examination,
3. the academic examination.

1. The first and very important part is the inter-university entrance examination. A candidate who wants to attend the maritime academy, must apply to the Ministry of Education indicating his choice of institution and this must be approved by the Ministry of Education before the entrance examination. When a candidate applies, he must indicate his choice: navigation or engineering.

Occasionally, it may happen that the candidate is accepted for both programs, before his arrival at the academy. He will have to choose one of the programs. The candidate must score a minimum total marks of 500 for nautical and 530 for engineering out of 750, before the candidate is accepted. These marks may change each year. The successful candidate has to take the second part of the entrance examination, that is the physical and medical examination.

2. The medical examination will be held at no cost in one of the medical centers. The Marine Hospital (Deniz Hastanesi) or government hospitals and polyclinics are established throughout the country by the Ministry of Transport and Communication. There are four big hospitals and fifteen polyclinics which are responsible for this examination in Istanbul. This examination will be carried out by doctors, psychologists and heart and brain

specialists, who after an exhaustive analysis will issue a medical certificate that must be obtained prior to the academic examination. No one is admitted for registration without the appropriate medical clearance.

3. The academic examination consists of three main subjects.

3.1. English language examination

3.1.1. written examination,

3.1.2. oral examination.

3.2. physical education examination

3.3. interview and viva-voce.

The first exam is a written examination in English. It takes two hours and includes English grammar. The oral examination tests ability to speak English.

The second part of the academic examination is a physical education examination consisting of 11 different tests, for example ; running, swimming, pull-up, push-up etc. All of these have minimum limits to pass the examination.

The third part of the entrance examination is an oral examination / personal interview by the academic council and consists of six items : personality, knowledge, intelligence, hobbies, activities, speech and oral expression of the candidate.

### 2.2.3. EXAMINATIONS

There are three kinds of examinations in the Merchant Marine Academy in Turkey, namely; written, oral and practical exams. These exams are distributed over the academic year and the practical terms of each year. Students must pass all examinations. All lectures and subjects in a program of one academic year are mandatory. Moreover, all students will be examined in each subject, during their education terms between one and three times (maximum) and also at the end of each term.

Subject evaluations are given at the end of each term besides the term work and tests. The final exam in a subject will not only include its subject matter, but also the subject matter of prerequisite courses.

The relative importance of each of the parts of the evaluation for a given term is as follows :

1. The mark for term work (assessments, projects, research ) mark accounts for 20% of a student's academic year mark.
2. The mark for tests (oral or written). contributes 30% to main academic year mark.
3. The mark for the term exam (during course of studies and end of the term) contributes the remaining 50% to the main academic year mark.

The oral and practical examinations are to ascertain a student's competency in the practical aspects of an

officer's duty. During the oral and practical exams proficiency in the followings are tested:

- English language,
- navigational equipment (sextant, parallel rulers, morse signalling, Aldis lamp),
- knowledge of the regulations for preventing collisions at sea,
- chartwork.
- barometer and thermometer reading,
- meteorology,
- technical drawing,
- physical education examination, and
- sea communication (SSB radio telephony & VHF radio telephony ).

#### 2.2.4. FINAL EXAMINATION

In the fourth year of studies, each student is given a subject for his thesis, the subject matter being connected with the general line of research work provided by the institute. Measurements and experiments necessary for writing the paper are carried out at the time of practical training afloat.

After the successful completion of studies and all the examinations the graduate takes a diploma by defending his thesis and passing the final examination.

To obtain a Ocean Going Master's Certificate the student has to complete the training as shown in Figure 1.

## 2.2.5. EXAM MARKS

The grade for each course is weighted by multiplying the numeric value by the relative value. This value normally is equal to the number of course hours per week.

The grade point average is obtained by first finding the sum of the grade point for a term and then dividing it by the sum of the relative values. The grade point average will have a value between zero and hundred.

The relative value is determined in the following way :  
1 credit point for 1 hour theoretical subject and 0.5 credit point for 1 hour practical or laboratory subject.  
For example : in the subject of navigation which consists of 3 hours theoretical, 2 hours practical and no lab the credit point will be  $3 * 1 + 0.5 * (2+0) = 4$  .

The rank of the students is found by using the average; the student is ranked among the students in a branch's class.

The cumulative average is obtained by taking an average of all the term marks for each subject and multiplying these averages by the relative value of the subject, finding the sum of these results and dividing it by the sum of the relative values.



## 2.2.6. MARKING SYSTEM

The academy of Turkey uses a letter grade system as follows :

LETTER GRADE	EQUIVALENT NUMBER	NUMERICAL VALUE
A	90.0-100.0 SUPERIOR	4.0
B+	85.0- 89.9 VERY GOOD	3.5
B	80.0- 84.9 GOOD	3.0
C+	70.0- 79.9 NORMAL	2.5
C	60.0- 69.9 SUFFICIENT	2.0
D+	50.0- 59.9 JUST SUFFICIENT	1.5
D	40.0- 49.9 WEAK	1.0
F	00.0- 39.9 FAILURE	0.0

\*\*\*\*\*

A student getting a grade less than "C" in any professional subject fails. However, in certain non-professional subjects, for example technical drawing, he may pass with "D+".

## 2.2.7. ACADEMIC NORM

The student must pass all of the courses in the academic year. This pass mark will be "B" for some navigational subjects, it will be "C" for most of the other lectures, and it will be "D+" for the lecture without written work and for the non-academic appraisals.

## 2.2.8. NON - A C A D E M I C    A P P R A I S A L S

During training at sea, at dockyards, in hospitals, the non-academic appraisals will be made by the ship's officers, dockyard authorities, and first aid professors, respectively.

These appraisals will be based on the necessary qualities to be demonstrated by a manager, for example ; leadership, dress, reaction to authority, attitude toward training, and behavior.

This mark will become part of the general average.

## 2.2.9. S U P P L E M E N T A R Y    E X A M S

The student must obtain an average above the passing mark for each subject. At the end of the academic year, if a student's average is not equal to a pass, he will have to take a supplementary exam.

## 2.2.10. S Y L L A B I

The structure of the training courses as reported by the IMO training consultants in October 1979 indicated a predominance of theoretical studies with only a basic application of practical industrial training.

Training comprises 30-32 hours of lectures and classes a

week. Instruction on land at the academy lasts 3.5 years and practical training on board ships is of 0.5 years duration.

The precise subjects of training in the marine academy are given in the Appendix in "Table 1 Syllabus of the Academy".

The column for each semester of each year has three rows of numbers in the brackets. These numbers relate to theoretical, practical and laboratory work respectively. The duration of one lecture hour is 50 minutes.

### 2.3. UNIVERSITY FACULTY OF MARINE ENGINEERING

The shipping industry also recruits marine engineering officers from the University Faculty of Marine Engineering. Those engineering officers without the required certificate have to sit for additional exams conducted by the academy to compensate for their lack of knowledge and experience in marine field.

### 2.4. ANATOLIAN MARITIME TECHNICAL HIGH SCHOOL

The Anatolian Technical High School conducts basic secondary technical education in the nautical, marine engineering, and radio electronics qualifications. On completion of their secondary education, some of these students may undertake a seagoing career in either the deck, engine room or radio department on board the Turkish

or foreign fleet.

To obtain a Harbour Tug Master's Certificate, a Near Coastal Master's Certificate or a Mid-Continental Chief Officer's Certificate, the students have to complete the training as shown in Figure 2.

The courses are currently being reviewed under a project of the Ministry of Nautical Education, Youth and Sports, Vocational and Technical Schools. The project is being conducted by a British Council team of training experts, financed by the World Bank with the base of operation in Ankara.

As part of this project a significant quantity of modern radio, electronic and navigational equipment is to be procured.

Between 1938 and 1984 departments for ship electronics, communication and port and sea administration were added to the school. In 1985 a preparatory year was added to the education and now every student has to pass English exams before enrollment in the next programme of three years basic education.

The high school has now become a school with a programme which is parallel to regulation of the STCW-78 Convention.

The duration of the high school is four years. Each academic year is split up into two terms like the previously described high school system. The first year of education is preparatory where only Turkish and English languages are taught. There is 3-week pre-sea training on board a merchant ship in the 3rd year of their education.

The Anatolian Technical High School has no entrance requirements and also no entrance examination, because it is a normal high school.

The school syllabus is divided into two parts; the first one is general knowledge of common high school subjects, and the other one is a professional subjects. The preparatory class has no professional subjects but it has 37 lecture hours weekly. Other classes have a minimum of 16 and a maximum of 22 hours for workshop. They have more seamanship, navigation, mathematics and physics lectures during the course of their education. The school's syllabus is contained in the Appendix in " table II - Syllabus of the High School".

#### 2.5. GOLCUK ENDUSTRI MESLEK LISESI

This institution is also at the high school level. The Marine Mechanics division at the Golcuk Endustri Meslek Lisesi in Kocaeli, and Marine Mechanics division at the Merkez Endustri Meslek Lisesi in Samsun both give education in shipping for vocational high school students. The Turkish government makes serious efforts to improve Turkish secondary education in relation with the business life and demands from the industry.

#### 2.6. MERKEZ ENDUSTRI MESLEK LISESI

Similar to 2.5 .

## 2.7. TURKISH NAVY

Turkish Navy is not an institution for the merchant marine sectors but it is a resource for the shipping companies.

Some deck and engineering officers from the Turkish Navy hold certificates for service on merchant ships.

## 2.8. SPECIAL INSTITUTION

The Turkish Cargo Line and Turkish Maritime Line have recently set up their own industrial training units in an attempt to meet their operational needs regarding modern marine technology and to conform with international standards and regulations relating to maritime training.

The Turkish Cargo Line has established with the assistance of their training manager a small training unit on two vacant floors in a new company building in Uskudar (Istanbul).

The training centre has been providing training since October 14, 1986 to issue certificates for seamen upon the completion of training programmes pursuant to the convention issued by the International Maritime Organisation (IMO) concerning the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), dated April, 1984.

Currently the unit also conducts training in the use of Automatic Radar Plotting Aids (ARPA) in accordance with

IMO Resolution A.482 (XII).

The Turkish Cargo Line intends to include a space for radio communications training, using a Satellite Earth Station (SES). The building has other available vacant spaces capable of expanding the scope of specialised maritime courses in accordance with either company or national training requirements.

The Turkish Maritime Line has also recently established a small training unit to conduct in-house courses for seagoing and shore-based personnel. The range of courses planned for 1987 is listed on the following page. These courses are mainly part time, of a theoretical nature and not directly related to the training required by the STCW-1978 Convention.

Training is given under the supervision of qualified and experienced trainers with the aid of two (ARPA) Radars, one standard radar, one active simulator, one passive simulator, one personal computer, one Satnav, and one HF wireless receiver-sender. In addition, TV-video cassette programmes are being used at the centre and the Life Saving Boat Station. At the end of the training programmes, the officers are given the following certificates.

- Personal Fight for Survival.
- Fire Extinguishing.
- First Aid at Sea.
- Adequate Use of Life Saving Equipment.
- Medical Training for Officers.
- Operation of Electronic Navigation Equipment.
- Radar Watchkeeping Observer.

- Radar Simulator.
- ARPA Radar.

Up to this day, approximately 500 officers have been trained and given their certificates during nine terms.

Pursuant to the Regulations of SOLAS 74 Convention and Advisory Resolution of IMO A.333 (IX) with the permission obtained from the Turkish Ministry of Transportation, Istanbul Regional Directorate, Turkish Cargo Line are operating a service station for lifeboats under the supervision of inspectors trained at the factory who possess a qualifying certificate.

In addition to the lifeboats of our own company, we are providing services to boats of local and foreign shipowners.



# CHAPTER

III

## CHAPTER THREE

### TRAINING NEEDS IN ACCORDANCE WITH THE STCW 1978

#### CONVENTION

##### 3.1 GENERAL APPROACH TO THE STCW 1978

The minimum standards and requirements of the convention are expressed in terms of regulations and appendices to them. These are mandatory on all parties to the convention and are international in their scope and effect. It was agreed at the 1978 conference, which adopted the convention, that it would come into force when 25 countries which collectively represented 50% of the world's shipping had acceded to it. This position was reached in April 1983 with 25 countries and some 60% of world tonnage. Thus the convention entered fully into force on April 1984.

Attachment 1 of the convention deals with legal matters in terms of definitions, obligations, application, certificates, transitional provisions, control, promotion of technical co-operation, amendments, etc.

Attachment 2 of the convention contains a number of Resolutions. These are not a legal part of the convention and also not mandatory.

Resolutions concerning the training of seafarers, in addition to those contained in Attachment 2 of the STCW convention, have been adopted by a number of IMO assemblies, and a list of such resolutions which are

related to training adopted since 1965 is attached as Annex 1.

The mandatory regulations and their appendices are contained in six chapters , namely :

1. General Provisions,
2. Deck Department,
3. Engine Department,
4. Radio Department,
5. Special Requirements for tankers,
6. Proficiency in survival craft.

The specific regulations relating to deck officers and engineer officers are listed below. In this chapter I will also write in more detail about the parts concerned with safety training for seafarers in these regulations.

### 3.2 SPECIFIC REGULATIONS

#### 3.2.1 THE DECK DEPARTMENT

The mandatory requirements for the deck department are contained in eight regulations, and, where applicable, the appendices to them.

- |            |      |  |
|------------|------|--|
| Regulation | II/1 | Basic principles to be observed in keeping a navigational watch.   |
| Regulation | II/2 | Mandatory minimum requirements for Certification of Masters and Chief Mates of Ships of 200 gross tons or more.  |
| Regulation | II/3 | Mandatory minimum requirements for Certification of Officers in charge of a Navigational Watch and of Masters of |

Ships of less than 200 gross tons or more.

- Regulation II/4 Minimum knowledge required for Certification of Officers in charge of a Navigational Watch on ships of 200 gross tons or more.
- Regulation II/5 Mandatory minimum requirements to ensure the continued proficiency and updating of knowledge for Masters and Deck Officers.
- Regulation II/6 Mandatory minimum requirements for Ratings forming part of a Navigational Watch.
- Regulation II/7 Basic principles to be observed in keeping a watch in port.
- Regulation II/8 Mandatory minimum requirements for a Watch in port on Ships carrying Hazardous Cargo.

### 3.2.2 THE ENGINE DEPARTMENT

The mandatory requirements for the engine department are contained in six regulations and the appendices to them.

- Regulation III/1 Basic principles to be observed in keeping an engineering watch.
- Regulation III/2 Mandatory minimum requirements for Certification of Chief and Second Engineer Officers of ships powered by main propulsion machinery of 3000 kW or more.
- Regulation III/3 Mandatory minimum requirements for Certification of Chief and Second

Engineer Officers of Ships powered by main propulsion machinery between 750 kW and 3000 kW propulsion power.

Regulation III/4 Minimum mandatory requirements for Certification of Engineer Officers in change of a watch in a traditionally manned Engine Room or Designated Duty Engineer Officers in a Periodically Unmanned Engine Room where the propulsion power is 750 kW or more.

Regulation III/5 Mandatory minimum requirements to ensure the continued proficiency and updating of knowledge for Engineer Officers.

Regulation III/6 Mandatory minimum requirements for Ratings forming part of an Engine Room Watch.

### 3.3 THE EFFECT OF THE 1978 "STCW" CONVENTION

At the time of the adoption of the STCW Convention in 1978, the majority of the established maritime countries could be classed as "developed countries".

Only minor adjustments would be required for such countries to meet the convention requirements.

Many of the developing countries, like my country, and particularly the least developed countries, had little or no formal maritime infrastructure, and thus the ratification of the 1978 convention presented them with major problems.

For many of the developing countries the central issue was

the absence of national maritime legislation through which an effective maritime safety administration could be developed, responsible for the control and development of, briefly :

- ship registration,
- a system for the examination and certification of seafarers,
- a means of control and monitoring of the levels of education, training, and experience required of seafarers as a condition of entry to the examinations for certificates of competency,
- inspections and surveys,
- control and prevention of pollution.

Through the IMO technical assistance programs, a large number of developing countries have been able to improve and develop their maritime sectors to the point where the ratification of the 1978 STCW convention and also other IMO conventions and their implementation can be seriously considered.

### 3.4 IMPLEMENTATION OF STCW STANDARDS FOR

#### MARITIME TRAINING FOR SEAFARERS IN TURKEY

With the adoption of the 1978 STCW convention, the education and training of seafarers took on a higher priority and importance. Requests from developing countries to IMO for technical assistance in the field of seafarers training multiplied.

Turkey's request for maritime safety training centre for seafarers was one of them. The government will establish this center with IMO's technical assistance.

Like other developing countries, Turkey will have its own national priorities, in addition to the achievement of international standards, and therefore technical assistance will be necessary for Turkey. The technical assistance provided by, or through IMO, for maritime training can take many forms.

Turkey has found it necessary to conduct safety courses and will introduce short specialised courses related to sea survival, fire fighting, and first aid at sea.

Considering that the STCW convention regarding the training and education for seafarers is already internationally in force, steps have been taken to introduce suitable courses for the ratings to meet the new requirements affecting their duties on board ship.

All parties to the convention have to ensure that seafarer education and training programmes achieve the standards contained within the convention regulations. The convention, although exemplifying standards to be achieved through training, does not provide the detailed education and training programme structure that is so vital to the achievement of standards. Since Turkey has already ratified the convention, it is necessary for seafarers to be trained in accordance with the requirements of the convention, to avoid Turkish ships being detained in foreign ports.

What was needed was a model education and training document specifying in detail the education training programme required for achieving the standards required by the convention regulations. The syllabus for the training of ratings should be in line with requirements prescribed in the STCW convention. Such a document, or series of documents, would provide guidance to all parties to the convention, and in particular, to developing countries where assistance in this specific area was most needed and vital. We can deal with this maritime training for seafarers into basic safety training and tanker safety training.

#### 3.4.1 BASIC SAFETY TRAINING

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978 specifies that all seafarers should have experience or training in the basic safety requirements of :

- personal survival
- fire fighting
- first aid and medical care.

These requirements are part of the regulations for ratings (seafarers below the rank of officer), forming part of the ships' navigational or engine room watch.

The STCW 1978 Convention, embodies a number of regulations and resolutions which relate to the officers of both deck and engine departments and also affect the training of ratings. These are as follows :



**REGULATIONS FOR OFFICERS :**

- Regulation II/2 - Paragraph 11 - Paragraph 12 -  
Paragraph 13
- Regulation II/3 - Paragraph 1 (a) (vi, vii and xiii).
- Regulation III/2 - Paragraph 4 (g, k, l).
- Regulation III/4 - Paragraph 2 (e, g).
- Regulation IV - Minimum requirement for certification  
of radio officers.
- Regulation VI - Minimum requirements for the issue of a  
certificate of proficiency in survival  
craft for all seafarers.

**RESOLUTIONS FOR OFFICERS :**

- Resolution XIII - Training and qualification of  
officers of ships carrying  
dangerous and hazardous cargo other  
than in bulk.
- Resolution XIX - Training of seafarers in personal  
Survival Techniques.

**REGULATIONS FOR RATINGS :**

- Regulation II/6 - Paragraph 2 (d, i)
- Regulation III/6 - Paragraph 2 (c, i)
- Regulation VI - Minimum requirements for the issue of a  
certificate of proficiency in survival  
craft for all seafarers.

## RESOLUTIONS FOR RATINGS :

Resolution IX - Minimum Requirements for a rating nominated as the assistant to the engineer officer in charge of the watch.

Resolution XIX - Training of seafarers in personal survival techniques.

In addition to the above basic training, there is a requirement for more advanced survival training for seafarers ( ratings and officers ), who may take charge of a survival craft at sea.

### 3.4.2 TANKER SAFETY TRAINING

There are special requirements for seafarers serving on tankers to be trained in special procedures and precautions necessary to safely work on board such vessels. The training is at a basic and an advanced level, depending on the degree of responsibility and functions of the personnel on board these vessels.

These paragraphs also contain a few regulations and resolutions for the officers and ratings. Below I will give the main regulations which are related with the tanker safety training. Briefly :

Regulation V/1 - Mandatory minimum requirements for Oil Tankers.

Regulation V/2 - Mandatory minimum requirements for Chemical Tankers.

Regulation V/3 - Mandatory minimum requirements for

## Liquified Gas Tankers.

In addition to the above, it is recommended that marine personnel involved in the maintenance and operation of tanker equipment should have undergone special training in the safe operation and maintenance of equipment such as Crude Oil Washing (COW) and Inert Gas Systems (IGS).

I will refrain from a more detailed discussion of this subject since it is outside the scope of my thesis.

# CHAPTER

IV

## CHAPTER FOUR

### TRAINING OF OFFICERS AND RATINGS

#### WITH REGARD TO THE SAFETY AT SEA AND THE NEED FOR

#### A MARITIME SAFETY TRAINING CENTRE

##### 4.1 WHY A MARITIME SAFETY TRAINING CENTRE

As already mentioned in other chapters of the thesis, presently, there are no maritime safety training facilities for the officers and ratings in Turkey.

There is therefore an urgent need to set up a safety training centre capable of meeting International requirements as described under Chapter III above relating to the STCW 1978 convention.

While recognising well trained manpower as one of the three main elements (capital, natural resources and human element ) for success of any project, I am indeed emphasizing its priority particularly when considering safety of personnel, environment and capital.

The fact that the ships sometimes have to operate on the high seas under the most difficult and hazardous conditions results in losses of both life and property. Every year about 350 ships grossing about 1.5 million tons are lost through accidents at sea, and an even greater number of ships are severely damaged.

It is generally accepted that the majority of maritime incidents are attributable to human factors or human errors.

Studies and statistical analysis show that over 80% of these incidents were attributable to human errors, despite the fact that these ships were carrying highly developed navigational equipment. It is therefore evident that the main reason is the absence of properly educated and trained seafarers.

While loss of life and property is the most serious result of maritime casualties, not less important are pollution hazards from oil, chemicals and other toxic materials. We have witnessed many tragic incidents, causing immense losses in the Bosphorus and Marmara Sea.

The real reasons in support of the need for training of seamen in such cases are indicated below:

- The training of seamen improves safety standards and efficiency both of which are vital. An untrained seaman would be, at least in the early stages, a liability to others and to himself, especially in emergencies.
- "Trained seamen" of a country would in fact increase the "employment potential" of seamen of that country in the long run, particularly because ;
  - .- Shipowners at large are becoming keen on employing trained seamen,
  - .- Maritime governments are becoming particularly demanding about the qualifications of seamen employed on their ships,
  - .- There is a strong and increasing demand in

international bodies, such as IMO and ILO, for the highest standards of safety and manning of ships, including trained and competent seamen.

- To meet the responsibilities and functions of seafarers aboard ships, education and training courses must be provided if the vessel is to be operated safely and with minimal threats to the environment.
- What was needed in nearly every case was a strengthening of the practical and professional knowledge and skills of seafarers, particularly in respect of the marine technology currently used aboard ships. Allowance must also be made for the manner and speed with which marine technology changes, by incorporating necessary updating procedures in course structures.
- There is a continuing use and development of automation and other advanced systems and equipment on board ship in all phases of ship operation, cargo handling, navigation, communication, propulsion, etc., and seafarers must receive the education and training to enable them to operate the ship safely, efficiently, and with minimum pollution of the environment.
- The practical and professional elements of the course must be properly structured and monitored by experienced staff, making use of equipment similar to that in use on board modern ships.
- The logical outcome of reduced manning is an integrated complement on board, for example all those on board (officers and ratings alike) must be competent in their own right with the same sense of responsibility and the

same commitment to the success of the voyage.

- In the light of above, a fundamental aim is an improvement in the standard of ratings employed at sea. So, the rating of the future must be motivated, responsible and ambitious, someone who can work without much supervision.
  
- Seafarers, so far, have never been trained in my country, a system which gives poor results, both for the shipowner and the seaman. They should be trained in exactly the same way as in other successful maritime countries.
  
- Now that the marine industry has accepted the technologies of automation, advanced navigational techniques and satellite communications, it is also essential that we appreciate the future maintenance needs of the equipment and plan an education and training programme that will provide the personnel to fit this role.

There are two basic components which make up efficient and effective merchant seafaring.

First the ships themselves and, second the personnel who man them and ensure their safety and seaworthiness. The latter include not only sea-going but also shore-based personnel such as deck and engineer superintendents, technical managers, ship surveyors, inspectors, lecturers and instructors in the training institutions. Examiners are another very important factor, but we don't have the system of certificates of competency in Turkey yet.

All of the above personnel, both sea-going and shore



based, must necessarily possess a maritime background, i.e. proper training followed by sea experience.

It is well known that ships can be acquired and equipped with the necessary goals, provided the prospective owners can arrange the finances. Trained and qualified maritime personnel, however, cannot just be picked off the peg. It is here that the national maritime authorities have to play their role and formulate sound national policies to provide suitable training facilities among which a safety training centre for all categories of sea-going personnel, including the ratings.

So, every maritime country including of course my own country needs a very comprehensive safety training centre and a very wide training programme for officers and ratings.

Too many seafarers have lost their lives because of shortcomings of present life-saving systems ;

- insufficient knowledge,
- open life boats,
- insufficient life-saving appliances,
- hypothermia,
- etc.

The first of the elements can be overcome by a comprehensive programme to educate and train people to overcome the dangers that are part and parcel of everyday shipboard life. This can be effected by means of posters, etc., but this is not a very good method as psychologists are of the opinion that the impact of a poster is limited only to two or maximum three weeks, after which time they become part of the background that is seen but not appreciated.

Education and training then must use other forms, realising that the ability to call upon past experience is an essential element of the human mental process. Information and actions once learnt are almost impossible to forget completely. It is therefore important that any educational programme be orientated to the eradication of incorrect patterns of behavior as soon as they are detected, for the more times an action has been performed the more likely it is to be performed that way again. If it happens to be an unsafe practice the potential for accidents increases accordingly, it is therefore essential that if anyone on board the ship sees a youngster doing something wrong it should be pointed out to him immediately.

Since training deals with human beings it is to the human factor in today's marine environment that our attention must be addressed in order to pinpoint the training requirements for today mariners and particularly for those serving on special ships, such as gas carriers, crude oil carriers, etc..

It is therefore mainly to human beings that we have to address our attention if we want to solve safety problems.

Safety is a complex element consisting of four different and important components.

**"SAFETY = KNOWLEDGE + UNDERSTANDING + SKILL + MOTIVATION"**

Knowledge and understanding together combine giving know-how, while skill and motivation together combine giving 'can do' and 'will do' to a person.

Training is not just attending a course. Training is a continuous effort in which shore management as well as seafarers are all fully involved. Training is an educational process which has no end. Both shore management and seafarers must be convinced that training is the only means to keep abreast of technological improvements, new regulations, conventions and safety requirements etc., which are the daily basis of safe shipping operations.

It is the role of governments to set the standards and monitor nautical schools to ensure that prospective seafarers receive a thorough and relevant education, and to set the examinations by which the effectiveness of that education is measured.

It is the employer's role to provide or create the means and climate within which training at sea can take place effectively. And because training concerns serving seafarers, the existence of a training ethic within a company is all important.

Regular drills are equally important in order to keep the level of proficiency of the crew as a team as high as possible.

Alarm practice should be further improved. Instructions for evacuation groups, fire groups, first aid groups, etc., should also be further developed generally taking into account the experience gained. The centre must consist of several subjects and practical areas and laboratories. Subjects will give for separately departments in below of this chapter.

In addition to the basic safety courses to be conducted to meet STCW 1978 requirements and the numerous recommendations contained in the STCW conference and later resolutions, there are a number of courses which need to be conducted to meet Turkish requirements.

The table will also take into account the suggestions given in the list of specialised model courses for selective offering with seventeenth session of IMO's sub-committee on training and watchkeeping.

A number of such courses still need to be developed to meet the various requirements. Taking into account all the various courses, the structure seems very complex, however, by taking an integrated approach, a simplified structure can be developed.

In order to arrive at a total package of courses, which would be required to be conducted by the Training Department. Finally, based on the following tables, a total package of courses which would be required to be conducted by the Training Department of the Ministry of Transport and Communication.

In the following I will summarize the types of maritime training facilities and courses needed for seafarers'.

## 4.2 MERCHANT MARINE OFFICERS

### 4.2.1 DECK OFFICERS

- .1 Pre-sea training for the new entrant as nautical cadet-or apprentice.
- .2 Training on board ships at sea, as nautical cadet-or apprentice.
- .3 Post-sea training leading to the first Certificate of Competency as a Watchkeeping Officer.
- .4 Chief Officer's Orientation course.
- .5 Subsequent post-sea training leading to all higher Certificates of Competency, including as "Master".
- .6 Training and qualifications of officers in Electronic Navigational aids.
- .7 Training and qualifications of deck officers of ships in radar simulator.
- .8 Training and qualifications of deck officers of ships in radar observation and plotting.
- .9 Training and qualifications of deck officers of ships in fire-fighting.
- .10 Training and qualifications of deck officers of ships in personnel survival techniques at sea.
- .11 Training and qualifications of deck officers of ships in proficiency in survival craft.
- .12 Training and qualifications of persons in charge of medical care aboard ship.
- .13 Training and qualifications of deck officers of ships in medical first guide for use in accidents involving dangerous goods.
- .14 Training and qualifications of deck officers of ships in portable emergency radio telephony.

#### 4.2.2 ENGINEERING OFFICERS

- .1 Pre-sea training for the new entrant as engineering cadet or apprentice.
- .2 Training on board ships at sea, as junior engineer or apprentice.
- .3 Post-sea training leading to the first Certificate of Competency as an engineer.
- .4 Second Engineer Officer's Orientation course.
- .5 Subsequent post-sea training leading to all higher Certificates of Competency, including as "Chief Engineer".
- .6 Marine control engineering course.
- .7 Training and qualifications of marine engineer officers of ships in fire-fighting.
- .8 Training and qualifications of marine engineer officers of ships in personnel survival techniques at sea.
- .9 Training and qualifications of marine engineer officers of ships in proficiency in survival craft.
- .10 Training and qualifications of marine engineer officers of ships in medical first aid guide for use in accidents in involving dangerous goods.
- .11 Training and qualifications of marine engineer officers of ships in portable emergency radio telephony.
- .12 Training and qualifications of marine engineer officers of ships in Crude Oil Washing System.
- .13 Training and qualifications of marine engineer officers of ships in Inert Gas System.

### 4.3 MERCHANT MARINE RATINGS

#### 4.3.1 DECK DEPARTMENT

- .1 Pre-sea training for the new entrant, which needs to include "Personel Survival Techniques".
- .2 Subsequent refresher training, for ratings with appropriate sea-service, so as to meet the mandatory minimum requirements for a rating, forming part of a navigational watch, as specified in the STCW training leads to the "Efficient Deck Certificate" of its equivalent, and the "Proficiency in Survival Craft Certificate".
- .3 Training and qualifications of deck ratings for every kind of ships in Fire-Fighting.
- .4 Training and qualifications of deck ratings for every kind of ships in Basic Medical-Care and First Aid at Sea.
- .5 Training and qualifications of deck ratings on ship's portable emergency radio telephony.

#### 4.3.2 ENGINE DEPARTMENT

- .1 Pre-sea training for the new entrant, which needs to include "Personnel Survival Techniques".
- .2 Subsequent refresher training, for a ratings with appropriate sea-service, so as to meet the mandatory minimum requirements for a rating, forming part of a engine-room watch, as specified in the STCW training lead to a suitable certificate.
- .3 Training and qualifications of engine ratings for every kind of ships in Fire-Fighting.
- .4 Training and qualifications of engine ratings for

every kind of ships in Basic Medical-Care and First Aid at Sea.

- .5 Training and qualifications of engine ratings on ship's portable emergency radio telephony.

#### 4.3.3 CATERING DEPARTMENT

- .1 Pre-sea training for the new entrant, which needs to include "Personnel Survival Techniques".
- .2 Either as part of the pre-sea training or subsequent to appropriate sea-service, the trainees who are to become cooks on ships, need to be so trained as to be eligible for "Certificate as Ship's Cook":
- .3 Training and qualifications of catering ratings for every kind of ships in Fire-fighting.
- .4 Training and qualifications of catering ratings for every kind of ships in Basic Medical-Care and First Aid at Sea.
- .5 Training and qualifications of catering ratings on ship's portable emergency radio telephony.

#### 4.4 SPECIALIST TRAINING PROGRAMME FOR SEAFARERS

The overall aim of the training therefore is to give an understanding of the risks involved and the measures to control them through design safety features, maintenance and correct operational practice. A study of the work patterns and levels of responsibility aboard ship indicates the need for three levels of training, as follows;

- .- Basic safety induction for all crew members,
- .- Familiarisation training for officers and ratings



directly involved with cargo handling and cargo equipment,

- .- Specialist safety training for officers who have immediate responsibility for the conduct of cargo loading and discharging operations and care in transit of the cargo.

Also the types of maritime training facilities or special courses needed for seafarers can be summarised as follows;

1. Training and qualifications of officers and ratings of oil tankers.
2. Training and qualifications of officers and ratings of chemical tankers.
3. Training and qualifications of officers and ratings of liquified gas tankers.
4. Training and qualifications of officers and ratings of ships carrying dangerous and hazardous cargo in bulk.
5. Training and qualifications of officers and ratings of ships carrying hazardous and noxious chemical cargo in bulk.
6. Training and qualifications of officers and ratings responsible for cargo handling on ships carrying dangerous and hazardous substances in solid form in bulk or in packaged form.
7. Training and qualifications of officers and ratings in medical aid guide for use in accidents involving dangerous goods.

And also, the foregoing establishes the need for regular updating and refreshing of knowledge for masters and officers of sea-going ships. These updating and refreshing courses, whether the subject of requirement or recommendation, are intended to meet the practical needs

of Masters and Officers, to equip them with adequate knowledge for the performance of their duties in a safe and efficient manner, having regard to the dangers and hazards involved.

#### 4.5 CONCLUSIONS

Some people argue that students in the initial stages of their training are given too much of theory and not enough practice. They say that we should return to the days of the four-year apprenticeship, when a young man learned how to do the job the hard way-usually by cleaning brass and pushing holystones. There may well be some parts of the syllabus which are less relevant than others, but the effectiveness of the teaching and, particularly, training?

However, given a base of good education, what should an employer do to help his embryonic commanders transform their knowledge into skill? He is, as already stated, heavily dependent upon the good will and co-operation of his employees at sea, and he must earn that good will and co-operation. If he gives nothing but lip service to training, he will reap the product of such service-a few dedicated people who take an interest in training, and persist in so doing, despite the efforts of their employer. He will not create an atmosphere of mutual interest in which the majority of seafarers appreciate the need to train and be trained, for their own good and that of their company.

I am suggesting that after suitable intervals of experience at sea, officers and ratings should attend shore training establishments for revision and

confirmation of the basic skills, together with the application of these skills in simulated emergency situations to develop team work and organisation. After such an intensive course under experienced instructors the students will then be able to participate actively in simulated situation training at sea with their own ship's company. I would propose three levels of simulated situation training.

Firstly ; to learn the basic skills of handling equipment. Secondly, to reinforce previous learning and to introduce training in teamwork and leadership, and Lastly, for the development of management skills in safe ship operation.

# CHAPTER

V

## CHAPTER FIVE

### ESTABLISHMENT OF THE MARITIME TRAINING CENTRE

#### A PROJECT WITH TECHNICAL ASSISTANCE

##### 5.1 INTRODUCTION

My country, Turkey, has found it necessary to introduce short specialised courses related to fire-fighting, sea survival and medical first aid.

Although, ideally, such courses should be part of the merchant marine training centre, the resources needed to mount them can be considerable in terms of land, buildings, equipment, and trained specialist staff.

In many cases a satisfactory alternative solution is achieved through the assistance of outside bodies such as: the national, local, or port fire-fighting service; national or local medical hospital services; and naval coast/guard services.

When outside bodies are involved there must be close supervision and co-ordination between the training institute, maritime safety administration ( our government needs assistance to improve efficiency ) and the outside body, to ensure that the training standards satisfy national and international requirements.

Short courses related to fire-fighting, first aid, and sea survival are an important part of seafarer training as such training is mandatory for all officers and ratings as specified in the 1978 STCW Convention.

This convention requires the certification of the master, officers, and certain ratings of merchant vessels, as to their professional competency.

To meet the responsibilities and functions of seafarers aboard ships, education and training courses must be provided if the vessel is to operate safely and with minimum effect on the environment.

The regulations and resolutions of the 1978 STCW Convention specify the requirements for competency which will provide a minimum international standard, and should form an integral part of all maritime training courses.

The maritime training technical assistance provided to developing countries has enabled the majority of existing courses to be run to a standard found to exceed that required by, or to meet , the requirements of the 1978 STCW Convention.

The practical and professional elements of the course must be properly structured and monitored by experienced staff, making use of equipment and marine technology similar to those in use on board modern ships.

Invariably, this means that technical assistance to an existing maritime training institution involves, at least:  
- the fielding of short-term international maritime training experts,

- the procurement and provision of appropriate equipment,
- the procurement of appropriate fellowships and study tours for the staff,
- the provision of advice and initial task of organising suitable course material and preparing the institute staff to take on the additional lecturing / instructional work by international experts.

In the enhancement and strengthening of existing courses the models that have been prepared to date have proved to be an important factor in the achievement of uniform international standards.

Because of the provision, through IMO, of technical assistance to maritime training institutions in developing countries, it is now possible for those institutions which have received assistance to offer assistance to other maritime training institutions within the region or sub-region. Such "technical co-operation between developing countries" (TCDC) is an increasingly important contributing factor in the development of maritime training in developing countries including my country.

As a result of this assistance, in October 1986 representatives from our Ministry of Transport and Communications, the National Shipping Line ( D.B. Turkish Cargo Lines ) and the United Nations Development Programme (UNDP) in Turkey met in Istanbul to discuss the establishment of a seafarers' training school in Istanbul in the near future. The meeting also confirmed that the International Maritime Organisation (IMO) should be required to assist in this development project.

In response to this request an IMO representative visited

Istanbul in November 1986 for discussions with the maritime authorities. It was agreed that the services of the IMO Inter-Regional Sectoral Support Consultants in Maritime Training ( Deck and Engineering ) should be provided to design a project and draft an appropriate document detailing the level and extent of technical assistance necessary to achieve the intended training objectives.

Accordingly, the consultants visited Istanbul and Ankara on the 12th and 22nd January 1987, and following an extensive series of meetings and discussions, the consultants have prepared a report on their observations, findings and recommendations.

To assist the government in establishing the requisite training facilities necessary to provide seafarers with essential safety training as required by the International STCW 78 Convention, it is recommended that the Government of Turkey and UNDP embark on a project of technical assistance to create a National Maritime Safety Training Centre in Istanbul.

The services of the Inter-Regional Sectoral Support Consultants in Maritime Training would be provided by IMO and wholly financed by UNDP allocations to the Sectoral Support Programme.

This report was mentioned earlier. In this chapter, more details about the training centre will be provided.



### 5.1.1 PRESENT STATUS

The government, being aware of these needs, has initiated steps to provide a seafarers' training facility. Following a meeting in Istanbul in October 1986 between representatives from the Ministry of Transport and Communications and UNDP Turkey, it was confirmed that there were definite plans to establish a seafarers' training school in Istanbul in the near future and UNDP has been asked to assist in this development.

It was proposed that IMO should field a technical mission to assess existing maritime training facilities and formulate a proposal for the development of a maritime safety training centre.

The problem is more difficult in the developing countries, where the awareness of safety is lacking. This is due to the fact that the developing countries face typical problems of under-development, resulting from population increases, low per capita income, lack of infrastructure and other barriers to social and economic development.

In Turkey, there are more than 10 ministries and agencies concerned with maritime affairs. This situation sometimes makes the problem worse and often impossible to solve, as a result of duplication, overlapping authority, etc. There is a great need for cooperation, coordination and very good understanding between all organisations in this field to foster an efficient and effective maritime organisation as a whole within the country.

This could be achieved by using ad-hoc committees to undertake specific duties or solve problems which have

occurred, giving the people who work for the organisation better training opportunities, and promoting good communication with the other ministries and agencies.

## 5.2 ESTABLISHMENT OF THE MARITIME SAFETY TRAINING CENTRE

The Maritime Safety Training Centre's main aims will be to provide all seafarers (trainees) with the same level of understanding about how to face with confidence, the problems before, during and after abandonment in a maritime environment, how to master the practical aspects of fire-fighting and how to quickly and efficiently deal with emergencies requiring medical treatment which take place at sea.

Before the establishment of any kind of new institution or training centre, the following prerequisites should be carefully considered and analysed. Briefly :

- the provision of land for the erection of suitable training facilities;
- the construction of buildings, classrooms, workshops and training areas necessary to meet training requirements;
- the provision of suitably qualified staff and training instructors;
- the provision of appropriate outfit and training equipment;
- the provision of an annual regular budget for the operation of the centre; and
- the provision of a legal framework for the establishment and operation of the centre.

### 5.3 INSTITUTIONAL FRAMEWORK

A project founded by UNDP and executed by IMO for the development of a Maritime Safety Training Centre for ratings has been considered essential. The national counterpart will be a Management Advisory Committee (MAC), to be nominated by the Government, which will be integrated with representatives from the Government and the shipping companies.

A National Project Co-ordinator (NPC) will be designated. He will be responsible to the Management Advisory Committee (MAC) and IMO for the implementation of the project. He will prepare a Work Plan to be executed until the completion of the project. The Maritime Safety Training Centre to be developed will be within the jurisdiction of the Ministry of Transport and Communications.

### 5.4 FINANCING

The training of seafarers in accordance with international requirements as described by the STCW 1978 Convention is a major technical enterprise. This requires a commitment by the Turkish Government in terms of finance for the provision of training facilities and staff. It should also be clearly understood that the successful operation of a national maritime training institute requires a regular appropriation of funds and the provision of an adequate operational budget.

The national co-ordinator should draw up an account of capital and operational costs which should include

facilities, salaries, support services, maintenance of premises and the renewal of training equipment. This account should be submitted to the Ministry of Transport and Communications for due appropriation of government finance since the training is mainly intended to be for personnel under its administration. This financing must be enough to cover all of these costs.

Where training is provided to personnel of other companies which are privately owned, a certain fee must be charged.

## 5.5 ADMINISTRATIVE AND ACADEMIC INFRASTRUCTURE

The development of a national maritime safety training capability for the essential training of seafarers in safety of life and property at sea and the protection of the marine environment is clearly an obligation for each IMO member government, including Turkey. It is recommended, however, that to achieve these objectives the possibility of additional donor support from other sources such as the shipping industry or the seafarers union is not precluded.

The training centre will come under the authority of the Head of the Training Department of the Ministry of Transport and Communications, but the management of the centre should be under the authority and responsibility of the Training Department of the D.B. Turkish Cargo Line.

The management of the centre will deal with and solve following matters during the courses:

- recruitment of the trainees,
- appointment of instructors and teachers,

- maintenance of the facilities and equipment, and
- organisation and scheduling of the courses.

General administration and the following academic support functions will be the job of the centre secretary :

- academic support services ( academic registrar ),
- personnel and industrial matters,
- finance and accounts control,
- commercial services,
- general services such as property management and maintenance
- public relations, and
- health and safety matters.

The training centre's academic infrastructure will be simple but very functional. This means every safety subject department will have one responsible head who will be in charge of those matters affecting his department.

First of all, the centre will have one overall head. He will be responsible for everything in or outside the centre. He must hold a master's certificate be knowledgeable and have extended experience in the subjects of the courses.

There will be four different departments which will be under the head of the school, namely :

- The Administrative / Technical Equipment Department,
- Sea Survival Department,
- Fire Fighting Department, and
- Medical First-Aid Department.

## 5.6 COURSES

### 5.6.1 BASIC SEA SURVIVAL COURSE

#### 5.6.1.1 COURSE OUTLINE

1. Outline, survival techniques and resume." 60 Minutes"
  - 1.1 Organisation and training
  - 1.2 Survival difficulties and factors
  - 1.3 Actions prior to abandonment
  - 1.4 Drills and their value
  - 1.5 Definitions, survival craft and appliances
  - 1.6 Survival techniques and resume
  
2. Emergency situations " 75 Minutes "
  - 2.1 Types of emergencies
  - 2.2 Embarkation
  - 2.3 Muster list and emergency signals
  - 2.4 Crew and emergency instructions
  
3. Evacuation " 75 Minutes "
  - 3.1 Abandon ship
  - 3.2 Personal preparation for abandoning ship
  - 3.3 Need to prevent panic
  - 3.4 Crew duties in launching survival craft
  - 3.5 Master's orders to abandon ship
  - 3.6 Means of survival
  
4. Abandon ship " 120 Minutes "
  - 4.1 Boat preparation- totally enclosed lifeboats
  - 4.2 Boat preparation- partially enclosed lifeboats
  - 4.3 Final pre-abandonment checks
  - 4.4 Embarkation of personnel

- 4.5 Abandonment systems
- 4.6 Final abandonment- all crafts
- 4.7 Handling in a seaway
- 4.8 Evacuation using the compass
  
- 5. Description and use of lifeboats and liferafts "90 m"
  - 5.1 Lifeboat types
  - 5.2 Specific requirements for lifeboats
  - 5.3 Lifeboat equipment
  - 5.4 Parts of lifeboats and liferafts
  - 5.5 Liferaft types
  - 5.6 Markings for lifeboats and liferafts
  - 5.7 General requirements for all liferafts
  - 5.8 Liferaft equipment
  
- 6. Dry drill " 120 Minutes "
  - 6.1 Description, donning and use of lifejackets
  - 6.2 Stowage and operation of inflatable rafts
  - 6.3 Boarding inflatable liferafts
  - 6.4 Construction of inflatable liferafts
  - 6.5 Float free arrangements for liferafts
  - 6.6 Auxillary equipment and rations
  - 6.7 Location aids and survival packs
  - 6.8 How to enter the water from a certain height
  - 6.9 Actions to be taken when abandoning ship and on  
boarding survival craft
  - 6.10 Launching a lifeboat
  - 6.11 Pre-launching checks and main work list of lifeboat
  - 6.12 Danger during launching
  - 6.13 Checks made prior to launching liferaft
  
- 7. Personal life saving appliances " 90 Minutes "
  - 7.1 Lifejackets
  - 7.2 Lifebuoys

- 7.3 Buoyant apparatus
- 7.4 Immersion suits
- 7.5 Thermal protective aids
- 7.6 Pyrotechnics
- 7.7 Line-throwing appliances
- 7.8 Breeches buoy
- 7.9 Safety signs (IMO)
  
- 8. Wet drill. " 180 Minutes "
- 8.1 Demonstration of the operation
- 8.2 Boarding a raft 'dry '
- 8.3 Boarding a raft 'from the water '
- 8.4 Righting a capsized raft
- 8.5 Carrying an injured person to boat
- 8.6 Helping other aboard
- 8.7 Using a sea anchor
- 8.8 Review of class exercises
  
- 9. Personal life-saving appliances (Demonstration)"180m"
- 9.1 Donning a non-inflatable lifejacket without assistance
- 9.2 Jumping to the water from a height wearing a lifejacket
- 9.3 Swimming a short distance while wearing the lifejacket
- 9.4 Same exercises with inflatable lifejacket
- 9.5 Checking and controlling all kinds of lifebuoys in the water
- 9.6 Understanding buoyant lifelines
- 9.7 Donning an immersion suit without assistance and
- 9.8 While wearing an immersion suit and lifejacket boarding a survival craft
- 9.9 Donning and removing a thermal protective aid in a survival craft or rescue boat
- 9.10 Understanding the use of pyrotechnics



- 9.11 Use of breeches buoy
- 9.12 Personal survival without a lifejacket
  
- 10. Survival at sea " 60 Minutes "

  - 10.1 Dangers to survivors
  - 10.2 Best use of survival craft facilities

  
- 11. Survival craftmanship " 60 Minutes "

  - 11.1 Aids and means of location
  - 11.2 The need for water
  - 11.3 Prevention of loss of body fluids
  - 11.4 Initial actions in cold and hot climates
  - 11.5 Secondary actions
  - 11.6 Subsequent actions
  - 11.7 Principles of raft management

  
- 12. Helicopter assistance " 60 Minutes "

  - 12.1 Communicating with the helicopter
  - 12.2 Evacuation from ship and survival craft
  - 12.3 Helicopter pick-up
  - 12.4 Correct use of helicopter harness (Seat belt)

  
- 13. Emergency Radio Equipment " 90 Minutes "

  - 13.1 Radiotelegraphy installation for lifeboats
  - 13.2 Portable Radio apparatus for survival craft
  - 13.3 Emergency Position Indicating Radio Beacons (EPIRBs)

  
- 14. Review and Examination. " 90 Minutes ".

## 5.6.1.2 COURSE SYLLABUS

### 1. Introduction.

- 1.1 Discussion of the importance and necessity of good organisation, training and formulation of various safety rules for the better upkeep of survival appliances on board the ships.
- 1.2 Explanation of survival, survival difficulties and survival factors.
- 1.3 Description of the actions which should be taken in the time available prior to abandonment to minimise the hazards and difficulties which face survivors in the event of a marine casualty.
- 1.4 Discussion of the importance of regular training drills and description of the principal types of survival equipment provided on board ships.
- 1.5 Description of survival crafts, rescue boats, immersion suits, inflatable appliances, thermal protective aids and launching appliances.
- 1.6 Explanation of the survival techniques and revision.

### 2. Emergency situations

- 2.1 Lists emergencies leading to fires or the foundering of ships as :
  - collision
  - stranding
  - adverse reaction of dangerous goods or hazardous bulk materials
  - shifting of cargo
  - engine room explosion of fire.
- 2.2 Explains how to embark and get to the right place; describes panic and its consequences.
- 2.3 Explains the need for a muster list and emergency signals.

2.4 States that as soon as possible after joining a ship, personnel should acquire knowledge of :

- the means of emergency signals,
- instructions on the muster list and their duties,
- the location and use of life-saving equipment,
- the location and use of fire-fighting equipment,
- escape routes and equipment,
- describes emergencies involving the sinking of the ship.

### 3. Evacuation

3.1 Explains the complication in abandoning a ship caused by :

- some of the survival craft not capable of being launched
- absence of lighting.
- absence of personnel assigned to certain duties.

3.2 Explains how to prepare oneself for abandoning ship.

3.3 Explains the need to prevent panic.

3.4 Describes duties with respect to the launching of survival craft.

3.5 States that the order to abandon ship comes from the master .

3.6 Describes as essential for survival after the ship has been abandoned;

- a means of keeping afloat,
- a means of keeping warm,
- drinking water and food,
- a means of communicating with ships or rescue services.

### 4. Abandoning ship

4.1 Explains some procedures for certain checks of all crafts.

4.2 Gives brief explanations of final checks.

4.3 Explains why ship abandonment is important.

- 4.4 Explains primary, secondary and new abandonment systems.
- 4.5 Describes the final abandonment for all crafts.
- 4.6 Lists and explains different types of handling in a seaway.
- 4.7 Explains the need to be fully conversant with the compass and describes how to steer by it.

5. Description and use of lifeboats / liferafts.

5.1 Lists and briefly describes the following types of lifeboats;

- open,
- partially enclosed,
- self-righting partially enclosed,
- totally enclosed,
- self-righting totally enclosed,
- totally enclosed with a self-contained air support system,
- fire-protected.

5.2 Describes briefly the following lifeboat requirements

- construction,
- carrying capacity,
- access,
- buoyancy,
- freeboard and stability,
- propulsion,
- fittings.

5.3 Explains lifeboat equipment and their correct use

5.4 Explains the name and use of the every part of the lifeboat / liferaft.

5.5 Lists and describes briefly following types of liferafts;

- inflatable,
- rigid.

- 5.6 Describes how to mark the lifeboats and liferafts.
- 5.7 Describes briefly the following liferaft requirements
- minimum carrying capacity and mass,
  - fittings,
  - davit-launching systems,
  - fixed equipment,.
- 5.8 Explains liferaft equipment and their correct use.

## 6. Dry drill

- 6.1 Description of all kinds of lifejackets and how they are distributed on board passenger and cargo vessels.
- how buoyancy is achieved,
  - fixed lights and whistles.
- 6.1.1 Donning a non-flatable lifejacket correctly and without assistance within a period of less than 1 min.
- 6.1.2 Testing the light and whistle.
- 6.1.3 Donning an inflatable lifejacket correctly within a period of less than one minute unaided.
- 6.2 Stowing and securing a liferaft onboard.
- 6.3 Boarding a raft under different circumstances;
- dry,
  - wet,
  - with an injured person.
- 6.4 Description of liferaft construction.
- 6.4.1 Support / protection,
- 6.4.2 Location,
- 6.4.3 Life support,
- 6.4.4 Safety factors.
- 6.5 Explanation of the following important vital actions on board the liferaft:
- cutting,
  - streaming,
  - closing, and
  - Maintaining.

- 6.6 Explanation of liferaft operation. such as:
  - general,
  - principal parts,
  - method,
  - righting an upturned raft.
- 6.7 Description of the float free arrangements for liferafts.
  - 6.7.1 painters system,
  - 6.7.2 hydrostatic release units.
- 6.8 Listing of the equipment needed to aid survival on board a raft.
  - 6.8.1 general ancillary,
  - 6.8.2 survival packs,
  - 6.8.3 rations.
- 6.9 General description of the location aids.
  - 6.9.1 visual location aids,
  - 6.9.2 audio location aids.
- 6.10 Understanding of the correct procedures for entering the water from a certain height.
- 6.11 Description of the actions taken when abandoning ship, such as:
  - 6.11.1 board dry,
  - 6.11.2 wet abandonment,
  - 6.11.3 danger of immersion,
  - 6.11.4 action to take when in water,
  - 6.11.5 do not swim unnecessarily,
  - 6.11.6 initial actions on boarding a survival craft.
- 6.12 Description of the launching / drills systems of lifeboats.
  - 6.12.1 davits system,
  - 6.12.2 free-fall launching method.
- 6.13 Description of pre-launching checks of equipment and extra precautions, such as:
  - toggle painter, drain plug, gear, engine's test, number

of personnel, safety pins etc.

6.14 Explanation of the main work of launching a lifeboat, such as; releasing the gripes, clearing the locks, lowering to embarcation deck, holding block and bousing in tackles, and determining the right moment to release the block.

6.15 Description of the danger points during the launching procedure.

6.16 Explanation of:

- painter security,
- length of painter,
- number of personnel,
- release of the liferaft from stowage.

## 7. Personal life saving appliances.

7.1 Repeats briefly repetition information about the lifejackets.

7.2.1 Describes how lifebuoys are distributed over the ship.

7.2.2 Describes the requirements for additional equipment attached to lifebuoys.

7.3 Lists three main types of buoyant apparatus such as:

- box type,
- rectangular W/Net platform,
- rectangular type.

7.3.1 Describes the three types.

7.4 Describes an immersion suit,

7.4.1 States that an immersion suit should be available to every person assigned to crew the rescue boat.

7.4.2 States that for passenger and cargo vessels with non-enclosed lifeboats at least three immersion suits shall be carried for each lifeboat.

7.5 Describes the thermal protective aid.

7.5.1 States the main purpose of a thermal protective aid.

7.5.2 States that for passenger and cargo vessels with non-enclosed lifeboats a thermal protective aid must be provided for persons not provided with an immersion suit.

7.6 Describes the following types of pyrotechnics and relevant dangers:

7.6.1 smoke signals,

7.6.2 hand-held flare,

7.6.3 parachute rocket,

7.6.4 day-night signal, and

7.6.5 miniflare pack.

7.7 Explains how to use the line-throwing apparatus.

Dangers when using the apparatus specially when one or both of the two ships is a tanker.

7.8.1 Describes the breeches buoy.

7.8.2 Describes the signal for use with the breeches buoy.

7.9 Describes an IMO's safety signal.

## 8. Wet drill

8.1 Demonstrating the operation of a liferaft.

8.2 Entering the water from a height max.4m to min.2 metres, three times per trainee.

8.3 Boarding the liferaft dry, once per trainee.

8.4 Boarding the raft from water unaided, three times per trainee.

8.5 Righting a capsized raft, once per trainee.

8.6 Bringing aboard an injured person, once per trainee.

8.7 Helping others board.

8.8 Explaining the correct use of a drogue or sea anchor to reduce drift.

8.9 Repeating the whole exercise rapidly. Including, aided entry (from the ship and from the water), taking the right position on board the raft when it is overloaded.



9. Personal life saving appliances ( Demonstration ).
- 9.1 Dons a non-inflatable lifejacket correctly within a period of 1 minute and without assistance.
- 9.2 Jumps into the water from a height while wearing a lifejacket.
- 9.3 Swims 15 meter while wearing the lifejacket.
- 9.4 Repeats the above exercises with an inflatable lifejacket.
- 9.5 Takes a lifebuoy from stowage, throws it into the water and checks that the following function as intended:
- lifebuoy the self-igniting lights,
  - the self-activating smoke signals,
  - the buoyant lifelines.
- 9.6 Unpacks and dons an immersion suit without assistance within 2 minutes.
- 9.7 While wearing immersion suit and lifejacket;
- climbs up and down a vertical ladder at least 5 meter in length.
  - jumps from a height of not less than 4.5 meter into the water.
  - swims a short distance and boards a survival craft.
  - performs assigned duties during a simulated abandonment.
- 9.8.2 Unpacks and dons a thermal protective aid without assistance whilst in a survival craft or rescue boat.
- 9.8.2 Removes in not more than two minutes a thermal protective aid which impedes swimming.
- 9.9 Explains how to use the parachute flare, hand flare, and buoyant smoke signal.
- 9.10 Completes ship to shore transportation exercises.
- 9.11 Demonstrates how to keep afloat without the use of a lifejacket or immersion suit.

## 10. Survival at sea

10.1 Describes dangers as :

- heat stroke, sun stroke, exposure to cold and hypothermia.
- effect of seasickness,
- failure to maintain body fluids correctly, causing dehydration,
- drinking sea water,
- fire or oil on water,
- sharks.

10.2.1 Describes how to clear away from ship.

10.2.2 Explains protective measures against heat stroke, sun stroke, exposure and hypothermia.

10.2.3 States effects of seasickness and how to combat them.

10.2.4 Explains prudent use of fresh water and food and the need to avoid dehydration.

10.2.5 Explains measures for survival in case of fire or oil on the water.

10.2.6 Explains means of survival in shark infested waters.

10.2.7 Lists duties of a lookout.

10.2.8 Explains means of survival if in water and not in lifeboat or liferaft.

## 11. Survival craftmanship

11.1 States the actions to aid location by rescue services

Action by survivors:

- search,
- congregation
- radio,
- signalling distress signals,
- rescue.

11.2 States rations to be carried.

- food, carbonhydrates, sugar, cereals,
- protein,
- meals.

11.3 States the actions to preserve body fluids.

- reduce need for water,
- reduce losses of body fluid,
- conserve body fluid.

11.4 States clothing and the importance of maintenance of maintaining body heat.

11.5 Explains the secondary actions in cold and hot climates;

- seasick remedy,
- treatment of injured survivors,
- bale out,
- warming up,
- congregation of raft and boats,
- search for survivors lookout,
- handbook,
- water and food,
- the use of bunkers.

11.6 Describes leadership actions.

- avoiding sharp objects,
- taking roll call,
- organising routine watches.

11.7 Describes protection against cold and hot climates,

- location,
- water/food,
- survival handbook,
- morale and will to survive.

## 12. Helicopter assistance

12.1 Explains the hand and arm signals used.

12.2.1 Explains the need to have a pick-up space on the ship which is clear of masts, rigging and other

impediments.

- 12.2.2 Describes the means of evacuation from lifeboats and liferafts.
- 12.3.1 Describes methods of pick-up by harness, stretcher and rescue net.
- 12.3.2 Explains hand and arm signals used for safe lifting.
- 12.3.3 Explains the importance of obeying instructions given by helicopter pilot or deputy.
- 12.4.1 Describes the harness / strop.
- 12.4.2 Demonstrates the correct way to don the harness and adopt a safe posture in it.

### 13. Emergency radio equipment

- 13.1.1 Demonstrates the use of keying devices for transmitting alarm and distress signals.
- 13.1.2 Demonstrates the use of the receiver.
- 13.2.1 States how many radio apparatus are provided and the requirements for stowage.
- 13.2.2 Demonstrates the use of keying devices for transmitting alarm and distress signals.
- 13.2.3 Demonstrates how to recharge the battery.
- 13.2.4 Demonstrates how to support the antenna at maximum practicable height.
- 13.2.5 Demonstrates use of the receiver.
- 13.3 EPIRB
  - 13.3.1 States the purpose of EPIRB.
  - 13.3.2 States how many are provided and where they are stowed.
  - 13.3.3 Demonstrates how they are activated.

### 14. Review and Examination.

5.6.1.3 COURSE TIMETABLE

	: DAY I :	DAY II	: DAY III :
*****			
* PERIOD I *	1 *		* *
		9	8 *
* 08.30-10.00 *	11.1/2/7 *		* *
-----			
* PERIOD II *	2 *		* *
		9	8 *
* 10.15-11.45 *	3 *		* *
=====			
	11.45 - 12.45	LUNCH	BREAK *
=====			
* PERIOD III *	3 *		* *
		4	13 *
* 12.45-14.15 *	10.1 *		* *
-----			
* PERIOD IV *		4.6/7	* 11 *
	5	6.1/4/6/12	* *
* 14.30-16.00 *		10.2	* 12 *
-----			
* PERIOD V *			* REVIEW *
	7	6	* & *
* 16.15-17.45 *			* EXAMINATION *
*****			

## 5.6.2 BASIC FIRE-FIGHTING COURSE

### 5.6.2.1 COURSE OUTLINE

1. Introduction and principles " 40 Minutes "
  - 1.1 The importance of good organisation and training
  - 1.2 The principles of survival in relation to the fire
  
2. Fire triangle and conditions for fires " 30 Minutes "
  - 2.1 Lists conditions required for fire to occur
  - 2.2 How these three conditions (fuel- source of ignition -oxygen) can be represented by the fire triangle
  - 2.3 The addition of a chain reaction forming a square
  - 2.4 The way that act on a fire
  
3. Sources of ignition " 30 Minutes "
  - 3.1 Ignition sources
  - 3.2 Possible sources of ignitions
  
4. Fire developments " 20 Minutes "
  
5. Properties of flammable materials " 30 Minutes "
  - 5.1 Some properties of flammable materials
  - 5.2 How static electricity can occur
  - 5.3 Reactivity
  
6. Theory of fire " 90 Minutes "
  - 6.1 Fire hazard and spread of fire
  - 6.2 Fire classification and suitable extinguishing agents
  
7. Fire precautions " 60 Minutes "
  - 7.1 Machinery spaces
  - 7.2 Accommodation and storerooms
  - 7.3 Flame arrestors

7.4 Electrical storms

7.5 Eddies

8. Fire prevention " 90 Minutes "

8.1 Major causes of shipboard fires

8.2 Safe practice

8.3 Fire prevention principles

8.4 Ship construction arrangements

9. Fire detection " 60 Minutes "

9.1 Fire and smoke detection systems

9.2 Automatic fire alarm

10. Fire extinguishing agents " 30 Minutes "

10.1 Various types of extinguishing agents

10.2 Colour code of extinguishers

10.3 Method of operation

10.4 Recharging procedure

11. Fire-fighting equipment " 240 Minutes "

11.1 Various items of fire-fighting equipment aboard

11.2 Fixed fire extinguishing systems onboard and  
locations

11.2.1 General typical fixed system

11.2.2 Smothering effect systems; carbon dioxide and foam  
cannons

11.2.3 Inhibitor effect systems; halogenated hydrocarbons  
(hallon) and powders

11.2.4 Cooling effect systems; sprinklers and pressure  
spray

11.2.5 Cooling effect systems; fire hydrants

11.2.6 Cooling effect systems; international ship/shore  
connections

11.2.7 Emergency fire pump

- 11.2.8 Chemical powder applicants
- 11.2.9 Emergency generator
- 11.3 General fire-fighting equipment
  - 11.3.1 Fire-man's outfits and personal equipment
  - 11.3.2 Fire hoses, nozzles and branches
    - 11.3.2.1 Hose running and stowage
  - 11.3.3 Breathing apparatus (demonstration)
  - 11.3.4 Portable fire extinguishers
  - 11.3.5 Resuscitation apparatus
  - 11.3.6 Smoke helmet or mask
  - 11.3.7 Fireproof life-line and harness
  - 11.3.8 Fire blankets
  - 11.3.9 Mobile apparatus
  
- 12. Ship fire-fighting organisation " 90 Minutes "
  - 12.1 General emergency alarm
  - 12.2 Fire control plans and muster list
  - 12.3 Communications
  - 12.4 Personnel safety procedures
  - 12.5 Periodic shipboard drills
  - 12.6 Patrol systems
  
- 13. Fire-fighting methods " 90 Minutes "
  - 13.1 Knowledge of fire safety arrangements
  - 13.2 Fire alarms and first actions
  - 13.3 Fire-fighting
  
- 14. Fire-fighting drills " 270 Minutes "
  - 14.1 Small fires
  - 14.2 Extensive fires
  - 14.3 Drills in smoke-filled space
- 15. Emergency procedures " 30 Minutes "
- 16. Review and final examination " 120 Minutes "



## 5.6.2.2 COURSE SYLLABUS

1. Introduction and principles.
  - 1.1 States the importance of good organisation and training of the ships' crew.
  - 1.2 Lists the principles of survival in relation to fire
    - 1.2.1 regular training and drills.
    - 1.2.2 preparedness for any fire emergency.
    - 1.2.3 exposure to heat.
    - 1.2.4 sweating and humidity.
    - 1.2.5 knowledge of actions to be taken when called to fire stations.
    - 1.2.6 knowledge of escape routes.
    - 1.2.7 recommended precautions.
    - 1.2.8 knowledge of dangers of smoke and toxic fumes.
2. The fire triangle and conditions for fires.
  - 2.1 Lists conditions required for fire to occur, as:
    - 2.1.1 the presence of material which acts as a fuel.
    - 2.1.2 a source of ignition, e.g. chemical, biological and physical.
    - 2.1.3 the presence of oxygen.
  - 2.2 Sketches how these three conditions can be represented as a triangle .
  - 2.3 Sketches how the addition of chain reaction, forming a square , represents a continuously burning fire.
  - 2.4 Explains the change of the triangle into a tetrahedron.
3. Sources of ignitions.
  - 3.1 Explains ignitions sources
  - 3.2 Lists and briefly describes the following possible sources of ignitions:
    - 3.2.1 smoking

3.2.2 spontaneous combustion

3.2.3 funnel sparks

3.2.4 electrical equipment inside and outside the  
accommodation

3.2.5 metal to metal impact

3.2.6 welding

3.2.7 cathodic protection

3.2.8 other sources of ignition (hot surfaces, lightning  
during electrical storms)

#### 4. Fire developments.

Lists and explains the four phases of fire development  
as:

- ignition ( Incipient )
- developing ( Surface fire )
- absolute fire ( Fire in depth in solids )
- burning out

#### 5. Properties of flammable materials.

5.1 Defines the following conditions:

5.1.1 flammability.

5.1.2- ignition point.

5.1.3- burning temperature.

5.1.4- burning speed.

5.1.5- thermal value.

5.1.6- lower flammable limit.

5.1.7- upper flammable limit.

5.1.8- flammable range.

5.1.9- flashpoint.

5.1.10 auto-ignition.

5.2 Gives one example of how static electricity can occur

5.3 Explains reactivity.

## 6. Theory of fire.

### 6.1 Fire hazard and spread of fire.

6.1.1 Defines conduction, radiation, heat flow, and convection currents.

6.1.2 States that spread of fire occurs as a result of equalisation in temperature between fire and surroundings.

6.1.3 Lists examples of each method of propagation.

6.1.4 Lists fire hazards in the engine room, including:

- combustible liquids.
- fuel and lubricating oils.
- oil leaks and oil.
- soaked insulation.
- hot surfaces, e.g. exhaust pipes, engine parts overheating.
- defects in lagging.
- hot work, e.g. welding, cutting by oxyacetylene torch.
- auto-ignition, e.g. oil dripping on hot surface.

6.1.5 Lists hazards in galley, including:

- combustible liquids, e.g. cooking oil, hot fat.
- hot surface, e.g. ovens, frying pans, flues, and
- defective electrical connections .

6.1.6 Lists hazards in accommodation, including:

- combustible materials, e.g. furnishings, personal effects,
- matches and cigarette smoking, and
- defective electrical connections.

6.1.7 Lists hazards from cargoes, including:

- self heating cargo and spontaneous combustion.
- oxidizing cargoes and organic peroxides,
- compressed flammable gas,
- pyrophoric cargoes, and
- explosives.

6.1.8 Lists hazards from smokers and cigarettes.

including:

- temperature of a burning cigarette, which is 500 C.
  - carelessness with cigarettes and matches, setting fire to bed, clothes, waste-paper contents and furnishings.
- 6.2 Fire classification and suitable extinguishing agents
- 6.2.1 Lists the classification letter and appropriate extinguishings agents for fires in the following substances:
- wood, paper, textiles and similar materials.
  - wood, paper, textiles and flammable liquids.
  - electrical equipment, flammable gases and liquids.
  - wood, paper, textiles, flammable liquids, electrical equipment, flammable gases.
  - combustible metals.
  - flammable liquids, electrical equipment, flammable gases.

## 7. Fire precautions

Explains the precautions related to the following places and things onboard a ship:

- 7.1 machinery spaces.
- 7.2 accommodation and storerooms.
- 7.3 flame arrestors.
- 7.4 electrical storms.
- 7.5 eddies.

## 8. Fire prevention

8.1 Explains the major causes of shipboard fires:

- 8.1.1 design features.
- 8.1.2 careless smoking.
- 8.1.3 spontaneous ignition.
- 8.1.4 faulty electrical equipment.
- 8.1.5 galley operation.
- 8.1.6 welding and burning operations.

8.1.7 fuel oil transfer.

8.2 Safe practice.

8.2.1. Lists general safety procedures, including:

- no smoking in hazardous areas.
- ability to raise the fire alarm quickly.
- ability to extinguish fire by using portable extinguishers and other methods.
- ability to recognise fire hazards and to take the necessary steps to prevent fires.

8.2.2. For the engine room, lists measures for reducing fire hazards, which include:

- ensuring insulation and lagging are kept in good condition.
- eliminating oil leaks and preventing accumulation of oil
- taking proper fire precautions when welding or burning is being carried out.
- checking that caps and cocks for sounding pipes to oil tanks are closed.
- maintaining a clean engine room, removing oil soaked rags.

8.2.3. For the galley, lists measures for reducing fire-hazards, which include:

- keeping extraction clean/free of fat/grease.
- keeping fan flues clean.
- ensuring cooking oils do not spill on top of the stove or overheat in electrical cooking pans.
- keeping electrical installations well maintained.

8.2.4. For the accommodation areas, lists measures for reducing fire hazards, which include:

- no smoking in bed,
- no unauthorized electrical fittings.
- no emptying of astrays into waste-paper bins without ensuring all cigarette ends are extinguished.

8.2.5. For cargo spaces, lists measures for reducing fire

hazards, which include:

- ensuring hatches are correctly cleaned,
- ensuring cargo is stowed and ventilated in accordance with the rules,
- prohibiting smoking during cargo-working periods,
- securing cargo,
- inerting the atmosphere in cargo compartments when required.

### 8.3 Fire prevention principles

8.3.1 Describes how to use the fire triangle and fire square concepts to prevent and extinguish fires.

8.3.2 Gives examples of how a fire can be prevented from spreading by reducing or blocking.

- conduction,
- radiation,
- heat flow,
- convection currents.

### 8.4 Ship construction arrangements.

8.4.1 Lists the basic principles such as:

- escape route protection,
- A, B, and C class division,
- means for gas-freeing tanks,
- purpose of and means for inerting cargo spaces,
- fire-prevention arrangements required in cargo spaces.

## 9. Fire detection

9.1 Fire and smoke detection systems.

9.1.1. Describes the constructions of an automatic fire-detection system.

9.1.2. States the main types of automatic fire detectors.

9.1.3. Describes the characteristics of each main type of smoke or fire detector heat ( or rate of rise ) detectors smoke, optical and ionization type and flame detectors.

9.1.4. Lists the alarms or actions which may be activated by a detector.

9.1.5. States the benefit of an automatic sprinkler system in regard to fire detection in accommodation rooms.

9.1.6. States appropriate detection systems pertaining to:

- cargo spaces,
- engine room and other machinery spaces,
- accommodation,
- bridge and other control rooms,
- galley.

9.2 Automatic fire alarm.

9.2.1. Describes the fire operation of an automatic fire alarm.

9.2.2. Describes a system which has fire zones and states where such a system may be installed in a ship.

9.2.3. Describes the benefits of a zoned system.

10. Fire extinguishing agents.

10.1 Lists the various types of extinguishing agents available and their proper use.

10.2 Lists the standard European colour code for extinguishers.

10.3 Explains the use of an extinguisher in a fire situation.

10.4 Explains the recharging procedures.

10.4.1. Stored pressure types.

10.4.2. Gas cartridge types.

11. Fire fighting equipment

11.1 Lists various items of fighting equipment onboard.

11.1.1 Ship's fire main system.

11.1.2. Portable fire extinguishers.

.1. Water expelling extinguishers.

.2. Foam extinguishers.

- .3. CO2 extinguishers.
- .4. Dry powder extinguishers, etc.
- 11.1.3. Fire blankets.
- 11.1.4. Hoses.
- 11.1.5. Nozzles and branches.
- 11.1.6. Ship/shore connection.
- 11.1.7. Foam cannons.
- 11.1.8. Fixed installations on board.
- 11.2 Fixed fire extinguishing systems on board and locations .
- 11.2.1. General typical fixed system.
- .1. Lists the general requirements for a fixed system, including the following :
  - The medium used must not produce toxic gases.
  - The quantity of the medium must be adequate for the spaces which are to be protected.
  - The piping system must have control valves.
  - The release of a gas medium must not be automatic.
  - The order to release the medium must be given by the captain or a senior officer.
- .2. Lists typical fixed systems as:
  - carbon dioxide
  - halogenated hydrocarbon (halon)
  - sprinkler (wet and dry risers)
  - foam (low expansion) foam (high expansion)
  - fire mains, hydrants
  - international shore connection
  - emergency generators, fire and bilge pumps
  - pressure water spray in special category spaces
  - chemical powder applicants.
- 11.2.2. Smothering effect systems, CO2 and foam cannons.
- .1. Explains how CO2 smothers a fire.
- .2. States the dangers of CO2.
- .3. States the actions to be taken when the CO2 alarm



sounds.

- .4. States in which spaces CO2 is used.
  - .5. Explains the action of steam on a fire.
  - .6. Describes the actions to be taken before CO2 or foam are released into the fire zone.
  - .7. Describes the different types of foam.
- 11.2.3. Inhibitor effect systems, halogenated hydrocarbons (halon) and powders.
- .1. Explains that halon works by preventing the gases from reacting with oxygen in the air, thus breaking the chain reaction.
  - .2. States the dangers of halon.
  - .3. States the actions to be taken when the halon alarm sounds.
  - .4. Lists the spaces in which halon may be used.
  - .5. Describes the actions to be taken before halon is released into the fire zone.
  - .6. States on which types of fire powders are used.
- 11.2.4. Cooling effect systems, sprinklers, and pressure sprays.
- .1. Explains how a sprinkler system works.
  - .2. States in which spaces the sprinkler system is used.
  - .3. Defines the special category spaces in which manually operated pressure water spray systems are normally used.
- 11.2.5. Cooling effect systems and fire hydrants.
- .1. States the requirements for the number and positioning of hydrants.
  - .2. States the reason for fitting a shut-off valve to serve each hose.
  - .3. States the reason for fitting isolating valves on the fire main.
- 11.2.6. Cooling effect systems, international ship/shore connections.

- .1. Describes an international shore connection, giving the principal dimensions and states its purpose.
  - .2. Describes how it is connected.
  - .3. States the minimum number of these connections which must be carried.
- 11.2.7. Emergency fire pump.
- .1. States the number of acceptable jets of water which the emergency fire pump must be capable of supplying.
  - .2. States the requirements for the location of this pump
  - .3. States the circumstances under which the emergency fire pump is used.
- 11.2.8. Chemical powder applicants.
- .1. Describes a typical fixed powder apparatus with each container holding 250 kg of powder.
  - .2. Explains how this equipment is used for best results.
- 11.2.9. Emergency generator.
- .1. States the circumstances under which the emergency generator is used.
- 11.3 General fire-fighting equipment
- 11.3.1. Fireman's outfit and personal equipment.
- .1. Lists the constituents of fireman's outfit in three sections as:
    - personal equipment,
    - breathing apparatus,
    - fireproof lifeline with snaphook and harness.
  - .2. Lists the two main types of breathing apparatus which may be used.
  - .3. Lists their relative advantages and disadvantages.
  - .4. States the requirements for the lifeline.
  - .5. States the minimum number of fireman's outfit which must be carried on all ships.
- 11.3.2. Fire hoses, nozzles and fire axes.
- .1. States briefly the regulations concerning fire hoses and nozzles.

- .2. Explains how hoses are joined together and connected to fire hydrants.
- .3. Explains how a nozzle can be adjusted to produce a concentrated jet, a spray or a mist and for which purpose each is used.
- .4. Explains how to take care of hoses and nozzles.
- .5. Explains correct maintenance, running and storage of hoses and nozzles.
  - rolled up hose,
  - flaked hose.

11.3.3. Breathing apparatus.

- .1. Describes a self-contained compressed-air-operated breathing apparatus.
  - open circuit system.
  - duration of compressed air-apparatus.
  - full duration.
  - working duration.
  - safety margin.
- .2. Calculates the working duration of a CABA.
- .3. Explains the donning and start up drill of a CABA.
- .4. Explains the CABA.
  - Search procedures.
  - Entrapped procedure.
- .5. Demonstrates how to dismantle and reassemble a CABA.
- .6. Describes and demonstrates how to service a CABA.
- .7. Demonstrates the correct way to fit the face of a CABA and to check that it is airtight.
- .8. Lists the checks which must be made on a CABA before it is used and after it has been strapped on.
- .9. Demonstrates the correct breathing technique to give a low air consumption for a particular exertion when using a CABA.
- .10. Explains "dead volume" and its effect on air consumption in the CABA.

- .11. Explains the reasons for not entering and remaining in a toxic atmosphere until the CABA air bottles are empty.
- .12. Explains the action which must be taken when the warning signal is given on a CABA that air pressure is low.
- .13. Describes a breathing apparatus having a smoke helmet, air pump, air line and fittings.
- 11.3.4. Portable fire extinguishers.
  - .1. Lists the different types of portable extinguishers.
  - .2. Describes the operational principle of each type of extinguisher.
  - .3. States for which class of fire each type is suitable.
  - .4. States the normal capacity of each type of portable extinguisher.
  - .5. Explains the procedures for having empty extinguishers recharged.
  - .6. Describes a portable foam applicator and how it is connected to the fire main.
  - .7. States the normal capacity of such an applicator.
- 11.3.5. Resuscitation apparatus.
  - .1. Describes this apparatus.
  - .2. Demonstrates how it is used to revive a person affected by smoke.
  - .3. Explains how the use of this equipment may reduce the CABA wearer's endurance time in a smoke-filled space.
  - .4. Demonstrates knowledge of other resuscitation methods.
- 11.3.6. Smoke helmet and mask's demonstration.
- 11.3.7. Exercises on the fireproof life-line and its harness.
- 11.3.8. Fire blankets.
  - .1. Describes a fire blanket.
  - .2. Demonstrates how to use it.

.3. States where they are normally located.

11.3.9. Mobile apparatus.

Lists the types of mobile apparatus available, including:

- carbon dioxide cylinders.
- powder containers with propellant gas.
- foam-making equipment.

12. Ship fire fighting organisation.

12.1 General emergency alarm.

12.1.1 Describes this signal as consisting of seven or more short blasts followed by one long blast on the ship's whistle and bells or klaxons or equivalent sounding elsewhere in the ship.

12.1.2 Describes the purpose of the special alarm operated from the navigating bridge to summon the crew to fire stations.

12.1.3 Lists other possible fire alarms including: CO2, halon, pump-room, manually operated, UMS fire-detection system.

12.2 Fire control plans and muster list.

12.2.1 Describes the fire control plans and where they are located.

12.2.2 Describes the muster list.

12.2.3 Gives examples of the duties of individual crew members.

12.3 Communications.

12.3.1 Describes the methods of communication used during a fire emergency as: messengers, telephones, walkie-talkies, ship-to-shore VHF, public address system.

12.4 Personnel safety procedures.

12.4.1 Describes how a fire-fighting team is made up and states who is in charge.

12.4.2 States that the fire zone may not be entered unless

orders to do so have been given by the person in charge.

12.4.3 States the need to be familiar with the area of the zone and with escape routes.

12.4.4 States the need to be properly equipped to enter the fire zone, especially if the lights have failed and the space is full of smoke.

12.4.5 States how one should be dressed.

12.4.6 Lists what equipment is required, including: breathing apparatus, hand lantern, axe, fireproof lifeline with fittings.

12.4.7 Explains the use of the lifeline for signalling.

12.4.8 States the need to be flexible in filling vacancies in the necessary fire parties.

12.5 Periodic shipboard drills.

12.5.1 States the purpose of these drills.

12.5.2 Describes typical exercises for use during fire drills as including : extinguishing a fire in a deep fryer, entering a closed room on fire, extinguishing a major deck fire, rescuing an unconscious person from a smoke-filled space.

12.6 Patrol systems.

12.6.1 States that when ships have more than 36 passengers an efficient patrol system must be maintained.

12.6.2 Lists the duties of the patrol.

### 13. Fire-fighting methods.

13.1 Knowledge of fire safety arrangements.

13.1.1 States the location and use of fire alarms and emergency control.

13.1.2 States the necessity of knowing how fire-fighting equipment works.

13.1.3 States the necessity of being aware of potential

fire hazards.

### 13.2 Fire alarms and first actions.

#### 13.2.1 States actions on discovering a fire:

- activate the alarm,
- if possible, remove the cause of the fire,
- if possible, restrict ventilation.

### 13.3 Fire-fighting.

#### 13.3.1 Explains the factors to be considered in deciding on fire-fighting methods:

- accessibility of the location of the fire.
- personnel present at the location of the fire.
- reactions with the cargo.
- equipment and fire-fighting agents appropriate to the fire.

#### 13.3.2 Explains the reasons for a reflash watch.

## 14. Fire-fighting drills.

### 14.1 Small fires.

#### 14.1.1 Demonstrates the correct use of portable fire extinguishers suited respectively for the following types of fire: materials, oil, fat, plastics, propane and electrical.

#### 14.1.2 Demonstrates how to extinguish fires using a hose with water jet and spray nozzles and with foam applicator.

### 14.2 Extensive fires.

#### 14.2.1 Demonstrates the extinguishing of extensive fires of various types, including an oil fire, using as appropriate : water (jet, spray and fog application), foams, including aqueous film-forming type, powder, dry and wet CO<sub>2</sub>, halon.

#### 14.2.2 Using a lifeline but without breathing apparatus, demonstrates entering and passing through a compartment into which expansion foam has been injected.

### 14.3 Drills in smoke-filled spaces.

14.3.1 Demonstrates how to check and use the following breathing apparatus.

- Smoke helmet type with air pump and hose.
- Compressed-air-operated breathing apparatus (CABA).

14.3.2 Demonstrates entering a small room using CABA when the room is filled with non-toxic artificial smoke.

14.3.3 Demonstrates the use of the lifeline as a signal line in a smoke-filled space while wearing CABA.

14.3.4 Demonstrates how to search for persons (using dummies) in a smoke filled space while wearing CABA.

14.3.5 Takes part in team exercises communicating with other team members while wearing CABA in a smoke-filled space.

14.3.6 Demonstrates the use of various types of portable fire extinguishers on fires in a smoke-filled space while wearing CABA.

14.3.7 Demonstrates extinguishing an extensive fire when wearing CABA in smoke-filled enclosed spaces, including an accommodation room or simulated engine room and using as appropriate: water (jet, spray or fog), foam and powder.

### Films:

- "Fire below".
- "Fire prevention".
- "Basic fire fighting".
- "Command and control part 1 and 2".

### 15. Emergency procedure.

Explains how to react during emergency situations, particularly during the following situations:

15.1 when the general alarm sound.

15.2 accommodation fire.



15.3 engine room fire.

15.4 use of CO2 in enclosed spaces.

15.5 pump room fires.

15.6 incident at manifold, tank overflow ( oil tankers ).

15.7 tank explosions.

16. Review and examination.

5.6.2.3 COURSE TIMETABLE

	DAY I	DAY II	DAY III
*****			
* PERIOD I *	1	9	
* * *	2		14.3
* 08.30-10.00 *	4	11.1	
-----			
* PERIOD II *	3		14.3
* * *	5	11.2	
* 10.15-11.45 *	6.2		13.2
=====			
11.45 - 12.45		LUNCH BREAK	
=====			
* PERIOD III *	6.1	11.2	
* * *			12
* 12.45-14.15 *	10	11.3	
-----			
* PERIOD IV *	7	11.3.3. Dem.	13.1
* * *			13.3
* 14.30-16.00 *	15	14.1	REVIEW
-----			
* PERIOD V *		14.1	
* * *	8		EXAMINATION
* 16.15-17.45 *		14.2	
*****			

## 5.6.3 COURSE IN MEDICAL CARE AND FIRST AID AT SEA

### 5.6.3.1 COURSE OUTLINE

#### 1. Introduction. " 90 Minutes "

- 1.1 First aid.
- 1.2 Principle aims of first aid.
- 1.3 Responsibilities of the first aider.
- 1.4 Diagnosis and its importance.
- 1.5 General principles of first aid aboard ship.
- 1.6 Identification and priorities of treatment at an emergency.
- 1.7 Emergency resuscitation.
- 1.8 Unconsciousness.
- 1.9 Treatment of unconsciousness.

#### 2. Bleeding. " 60 Minutes "

- 2.1 Type and categories according to the problem caused.
- 2.2 Treatment of severe external bleeding.
- 2.3 Internal bleeding.
- 2.4 Recognition of internal bleeding.
- 2.5 Treatment for internal bleeding.

#### 3. Shock. " 45 Minutes "

- 3.1 Definition.
- 3.2 Common causes of shock.
- 3.3 Signs and symptoms of shock.
- 3.4 Treatment.

#### 4. Burns and scalds. " 60 Minutes "

- 4.1 Definition.
- 4.2 Types of burns and scalds.
- 4.3 Classification of burns.
- 4.4 Treatment - nonchemical burns and scalds.

- 4.5 Treatment - chemical burns.
  
- 5. Fractures. " 60 Minutes "

  - 5.1 Definition and types of fractures.
  - 5.2 Signs and symptoms of a fracture.
  - 5.3 Treatment of a fracture.
  - 5.4 Dislocations and diagnosis.

  
- 6. Wounds. " 60 Minutes "

  - 6.1 Definition and types of wounds.
  - 6.2 Types of open wounds.
  - 6.3 Types of closed wounds.
  - 6.4 How to control bleeding with bandages.

  
- 7. Hypothermia. " 90 Minutes "

  - 7.1 Definition and causes of hypothermia.
  - 7.2 Effects of extreme temperatures.
  - 7.3 Diagnosis of hypothermia.
  - 7.4 Signs and symptoms of hypothermia.

  
- 8. Physiological aspects of cold water survival." 90 M "

  - 8.1 Immersion.
  - 8.2 Post-immersion.
  - 8.3 Rewarming from accidental hypothermia.
  - 8.4 Methods of rewarming a victim of accidental hypothermia.
  - 8.5 Cold injury.
  - 8.6 Treatment of frostbite.

  
- 9. The effect of overheating. " 90 Minutes "

  - 9.1 Reaction to heat loss.
  - 9.2 Heat exhaustion.
    - 9.2.1 Signs and symptoms.
    - 9.2.2 Treatment.

- 9.3 Heatstroke.
  - 9.3.1 Signs and symptoms.
  - 9.3.2 Treatment.
- 9.4 Compare of these two situations.
  
- 10. Poisoning. " 60 Minutes "
  - 10.1 Types and definitions.
  - 10.2 Signs and diagnosis.
  - 10.3 Treatment.
  
- 11. Unconscious casualty. " 45 Minutes "
  - 11.1 Causes.
  - 11.2 Treatment.
  - 11.3 Practice and treatment.
  - 11.4 Transportation of an unconscious person.
  
- 12. First aid in survival environment. " 60 Minutes "
  - 12.1 Important first aid actions.
  - 12.2 Causes and effects of cold injuries.
  
- 13. Review and examination. " 90 Minutes "

#### 5.6.3.2 COURSE SYLLABUS

- 1. Introduction.
  - 1.1 Definition of first aid.
  - 1.2 Explains the principle aims of first aid.
  - 1.3 Describes the responsibilities of the first aider.
  - 1.4 Explains the diagnosis and its importance.
  - 1.5 General principles of first aid onboard ship.
    - 1.5.1 Rapid examination.
    - 1.5.2 Various checks.
    - 1.5.3 How to handling with care.

- 1.6 Lists and describes the identification and priorities of treatment at an emergency situation.
- 1.7 Describes emergency resuscitation.
  - 1.7.1 Expired air resuscitation (EAR).
  - 1.7.2 External chest compressions (ECC).
- 1.8 Defines unconsciousness.
- 1.9 Describes the treatment of unconsciousness.
  
2. Bleeding.
  - 2.1 Define, types and categories according to the problem caused.
  - 2.2 Explains the treatment of severe external bleeding.
  - 2.3 Define the internal bleeding.
  - 2.4 Explains the following recognition of internal bleeding.
    - 2.4.1 Visible.
    - 2.4.2 Concealed.
  - 2.5 Describes the treatment for internal bleeding.
  
3. Shock.
  - 3.1 Defines shock.
  - 3.2 Describes the common causes of shock.
  - 3.3 Explains the signs and symptoms of shock.
  - 3.4 Describes the treatment of shock and necessary steps.
  
4. Burns and scalds.
  - 4.1 Defines burns and scalds.
  - 4.2 Explains the types of burns and scalds.
  - 4.3 Explains the classification of burns (demonstrates).
  - 4.4 Describes the treatment of nonchemical burns and scalds.
  - 4.5 Describes the treatment of chemical burns.
  
5. Fractures.

- 5.1 Definitions and types of fractures.
- 5.2 Explains the signs and symptoms of a fracture.
- 5.3 Describes the treatment of a fracture.
- 5.4 Dislocations.
  - 5.4.1 Definitions and diagnosis.
  
- 6. Wounds.
  - 6.1 Defines and lists types of wounds.
  - 6.2 Defines and describes open wounds.
  - 6.3 Defines and describes closed wounds.
  - 6.4 Describes how to control bleeding bandages.
  
- 7. Hypothermia.
  - 7.1 Defines and describes the causes of hypothermia.
  - 7.2 Describes the effects of extreme temperatures.
  - 7.3 Explains the diagnosis of hypothermia.
  - 7.4 Describes the signs and symptoms of hypothermia.
  
- 8. Physiological aspects of cold water survival.
  - 8.1 Describes immersion in stages.
    - 8.1.1 Initial immersion.
    - 8.1.2 Short-term immersion.
    - 8.1.3 Long-term immersion.
  - 8.2 Explains post immersion.
  - 8.3 Describes the rewarming from accidental hypothermia.
  - 8.4 Explains the methods of rewarming a victim of accidental hypothermia.
    - 8.4.1 Rapid rewarming.
    - 8.4.2 Rewarming by insulation (warm blankets or sleeping bag).
  - 8.5 Describes the cold injury.
    - 8.5.1 General cooling.
    - 8.5.2 Localised peripheral cooling.
  - 8.6 Describes the treatment of frostbite.

9. The effect of overheating.

9.1 Explains the reaction to heat loss.

9.2 Defines heat exhaustion.

9.2.1 Describes the signs and symptoms.

9.2.2 Describes the treatment of heat exhaustion.

9.3 Defines heatstroke.

9.3.1 Describes the signs and symptoms.

9.3.2 Describes the treatment of heatstroke.

9.4 Compares these two situations (demonstrates).

10. Poisoning.

10.1 Defines poisoning and lists types of poisoning.

10.2 Describes inhaled poisons.

10.2.1 Describes symptoms and treatment.

10.3 Defines swallowed poisons.

10.3.1 Describes symptoms and treatment.

10.4 Explains the action of poisons on skin and eyes.

10.5 Describes basic rules for avoiding poisoning.

11. Unconscious casualties.

11.1 States causes.

11.2 Describes treatment.

11.2.1 Describes treatment when throat problems occur.

11.2.2 Describes treatment when the heart stops.

11.3 States various checks and how they have to be carried out.

11.4 Describes transportation of an unconscious person.

11.4.1 Defines the real meaning of time.

11.4.2 States the importance of knowing the cause of the casualty in deciding to move the injured person or not.

11.4.3 State actions to be taken when the victim is breathing or not breathing.



12. First aid in survival environment.

12.1 Recognises the causes and effects of cold injuries in a survival environment.

12.2 States the important first aid actions in survival environment.

12.3 Explains how to use the maritime first aid guide.

12.3.1 Defines general index, U.N. number, proper shipping name.

12.4 describes medical advice relating to the dangers of the carriage of chemicals by ships.

12.4.1 The general hazards. Main actions after poisoning.

13. Review and assessment.

5.6.3.3. COURSE TIMETABLE

	:	DAY I	:	DAY II	:
*****					
* PERIOD I *					*
* *		1		7	*
* 08.30-10.00 *					*
-----					
* PERIOD II *		2			*
* *				8	*
* 10.15-11.45 *		6			*
=====					
11.45 - 12.45 LUNCH BREAK					
=====					
* PERIOD III *		6 Cont.		3	*
* *					*
* 12.45-14-15 *		4		11	*
-----					
* PERIOD IV *		5			*
* *				9	*
* 14.30-16.00 *		10			*
-----					
* PERIOD V *		10 Cont.		REVIEW	*
* *				&	*
* 16.15-17.45 *		12		ASSESSMENT	*
*****					

## 5.7 COURSE ADMINISTRATION

### 5.7.1 NUMBERS OF STUDENTS WHO WILL ATTEND

The primary objective of this maritime safety training centre facility will be to provide thorough training for every seafarer - officers and ratings alike-as required by the STCW Convention of IMO.

Safety courses will be conducted 20 times each year and every department will have a maximum of 12 ( or an average of 12 ) trainees each.

The total number of trainees attending these three courses is estimated to be around 700 students of all ranks of seafarers except chief mates, chief engineers and masters.

The centre will also partly provide training for the Merchant Marine Academy and Anatolian Maritime Technical High School cadets.

### 5.7.2 REGISTRATION

Registration will be as follows :

- By telephone telex or letter and must be confirmed by telex or letter.
- Registration / confirmation should include details of where invoices and certificates are to be sent.
- As certain courses are in heavy demand, a system of waiting lists is to be in operation so that in the event of cancellations, vacancies will be filled from the waiting lists on a first-come first-served basis.

### 5.7.3 CANCELLATIONS

It will be most important that the centre be notified of cancellations in good time so that places may be offered to others, in circumstances where the course is fully booked.

In any event, cancellations must be received not less than two working days before the start of a course, failing which the full course fee will be charged unless the places can be re-allocated to someone else, where a waiting list is in operation.

### 5.7.4 ATTENDANCE

Attendance will be compulsory and on no account will absentees be excused except in special cases. Otherwise a trainee will be compelled to retake the course from the beginning.

A daily attendance record will be kept by the course instructor(s) during the theoretical and practical training time. At the end of each day, he/they will report to the Head of the Training Centre.

### 5.7.5 CLOTHING

The Maritime Training Centre will provide safety helmets, boots, gloves, bunker coats with pants for fire-fighting course trainees.

But candidates must be in possession of foul weather

swimming trunks and towels for the sea-survival course.

#### 5.7.6 EXAMINATIONS

There will be two different types of examinations administered in the centre to ascertain the trainees' knowledge during and at the conclusion of each course, with emphasis on practical studies.

During the theoretical and practical lectures, the instructor will give assessments, each of which will result in a mark for the trainee.

#### 5.7.7 CERTIFICATION

After successful completion of the training program of each safety subject, in which a trainee has passed all assessments and final examinations, a certificate will be issued to him.

### 5.8 TRAINING FACILITIES AND RESOURCES

#### 5.8.1 BUILDING AND SERVICES

The priorities for the training of seafarers are in the fields of personal survival, fire-fighting and first aid medical care.

The courses of training include a large element of realistic practical instruction in both sea-survival and fire-fighting techniques.

To be able to conduct these courses requires the provision of special outdoor training areas in which realistic life-saving training exercises can be performed.

The building provided for the maritime safety training centre must be adequate for the particular related use. For example lecture rooms must be equipped with appropriate teaching aids and facilities.

The ideal environment for basic training must be modern, purpose-built premises with instructors'/lecturers' rooms, large, well equipped demonstration rooms, changing rooms, a cafeteria and a choice of two highly sophisticated survival and fire drill tanks.

#### 5.8.2 TRAINING FACILITIES

IMO technical assistance will provide adequate equipment to start the training centre. Training equipment is very important for the centre and must cover all areas of the safety subjects.

The training equipment must be relevant to the technology used in modern vessels in order for the practical training activities to be co-related to the personnel's duties and functions aboard ship.

The equipment required for each subject in the safety training centre is outlined below.

### 5.8.3 WORKSHOP AND PRACTICAL TRAINING EQUIPMENT

The maritime safety training programme will require effective support from workshops and practical training units, and these facilities need to be compatible with the high and advanced technology used in ship and marine machinery operation.

The training facilities will be divided into two parts, and every part of the training programme will deal with the ship and personnel safety directly.

The training in personal survival requires an area adjacent to the sea or a sheltered water frontage in which appropriate wet drill survival exercises can be conducted.

Fire-fighting training requires a special facility consisting of a mock-up of a ship's section in which live fire-fighting exercises can be conducted. The fire drills generate large volumes of smoke and hence the location of this facility must be situated well away from residential or commercial property.

Since considerable amounts of water are needed for demonstration drills and cleaning, it would be preferable to locate the training facilities as near as possible to the sea and to use salt water. With this system the problems of piping, drainage and the cost of fresh water will be effectively resolved.

The centre will use the old deck department boat work training area of the Anatolian Maritime Technical High School. This space, with suitable repair and installation of life-saving equipment, could be used for part of the

sea-survival training programme also, although the wet drill exercise will require a swimming pool or similar facilities. Also this space/school has one swimming pool but this pool is not covered, so it must be constructed for winter exercises.

The safety training centre must have very complete practical training facilities as below :

#### 5.8.3.1 Sea survival course :

Provided by the IMO Technical Assistance ;

1. 1 \* 7.5 metre totally enclosed motor propelled survival craft complete with spray system, fixed and loose equipment
2. Gravity davit suitable for TEMPSC complete with electric hoist motor
3. 1 \* 5 metre fast rescue boat, inflatable with rigid hull, complete with launching trolley and 45 HP outboard engine
4. Slewing davit suitable for both fast rescue boat and davit launched liferaft complete with electric hoist motor
5. 1 \* 12 person davit launched inflatable liferaft without survival pack, basic-no extras
6. 1 \* 6 person inflatable liferaft, without survival pack, in GRP container with cradle and hydrostatic release
7. Full liferaft emergency survival pack for classroom display
8. Inflatable liferaft training video
9. Survival craft radar transponder
10. Two-way VHF radio telephone equipment three hand portables



11. 1 satellite 406 MHz. EPIRB without radio inside for demonstration purposes only (dummy)
12. 4 one inflatable of (2) dropped 3 standard lifejackets, different types, for classroom display.
13. 30 standard lifejackets for student use in practical exercises
14. 10 working lifejackets, inflatable, for staff and technicians
15. 3 automatic inflation lifejackets
16. 1 helicopter lifting strop
17. 3 immersion suits
18. 3 thermal protective aids
19. 1 Neil Robertson stretcher
20. 3 first aid kits without drugs
21. 1 resuscitation set
22. 1 line-throwing apparatus
23. 3 lifebuoys and 2 with lines ( 1 with light )
24. 1 manoeuver board smoke signal ( dummy )

Provided by the Government :

1. 1 complete set of lifeboat equipment.
2. 1 rigid liferaft.
3. 1 life-buoy equipped with self-activating smoke signals according to SOLAS Ch.III, Part C, section II. Reg 31.3 as Reg 7.1.3 Part B section I
4. 6 rocket parachute flares of any approved type according to SOLAS III, Part C, Section III, Reg.35
5. 6 hand flares of any approved type according to SOLAS III, Part C, section III, reg.36
6. 6 buoyant smoke signals of any approved type according to SOLAS III, Part C, section III, Reg. 37
7. 1 combined light/smoke marker
8. 1 complete set of ship-to-ship or ship-to-shore evacuation system

9. 1 portable emergency radio-apparatus for survival craft, complying with the requirements of SOLAS III, Part B, Section I, Reg. 6.2.1.1 and Ch. IV. Part C. Reg 14. 21. One emergency position-indicating radio beacon (EPIRB) operating on 406 MHz.
10. 4 video tapes as follows: DS 15 297 SOLAS Ch. III
 

.- " Preparing for abandonment "	17 min.
.- " Abandonment by lifeboat "	18 min.
.- " Abandonment by liferaft "	23 min.
.- " Techniques for survival "	21 min.

#### 5.8.3.2 FIRE FIGHTING COURSES

Provided by the IMO Technical Assistance ;

1. An assortment of hand extinguishers, cut-away models
2. 1 international ship-to-shore fire hose connection
3. Respiration and resuscitation demonstration aids
4. 1 Siebe Gorman Marine Airmaster positive pressure set
5. 1 Neil Robertson stretcher, 1 Paraguard stretcher
6. 1 air compressor unit
7. 6 sets breathing apparatus with spare cylinders, spare parts and tool kit
8. 12 distress signal units for attachment to BA sets
9. 5 fire hoses 45 mm diameter
10. 5 fire hoses 70 mm diameter
11. 4 fire branches (2 standard jet, 2 jet/spray combine)
12. 2 mechanical foam branches
13. 1 high expansion foam generator and foam compound
14. 2 standpipe with keys and bars to operate hydrant supply
15. 3 \* 9 litre water extinguishers
16. 3 \* 9 litre foam extinguishers
17. 3 \* 15 kg CO2 extinguishers
18. 3 \* 10 kg dry powder extinguishers

19. 4 \* 36 m safety lines and snaphooks
20. 1 smoke helmet and bellows
21. 2 stretchers
22. 2 first aid kits
23. 1 resuscitation set
24. 6 sets fireman's outfits complete

Provided by the Government ;

1. Building for smoke and fire drills.
2. Facilities for recharging compressed-air bottles with spare parts for maintenance
3. Room with a workbench area for inspection and maintenance of breathing apparatus
4. 2 steel fire trays approximately 1.5m \* 1.5m \* 0.3m
5. 2 three-sided brick fire trays
6. 2 fire hydrants with 2 outlets each, or similar water supply from open water and a fire pump
7. A large supply of carbonaceous and hydrocarbon fuels ( wood, diesel and lubricating oils, etc. ) for the fire trays .
8. 5 adult dummies ( 45 kg ) for search and rescue procedures
9. 5 child dummies ( 20 kg ) for search and rescue procedures
10. 4 double navy-style metal beds for the simulated accommodation
11. 2 old lathes in the simulated engine room
12. 2 diffuser type fire nozzles
13. 3 sets nozzles: 1 three positioned with handle,  
1 three positioned turnable,  
1 foam producing nozzle.
14. 20 sets protective clothing including tunics, fire boots, gloves, overalls, helmets made of flame retardant material.

15. 3 electric safety lamps (hand lanterns)
16. 5 pieces 9 litre water fire-extinguishers
17. 5 pieces 9 liter foam fire-extinguishers
18. 5 pieces 10-kg. dry powder fire-extinguishers
19. 5 pieces 5-kg. carbon-dioxide fire-extinguishers
20. 2 pieces fire blankets
21. Refills for all types of extinguishers
22. 4 25-meter fireproof lifeline with hooks and harnesses
23. 1 smoke generator
24. 1 set alarm whistle for demonstration and for safety purposes
25. 1 set pac for demonstration and for safety purposes
26. 2 sets of fire-protective clothing
27. 2 helmets with visor and neck protector
28. 1 fire axes
29. 6 pieces shovels
30. A shower at the site
31. 9 pieces video cassettes or films as follows:
 

.- " Fire-fighting at sea "	50 min.
.- " Basic fire-fighting "	25 min.
.- " Fire prevention "	20 min.
.- " Command and control. I and II. "	50 min.
.- " Fire below "	25 min.
.- " In the event of fire "	15 min.
.- " The uninvited quest "	25 min.
.- " Last thing at night "	15 min.
.- " Understanding fire "	20 min.

### 5.8.3.3 MEDICAL FIRST AID AT SEA COURSE

#### Anatomy and physiology diagrams :

1. One front view of skeleton
2. One back view of skeleton
3. One front main voluntary muscles
4. One back main voluntary muscles
5. One circulatory system
6. One breathing system, The lungs
7. One the main nervous system

#### Equipment :

1. One piece resuscitation unit with oxygen pressure regulator and section unit
2. One piece paramedics rescue pac
3. Ten sets of each type of bandage
4. Two video cassettes as follows :

.- " First aid for life. "	
Part 1. Emergency.	16 min.
Part 2. As I live and breathe	17 min.
Part 3. Blood loss and shock	16 min.
Part 4. Bones can break	15 min.
.- " Cold shock "	22 min.

#### Transparencies :

- Bandages, - Carrying methods, - Splints, - Fractures,
- Artificial breathing methods, - Dislocations,
- Injections.

#### 5.8.4 COMPETENT TEACHING STAFF

The teaching staff will have the prime responsibility of formulating the training programmes, and putting them into effect.

It is crucial that the staff have the knowledge and experience of the responsibilities and functions as crew aboard ship, in order that the correct advice and guidance can be given to the trainees.

It can hardly be stressed too often that the successful implementation of a short course requires well qualified instructors, trainers, teachers, lectures and the like.

The top level of teaching staff in the maritime academy should be used. They bring with them experience in teaching which they could easily apply to short courses, but sometimes the qualification for the implementation of specific subject may not be fully available at an academy. Such expertise may however exist in the industry and/or the administration and should be used.

The main teachers of courses need to have acquired a thorough knowledge and extended experience in the subject of the course and the subject area of which it forms a part.

When the centre is going to be used for its maximum output, it should be desirable to have the following teaching staff :

- .1 three (3) master mariners who will be heads of departments in sea survival, fire fighting and first aid at sea.
- .2 three (3) chief instructors in every course.

.3 four (4) assistant instructors (who will give practicals) of which 2 are for sea survival and another 2 for fire-fighting courses.

The minimum qualifications of any head of department should be the possessor of the master's mariner certificate of competency and at least five years in the most senior post of an ocean-going ship.

For the rest of the staff required at the centre, their qualifications will differ between the courses, i.e, the sea-survival instructors must either be chief officers or master mariners. The fire-fighting instructors to be employed should either be instructors of the fire-brigade or chief engineers / master mariners who have graduated from one of the approved/recognised training centres. But the first aid instructor should be a medical doctor or a physician at a hospital.

The project of technical assistance from the UNDP includes an extensive teacher training programme to provide well trained and qualified teachers for the training centre. It was for this reason that the author came to the World Maritime University.

To assist in the formulation of the project of technical assistance it is recommended that two International Training Experts are provided for short-term consultant contracts during the period of preparatory assistance.

The majority of lecturers should be officers with Master or Chief engineer qualifications. It should be possible to recruit suitable candidates from within the company.

# CHAPTER

VI



## CHAPTER SIX

### CONCLUSION AND RECOMMENDATION

#### 6.1 CONCLUSION

The training and development of employees is an important activity in every industry; particularly important in industries which have changing technologies or are involved in activities which, if not properly conducted, can be hazardous to personnel, property or the environment.

The current concept of "Occupational Health and Safety at work" whether imposed by legislation, or by provided standards for reasonable, careful and responsible management, measure the borderline between

- good management, and
- negligent management.

They require among other things, for all employees

- . to be informed of any hazards,
- . to be provided with relevant safety information,
- . to be provided with safe working conditions, and
- for such safe working conditions and

practices, implementation, monitoring and enforcement is necessary.

They require that employees must be trained in the tasks that they are required, or may be called on, to perform. Ship's officers have, for many years, received formal training both ashore and through traditional in-service

personal development programmes ( cadetships ). Other crew members also have an in-service development programme ( deck boy to A.B. ) but, until recently, little or no formal training either ashore or on board ship. Latterly, with changes in technology and problems of human relations on board ship, standards of on board training have not always kept pace with what is needed.

The shipping industry is constrained by financial and economic considerations. The cost of shore-based training is high; on board training is relatively cheap. Being cheap does not mean that it is a poor substitute for shore-based training; on the contrary, if properly organised and conducted, it can, in most instances, be more relevant, more practical and more interesting than what can be done ashore. Sometimes, there are limitations to what can be done on board-lighting of real fires for instance. Clearly a mix of both shore and shipboard training is ideal.

A misconception, largely resulting from over-regulation, is that training should be restricted to safety matters-specifically:

- Abandonment,
- Fire,
- Collision.

This is clearly not so. Many other activities are also important such as Health and Safety at work.

Taking into consideration all of this general explanations as detailed above regarding the maritime safety training, we must look now for the necessary training requirement for the Turkish maritime industry. Turkey has ratified

the International Convention Standards of Training, Certification and Watchkeeping for Seafarers 1978 ( STCW 1978 ).

In accordance with Article I of this Convention, Turkey with its Administration as a party has undertaken to promulgate all laws, decrees, orders and regulations and to take all other steps which may be necessary to give the Convention full and complete effect.

In order to ensure the safety of life and property at sea and also the protection of marine environment, the Turkish seafarers have to be qualified and fit for their duties on board ships.

The Turkish Government continues to provide extensive attention to the development of the Turkish fleet, as well as the development of facilities for maritime education and training, which is one of its major shipping policy issues. Due attention has been given to the fact that with the expansion of the fleet, a simultaneous development of the maritime infrastructure is required, particularly maritime training centres.

Turkish involvement in shipping has been increasing dramatically. However, in the Turkish merchant shipping fleet, seafarers below the rank of officers do not, at present, receive pre-sea training and particularly training in personal survival, fire-fighting and general ship safety.

For this type of training, buildings and highly specialised equipment and specially designed outdoor training areas are needed. At present, these type of

facilities do not exist in Turkey. The lack of training of Turkish ratings is a threat to shipping safety and also affects shipping efficiency.

The development of national maritime training capability for ratings in maritime safety is therefore vital in Turkey, considering the dramatic increase of its shipping tonnage and the requirement imposed by international standards. Through this project, it is sought to resolve the aspect related to the training of ratings only. It seems, however, that further maritime training requirements for which technical co-operation is needed may also be identified.

Following a review of the maritime training requirements for seafarers in relation to the International Standards as set by the STCW 1978 Convention, the IMO Consultants conclude there is an outstanding need for the development of facilities to train seafarers in Turkey. To meet these requirements they strongly recommended the establishment of a Maritime Safety Training Centre.

To assist in the development of the proposed Maritime Safety Training Centre, the IMO Consultants recommended that a project of maritime training centre may be established with the technical assistance between the Government of Turkey and United Nations Development Programme ( UNDP ).

With the completion of this project, the Government of Turkey will have established a modern Maritime Safety Training Centre ( MSTC ) for the training of between 400 - 800 seamen per year in essential maritime safety subjects ( Fire-fighting, survival at sea, and medical first aid at

sea ). Through the MSTC the required training for the certification of ratings, as demanded by the International Convention on Standards for Certification, Watchkeeping and Training of Seafarers 1978 ( STCW 1978 Convention ), will be satisfied.

Presently, international regulations on seafarers training ( STCW 1978 Convention ) require that, not only the captain and officers of the ships be provided with Certificates of Competency, but they should also be given to seamen, after appropriate training, including training on personal survival and fire-fighting.

The MSTC will be potentially capable of providing the required training on fire-fighting, sea survival and other essential maritime training subjects to all Turkish seafarers, officers and ratings, if required. However, according to the Work Plan, it will be dedicated to the training of ratings only, since cadets and officers conduct their training in other maritime establishments. An annual output of between 400 - 800 trainees is expected.

The centre will provide maritime safety training to a great number of new entrants to the Turkish merchant shipping fleet before they go to sea, and additionally, the Centre will provide training to already enrolled seafarers, within a plan that will take into account the shipowners' schedules of leave/relief periods.

At a national level the project will be managed by a Management Advisory Committee ( MAC ) integrated with representatives from the Government and Shipping Companies. This arrangement will facilitate, from the

beginning, essential co-operation between the training centre and the target beneficiaries: the shipping companies.

Since the centre will be a specialised maritime training institute, it will become an essential component of the national maritime training system. Its operations will have to be closely co-ordinated with other national training institutions, particularly with the existing Transport Training Centre at Uskudar, Istanbul.

Also, the expertise gained through the experience at the Liferaft service station at Uskudar will be an important contribution to the successful conduct of all practical training exercises to be carried out at the Maritime Safety Training Centre.

The design and location of a centre of this nature demands special consideration. Although the remoteness of the site overcomes environmental issues and hence provides ideal training conditions, it however creates the need to provide residential accomodation for seamen attending courses at the MSTC. This need has been taken into account.

The Turkish shipping is an important subsector. The fast development of its national merchant marine evidently shows the Turkish capability to provide the required support. The Government's successful efforts in promoting the development of the merchant fleet may be repeated in connection with the essential elements of their maritime infrastructure. The co-operation of shipping lines in the execution of the project will assure necessary support to the project.

## 6.2 RECOMMENDATIONS

Some lines to introduce the following recommendations.

- Continuation of training is important if the impact of a safety training courses are not to be lost.

It is really too much to expect master to give regular lectures to officers and ratings; however, much can be achieved by ship's staff if training films or video cassettes are put on board by the every company. With the assistance of such visual aids much useful training can be achieved, particularly in small practical and discussion groups.

- Turkey must establish a Tanker Safety Training Centre like the safety centre described in this project for the tanker crews from ratings to officers.

- Also Turkey needs one training centre for short courses relating to the maritime industry in areas such as port administration and chartering department.

This centre must cover such fields as; Port Personnel Training Sector, Cargo Handling and Stevedoring sector, Catering Personnel Training Sector.

- The training programmes for merchant marine officers in Turkey should be revised to include some form of refresher and upgrading training to update their knowledge and understanding of modern technology.

- Special importance should be attached to the training of future officers on all kinds of simulators, such as ship command controls, engine controls, radar operation, etc. The trainees there should acquire practical skills, learn to assess a situation properly, assess the limitations and capabilities of technical facilities to also cultivate a feeling of high responsibility for people's life, the ship and cargo.

- Another matter of importance is the testing and improvement of knowledge of officers in service. Relying upon a system of regular examinations, re-training on simulators and refresher courses Turkey can obtain very dependable information on officers' professional qualities and take appropriate steps to improve those so as to meet the demands of the times.

- The training and certification of Marine Radar Operators is ambiguous. It is recommended that the courses of study, the examination and certification system is reviewed in accordance with the ITU and STCW 1978 Regulations.

- Every ship should have an Emergency Response Organisation designed to meet any emergency which may arise at sea or in port.

- .- fire / explosion
- .- grounding
- .- collision
- .- tank rescue
- .- pollution spill.

Such organisation must be designed to achieve

- .- preservation of life in an emergency
- .- prompt and organised reaction to
  - : assess the emergency



: counter the emergency.

The Emergency Response Organisation must be simple and flexible, so that appropriate responses are obtained in any situation which may arise, such as;

- .- the ship at sea
- .- the ship in port, with many crew members ashore
- .- the nature and location of the emergency
- .- the location of personnel on board the ship
- .- the possibilities of injury to personnel and damage to the ship in the initial event
- .- the activities of the ship at the time of the incident.

- The state of the Emergency and Rescue Service Divisions should be improved, presently their fleet are old and outmoded. The division should be helped to acquire new and modern, well equipped vessels to enable them to operate in their respective zones more efficiently. The crew should also be trained locally and internationally in order to raise their level of performance.

- The author has some additional recommendations which can help to solve the problems or answer the question which have already been stated before.

- .- training of administrative and technical personnel,
- .- establishment of institutions for training of seafarers
- .- supply of equipment and facilities for training institutions,
- .- development of adequate training programmes, including practical training on sea-going ships, and
- .- facilitation on other measures and arrangements to enhance the qualifications of seafarers.

# APPENDICES

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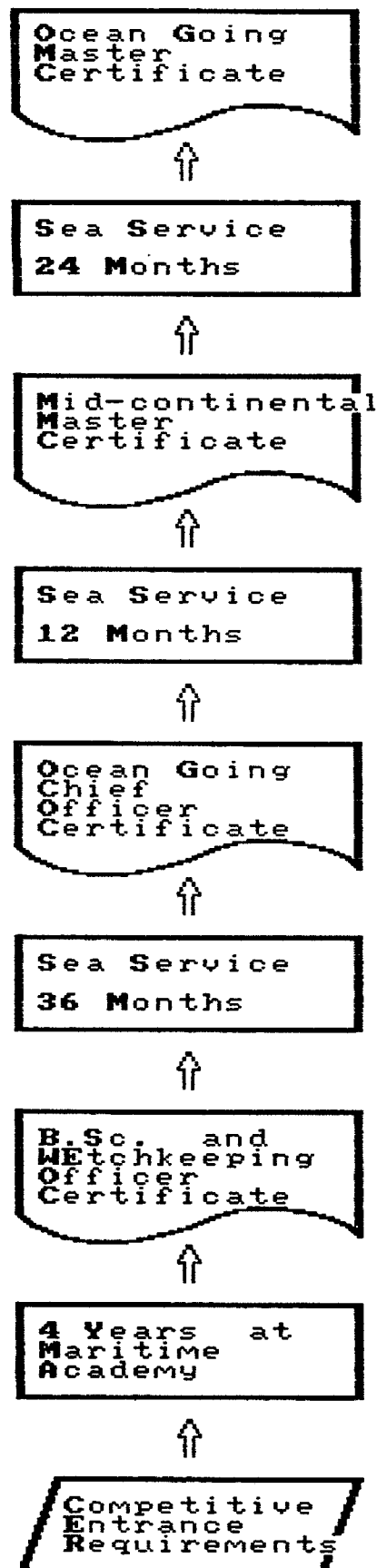


Fig. 1: System of NET in Maritime Academy.

# A C A D E M Y ' S      S Y L L A B U S

## 1- F I R S T    Y E A R

### 1.1    F I R S T    S E M E S T E R

<u>No</u>	<u>SUBJECTS</u>	<u>1. Sem. (Week)</u>	<u>Total</u>	<u>Hour</u>
1	ENGLISH	6 (2/2/2)	96	80
2	HIGH MATHEMATICS	4 (3/1/0)	64	53
3	PHYSICS	4 (2/0/2)	64	53
4	CHEMISTRY	3 (2/0/1)	48	40
5	NATIONAL HISTORY	1 (1/0/0)	16	13
6	BASIC LAW	2 (2/0/0)	32	26
7	SHIP CONSTRUCTION	3 (2/1/0)	48	40
8	SEAMANSHIP	2 (1/1/0)	32	26
9	TECHNICAL DRAWING	3 (2/1/0)	48	40
10	PHYSICAL EDUCATION	2 (0/2/0)	32	26

### 1.2    S E C O N D    S E M E S T E R

<u>No</u>	<u>SUBJECTS</u>	<u>2. Sem. (Week)</u>	<u>Total</u>	<u>Hour</u>
1	ENGLISH	5 (2/0/3)	80	66
2	HIGH MATHEMATIC	3 (2/1/0)	48	40
3	NATIONAL HISTORY	1 (1/0/0)	16	13
4	ECONOMY	2 (2/0/0)	32	26
5	NAVIGATION	5 (3/2/0)	80	66
6	SEAMANSHIP	3 (2/1/0)	48	40
7	OCEANOGRAPHY	2 (2/0/0)	32	26
8	SHIP CALCULATION	3 (2/1/0)	48	40
9	ELECTRIC KNOWLEDGE	4 (2/0/2)	64	53
10	PHYSICAL EDUCATION	2 (0/2/0)	32	26

## 2. SECOND YEAR

### 2.1 FIRST SEMESTER

<u>No</u>	<u>SUBJECTS</u>	<u>1. Sem. (Week)</u>	<u>Total</u>	<u>Hour</u>
1	ENGLISH	5 (2/0/3)	80	66
2	HIGH MATHEMATICS	3 (2/1/0)	48	40
3	NATIONAL HISTORY	1 (1/0/0)	16	13
4	ECONOMY	2 (2/0/0)	32	26
5	NAVIGATION	5 (3/2/0)	80	66
6	SEAMANSHIP	3 (2/1/0)	48	40
7	OCEANOGRAPHY	2 (2/0/0)	32	26
8	SHIP CALCULATION	3 (2/1/0)	48	40
9	ELECTRIC KNOWLEDGE	4 (2/0/2)	64	53
10	PHYSICAL EDUCATION	2 (0/2/0)	32	26

### 2.2 SECOND SEMESTER

<u>No</u>	<u>SUBJECTS</u>	<u>2. Sem. (Week)</u>	<u>Total</u>	<u>Hour</u>
1	ENGLISH	5 (2/0/3)	80	66
2	HIGH MATHEMATICS	2 (1/1/0)	32	26
3	NATIONAL HISTORY	1 (1/0/0)	16	13
4	ECONOMY	2 (2/0/0)	32	26
5	NAVIGATION	5 (3/2/0)	80	66
6	CARGO WORKING	2 (1/1/0)	32	26
7	SHIP CALCULATION	3 (2/1/0)	48	40
8	ELECTRONIC KNOWLEDGE	4 (2/0/2)	64	53
9	PROBABILITY CONCEPT	4 (3/1/0)	64	53
10	PHYSICAL EDUCATION	2 (0/2/0)	32	26
11	MILITARY KNOWLEDGE	1 (1/0/0)	16	13

### 3. THIRD YEAR

#### 3.1 FIRST SEMESTER

<u>No</u>	<u>SUBJECTS</u>	<u>1. Sem. (Week)</u>	<u>Total</u>	<u>Hour</u>
1	ENGLISH	5 (2/0/3)	80	66
2	NATIONAL HISTORY	1 (1/0/0)	16	13
3	NAVIGATION	4 (2/2/0)	64	53
4	CARGO WORKING	2 (1/1/0)	32	26
5	METEOROLOGY	4 (3/1/0)	64	53
6	SHIP ELECTRONIC	4 (2/0/2)	64	53
7	MARITIME LAW	3 (3/0/0)	48	40
8	SEA SECURITY	1 (1/0/0)	16	13
9	PRIMARY RESEARCH	4 (3/1/0)	64	53
10	PHYSICAL EDUCATION	2 (0/2/0)	32	26

#### 3.2 SECOND SEMESTER

<u>No</u>	<u>SUBJECTS</u>	<u>2. Sem. (Week)</u>	<u>Total</u>	<u>Hour</u>
1	ENGLISH	5 (2/0/3)	80	66
2	NATIONAL HISTORY	1 (1/0/0)	16	13
3	ECONOMY	1 (1/0/0)	16	13
4	NAVIGATION	4 (2/2/0)	64	53
5	CARGO WORKING	2 (1/1/0)	32	26
6	SHIP ELECTRONIC	4 (2/0/2)	64	53
7	MARITIME LAW	3 (3/0/0)	48	40
8	MARINE TRANSPORT ECONOMY	3 (2/1/0)	48	40
9	SEA COMMUNICATION	3 (2/1/0)	48	40
10	SEA SECURITY	1 (1/0/0)	16	13
11	HARBOUR AFFAIRS	3 (2/1/0)	48	40
12	PHYSICAL EDUCATION	2 (0/2/0)	32	26

#### 4. FOURTH YEAR

##### 4.1 FIRST SEMESTER

PRACTICAL EDUCATION TIME.

##### 4.2 SECOND SEMESTER

No	SUBJECTS	2. Sem. (Week)	Total	Hour
1	ENGLISH	4 (2/0/2)	64	53
2	NATIONAL HISTORY	2 (2/0/0)	32	26
3	ECONOMY	2 (1/1/0)	32	26
4	MARINE AFFAIRS	2 (2/0/0)	32	26
5	MARITIME USAGE	1 (1/0/0)	16	13
6	MARINE INSURANCE	2 (1/1/0)	32	26
7	MARINE TRANSPORT CONTROL	2 (2/0/0)	32	26
8	MARITIME LAW	3 (3/0/0)	48	40
9	INDUSTRIAL MANAGEMENT	3 (2/1/0)	48	40
10	SEA SECURITY	2 (1/1/0)	32	26
11	CHARTERING	2 (1/1/0)	32	26
12	PHYSICAL EDUCATION	2 (0/2/0)	32	26
13	THESIS / PROJECT	3 (0/3/0)	48	40

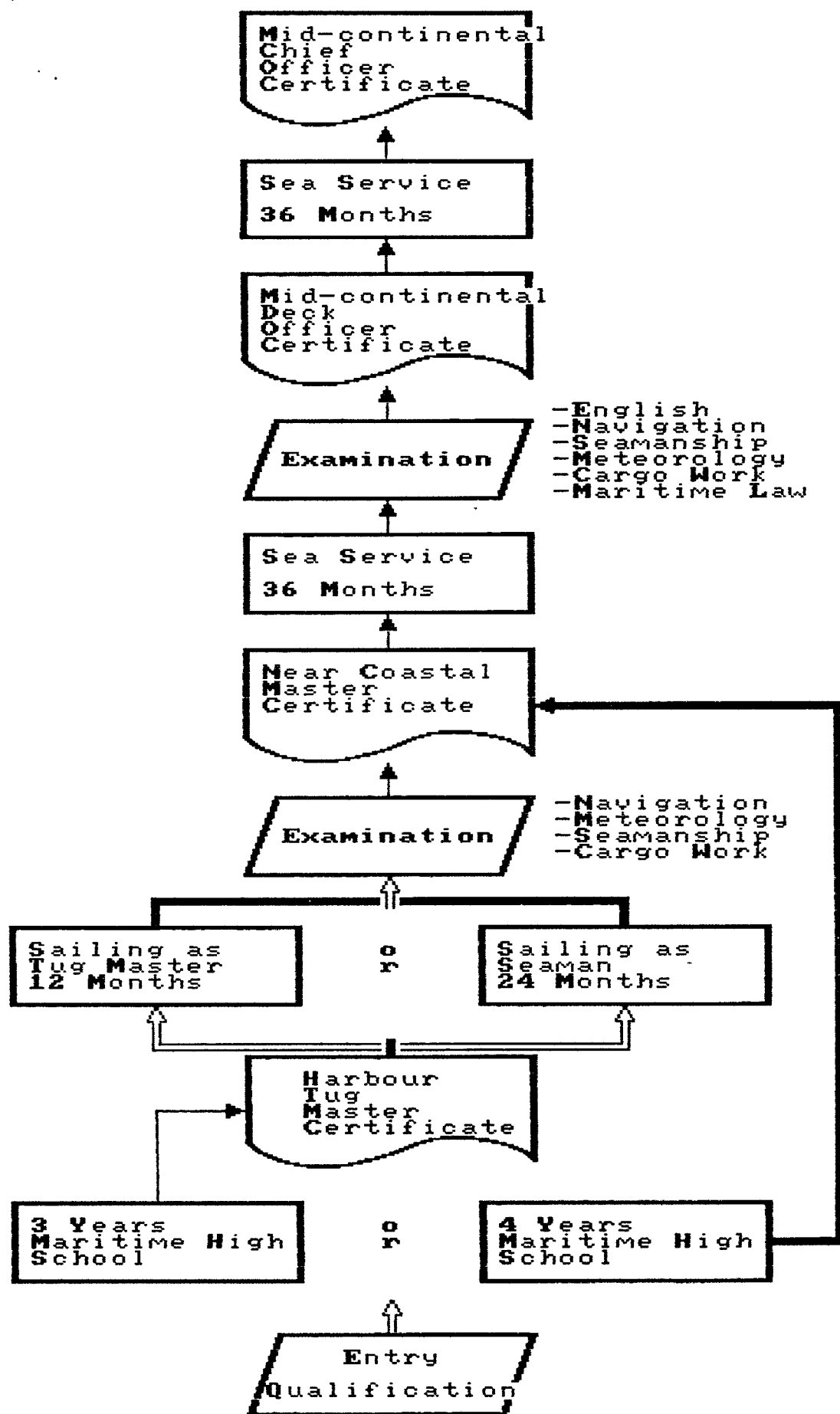


Fig. 2: System of NET in Maritime Technical High School.

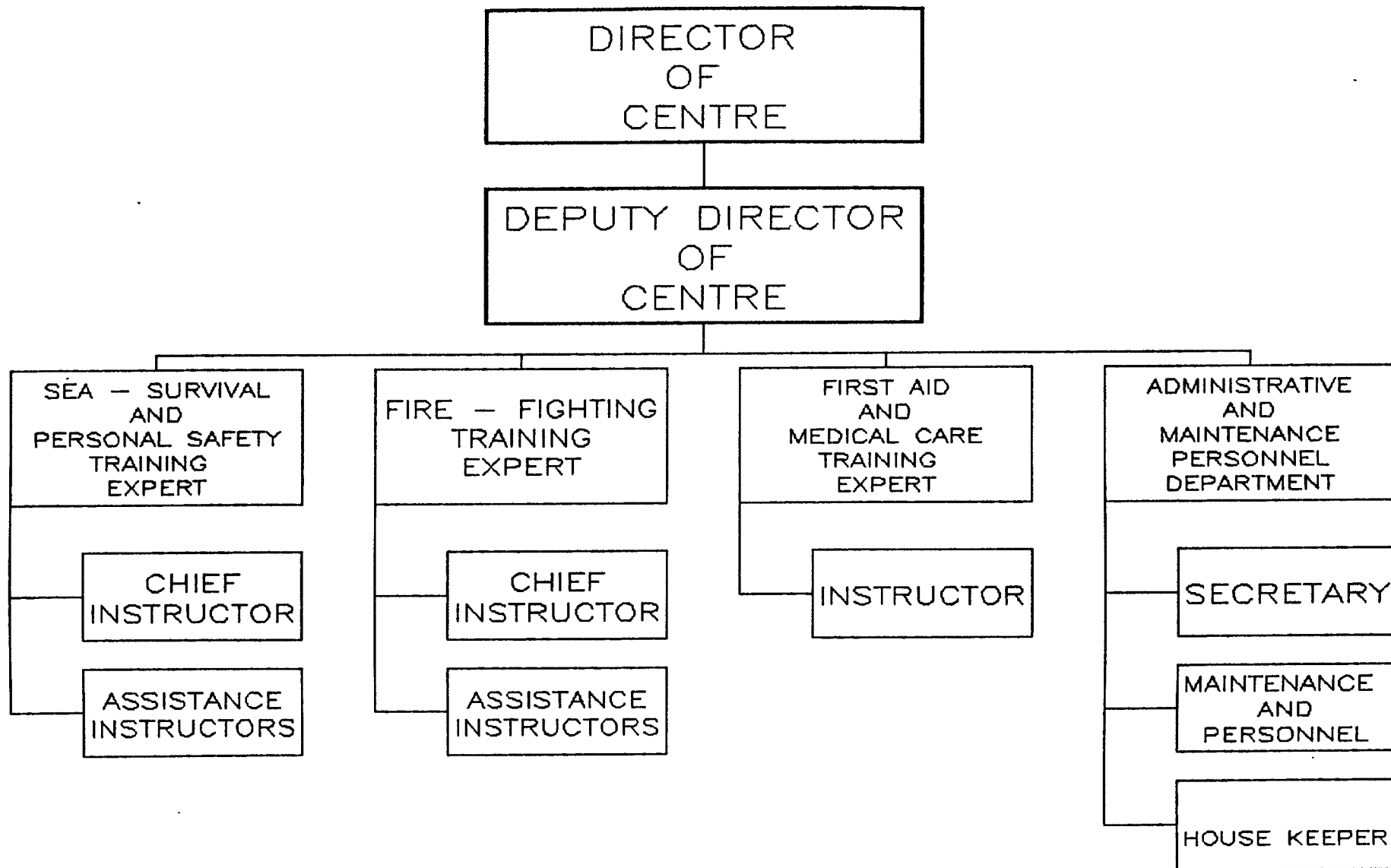


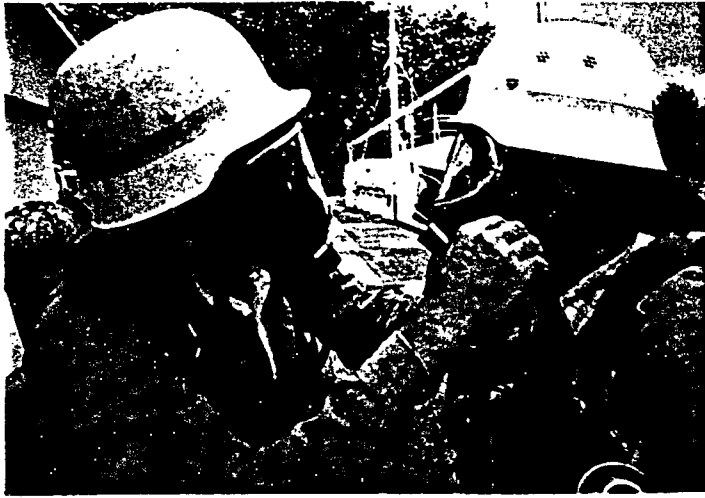
MARITIME TECHNICAL HIGH SCHOOL

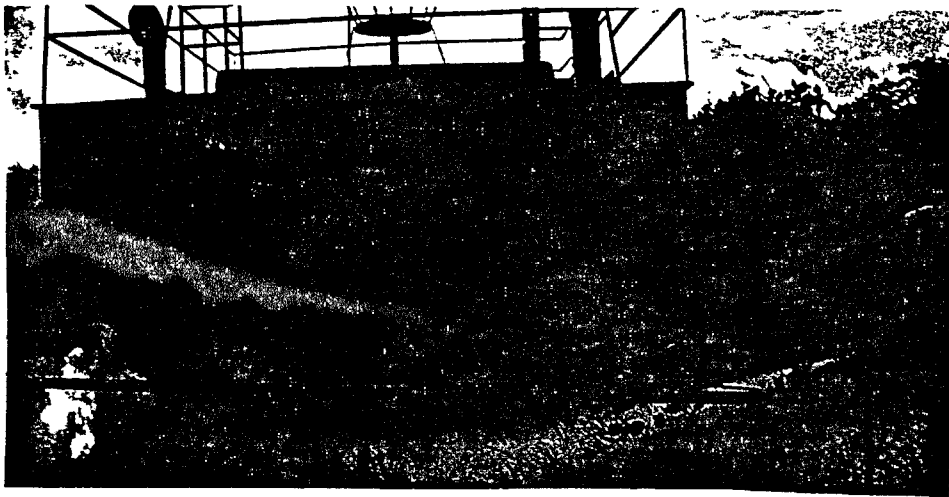
SYLLABUS - DECK DEPARTMENT

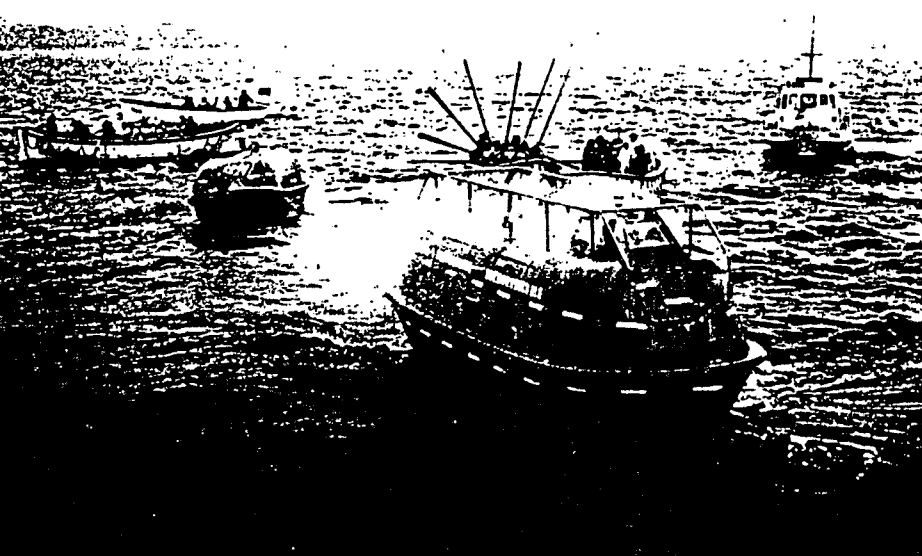
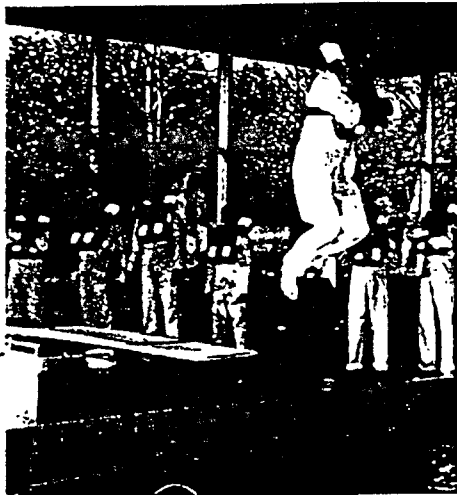
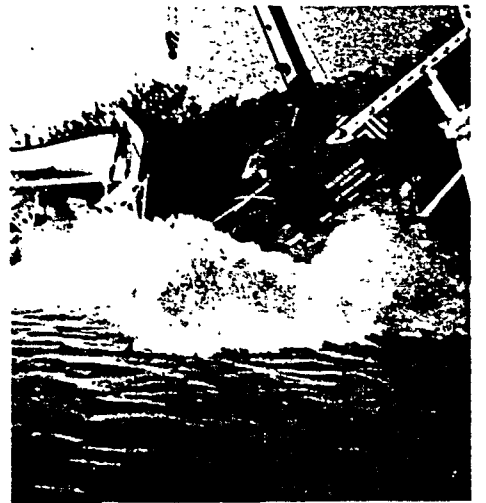
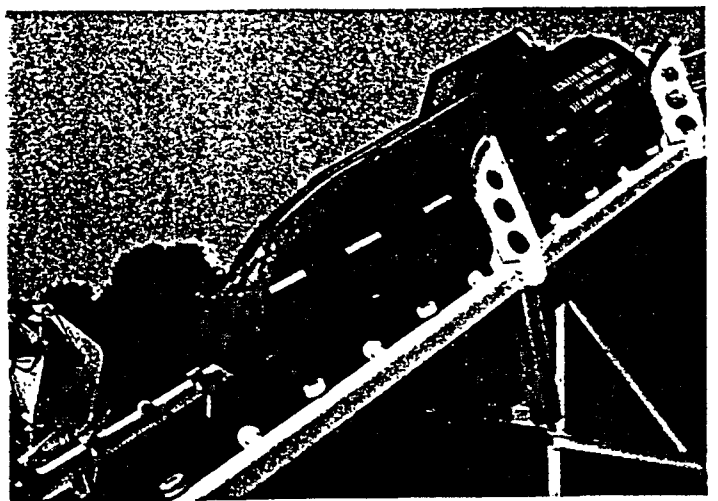
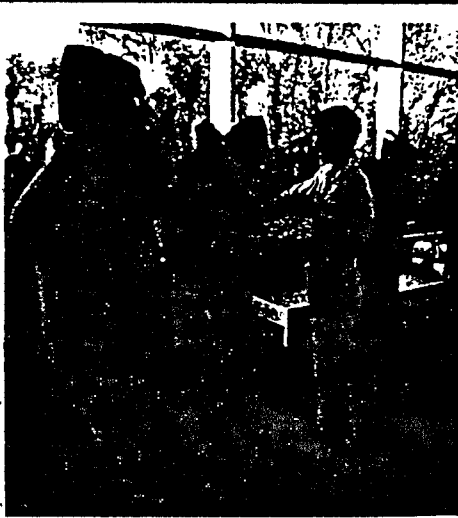
THEORETICAL SUBJECTS	PREP.CLS	IX.CLS.	X.CLS.	XI.CLS.	TOTAL
TURKISH	4	2	2	2	10
ENGLISH	27	2	2	2	33
NATIONAL HISTORY	-	1	1	1	3
GENERAL HISTORY	-	2	-	-	2
MATHEMATICS	-	3	2	2	7
PHYSICS	-	2	2	-	4
CHEMISTRY	-	2	-	-	2
NATIONAL SECURITY	-	-	-	1	1
PHYSICAL EDUCATION	2	1	1	-	4
RELIGION & CHARACTER	-	1	1	1	3
SEMINAR	4	-	-	-	4
SEAMANSHIP	-	3	2	2	7
NAVIGATION	-	3	2	2	7
MARITIME LAW	-	-	-	2	2
METEOROLOGY	-	-	-	1	1
SEA COMMUNICATION	-	-	1	-	1
GEOGRAPHY	-	1	-	-	1
HEALTH KNOWLEDGE	-	1	-	-	1
SEA MANAGEMENT	-	1	-	-	1
TOTAL HOURS	37	25	16	16	94
PRACTICAL SUBJECTS	*****	*****	*****	*****	*****
TECHNOLOGY	-	2	2	2	6
WORKSHOP	-	16	22	22	60
TOTAL HOURS	-	18	24	24	66
GENERAL TOTAL	37	43	40	40	160

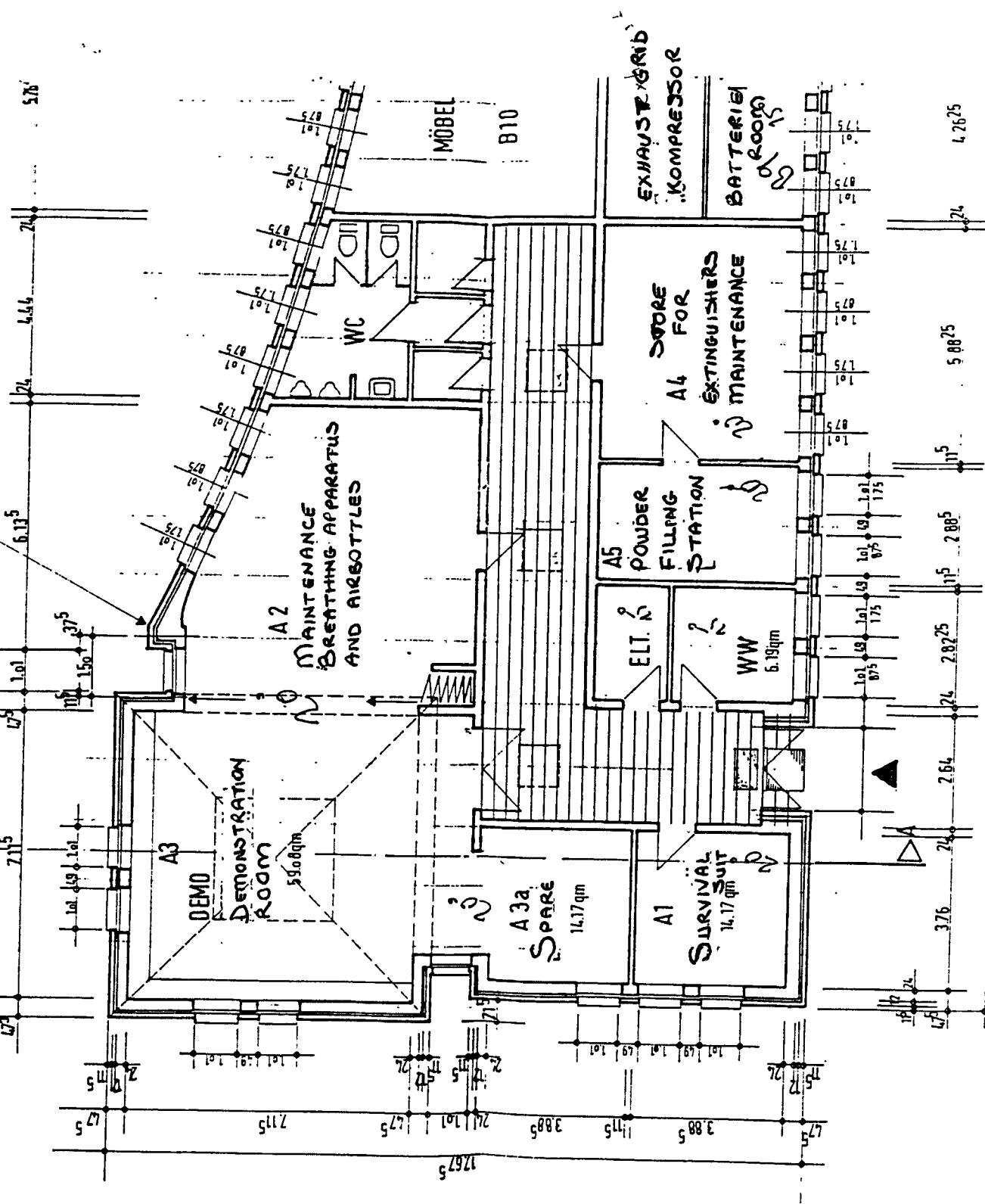
# ORGANISATION CHART OF THE MARITIME SAFETY TRAINING CENTRE



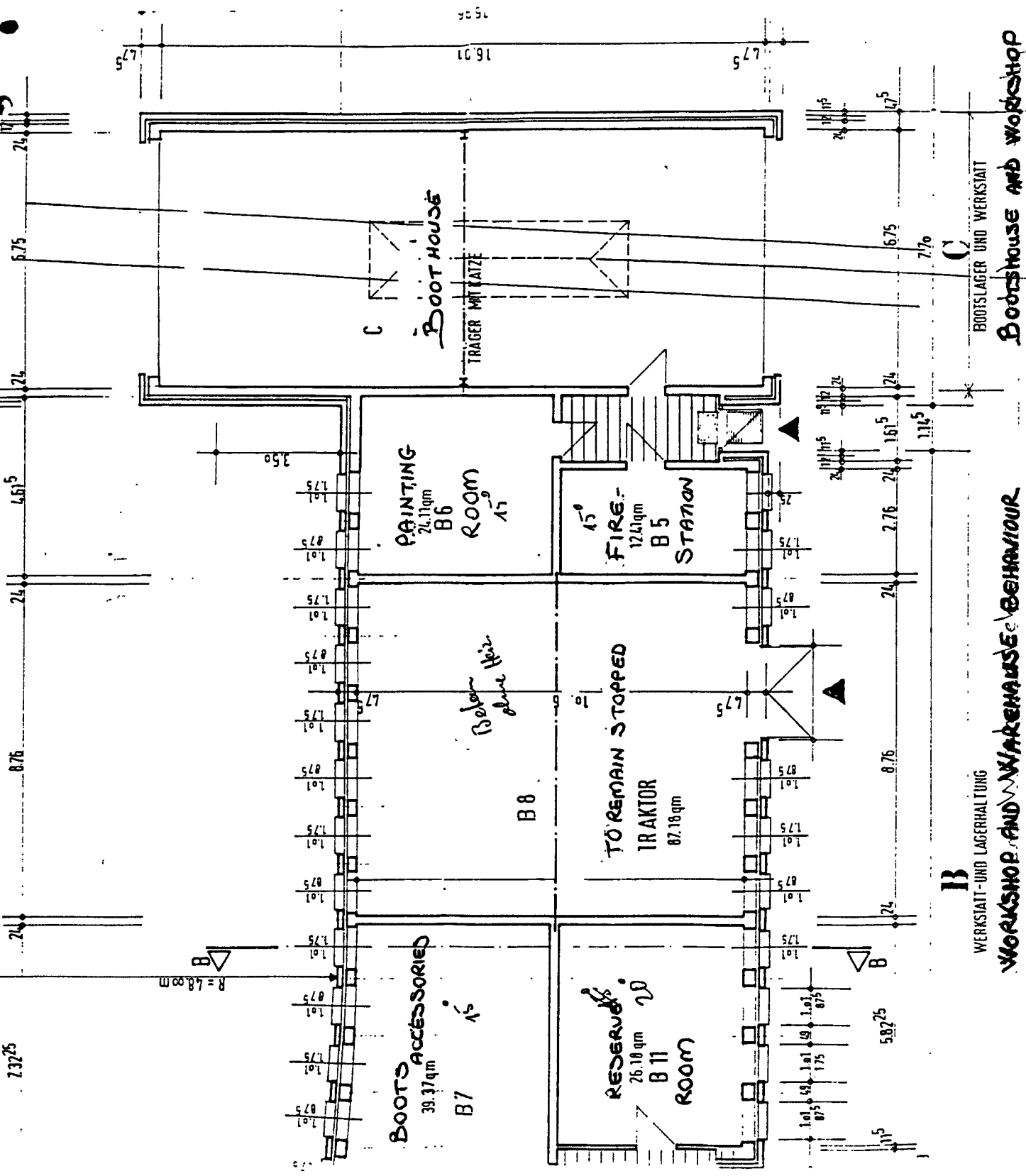








**A**  
 SICHERHEITSTRAINING  
**SAFETY TRAINING PART**



BOOTSLAGER UND WERKSTATT  
**Boothouse and workshop**

WERKSTATT- UND LAGERHALTUNG  
**WORKSHOP AND WAREHOUSE**

**BEHAVIOUR**

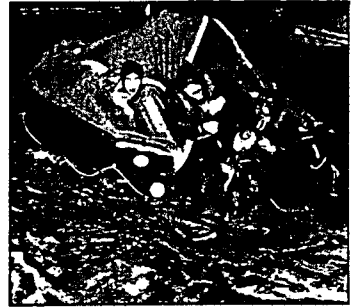
## INTRODUCTION

The RGIT Offshore Survival Centre provides all trainees with the same understanding. How to face with confidence, the problems before, during and after abandonment in a maritime environment.

This is achieved, not just through theoretical training, but by practical experience designed to provide a comprehensive knowledge of survival techniques and the use of survival and rescue appliances, with the objective of maximising survival chances in the event of an accident at sea.

The Centre is no newcomer to this field as, since 1972, it has offered extensive training in personal survival techniques and in the use of lifesaving appliances. During that time, the Centre has catered for personnel, mainly from the offshore oil, aviation and maritime industries, and others who work in, on, or above the water.

The Centre continually maintains and improves the standard of its facilities. By conducting training programmes well in excess of current requirements of the regulatory author-



ities at sensible cost, and supported by a wide range of research programmes, the Offshore Survival Centre aims to consolidate its present position as world leader in its field.





# BOAT PROCEDURES

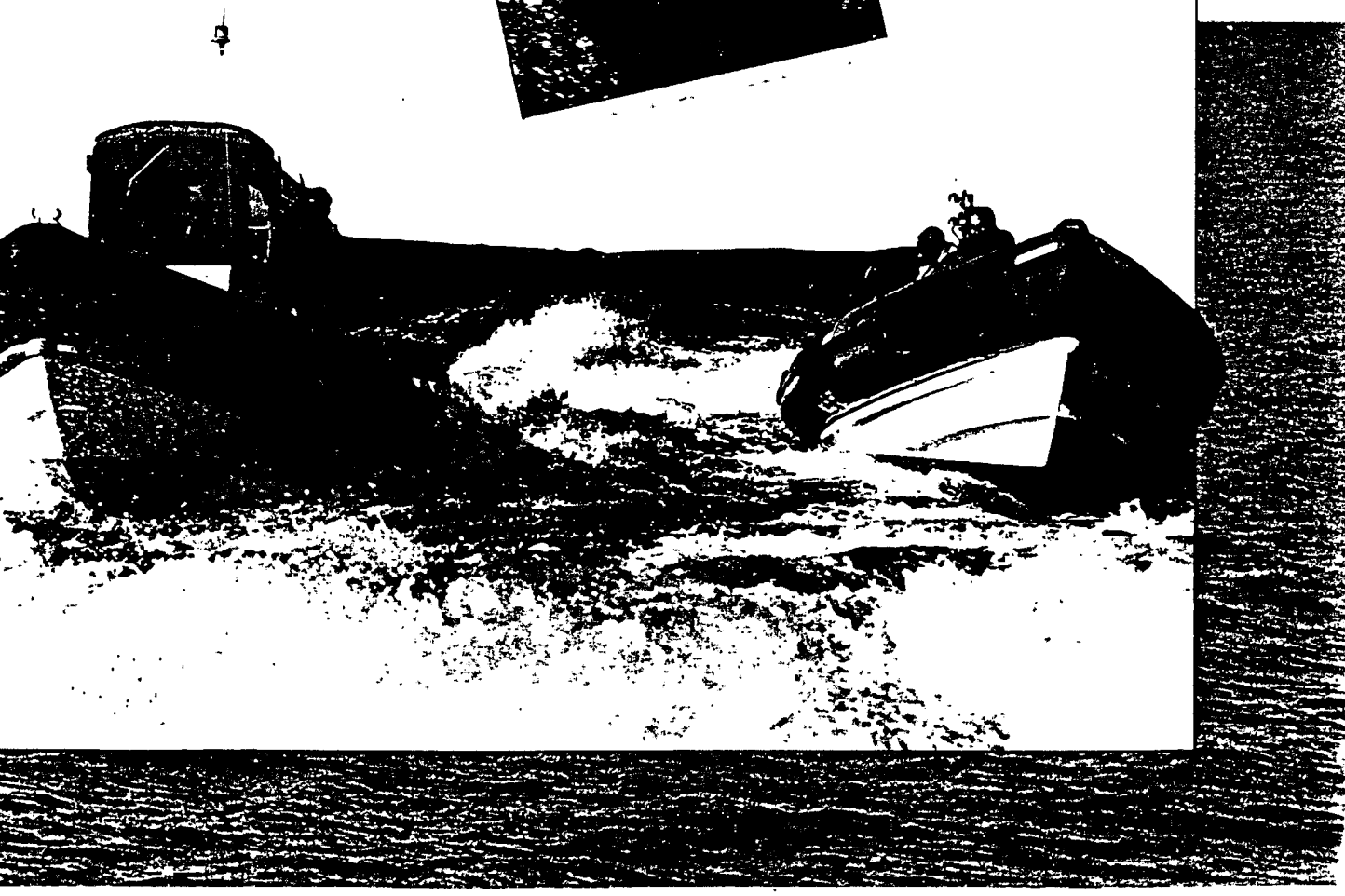
Two major operations related to offshore survival are the launch and handling of "totally enclosed" lifeboats and rescue boats. This training requirement is met at the Offshore Survival Centre's two training sites on the edge of the North Sea.

At Aberdeen harbour, on the River Dee, is the special training platform where exercises in the launch of lifeboats are conducted utilising every type of "totally enclosed" lifeboat commonly in use in the North Sea and worldwide. The Centre also provides coxswain's training.

At the Stonehaven site, rescue training includes DTp agreed Rescue-ship courses and specialised courses for overseas Lifeboat institutions as well as fast rescue craft coxswain and crew training. Training is supported by a fleet of fast rescue craft ranging in size up to 36 feet.

Both lifeboat and rescue boat training complexes are equipped to the very highest standards. Facilities include offices, changing rooms, classrooms, workshops and medical research rooms equipped with specialized equipment.

*Boat training that is second to none.*



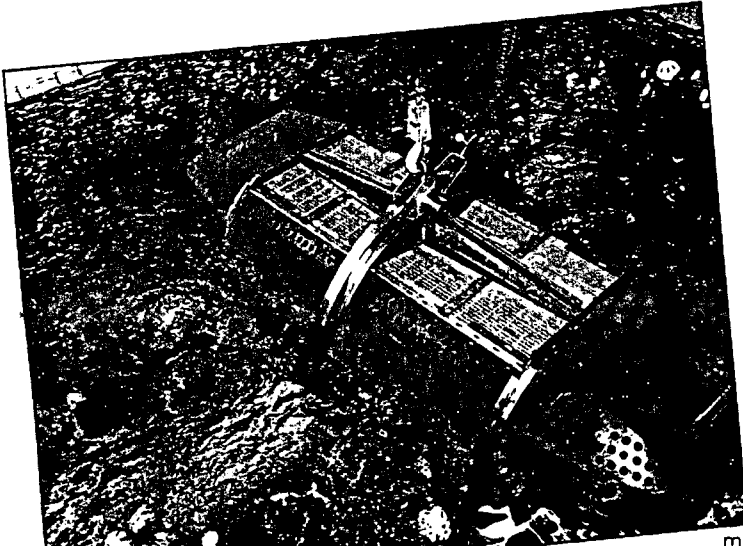
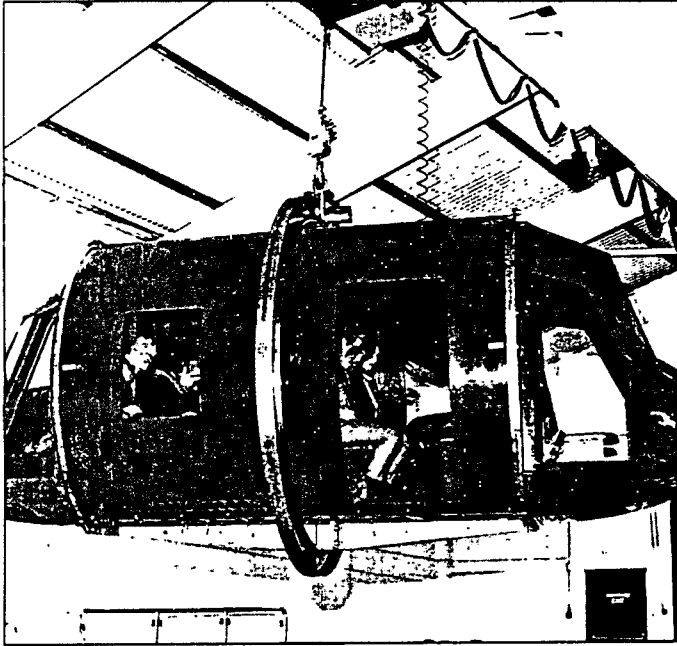
## RESEARCH AND DEVELOPMENT

No effective survival centre would be complete without a Research and Development facility. At the Offshore Survival Centre, Research and Development could not be in better or more experienced hands.

The Centre's Research and Development consultancy service is specifically designed for the development and testing of lifesaving appliances and rescue-related equipment, and provides fast and efficient assistance to industry and government.

The Centre is approved as the Government testing centre for all types of immersion suits. Many companies worldwide have already reaped the benefits of this and the Centre's other Research and Development services.

*Related Research and Development that is second to none.*

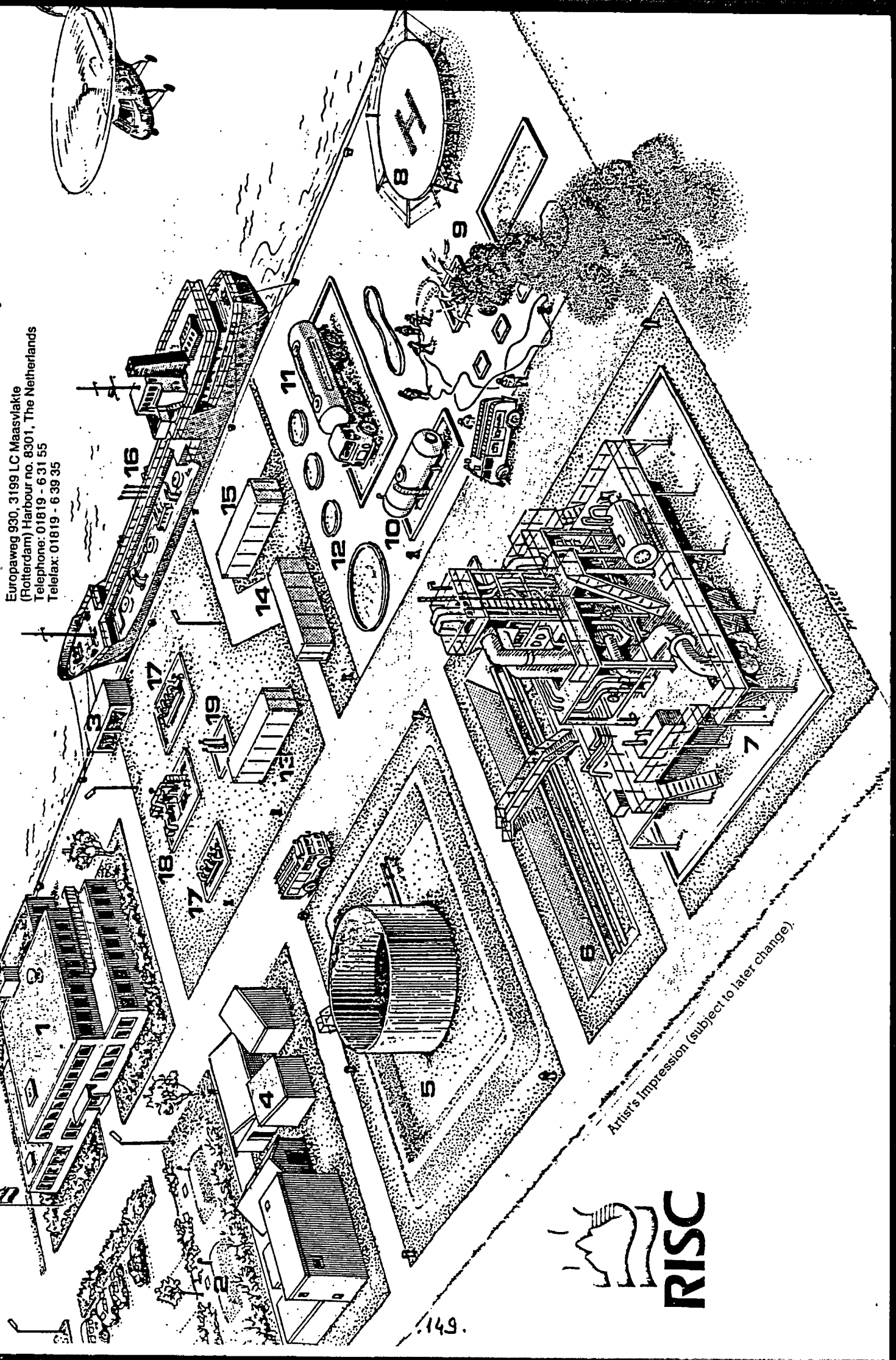


Courses tailored to any requirement. Designed to meet the highest international standards, including requirements of UKOOA, OPITB, NPD and MNTB.

### *Standard courses include:*

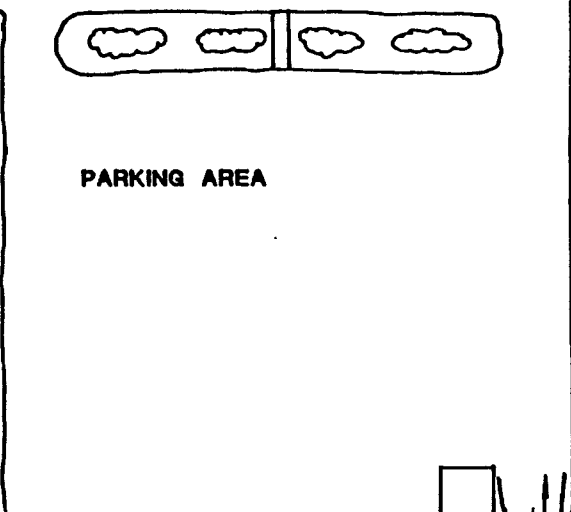
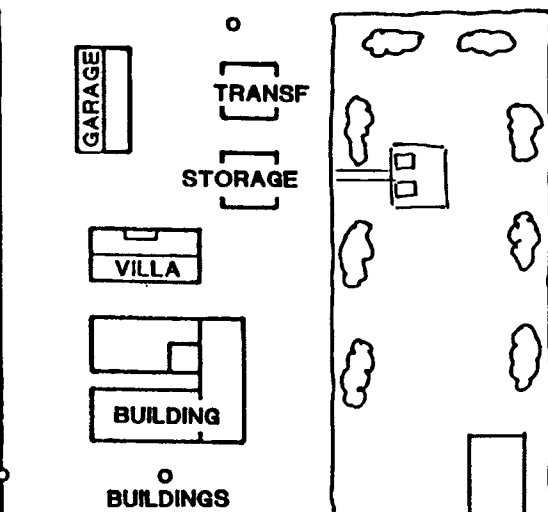
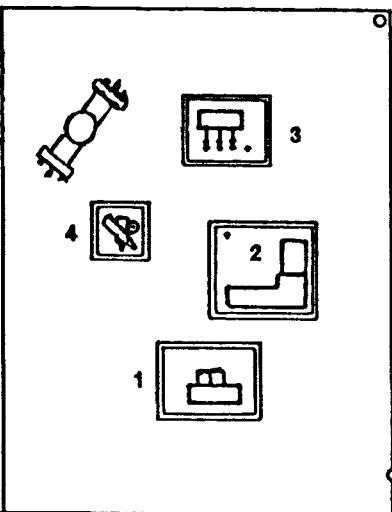
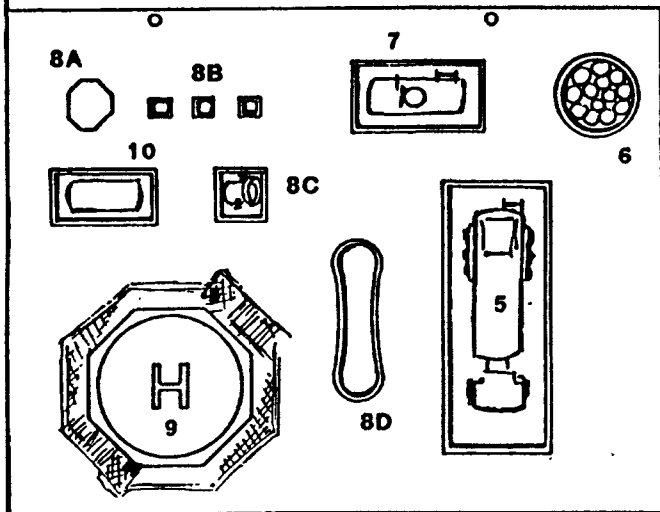
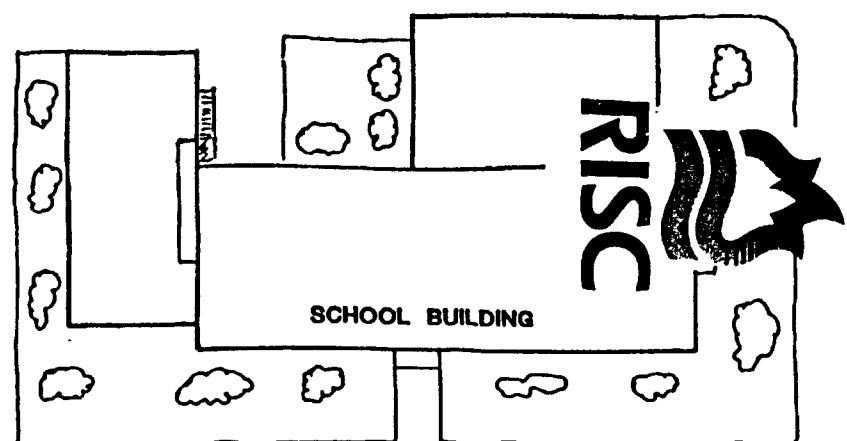
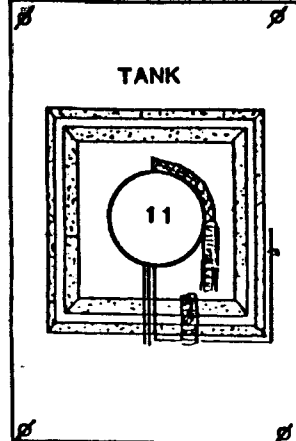
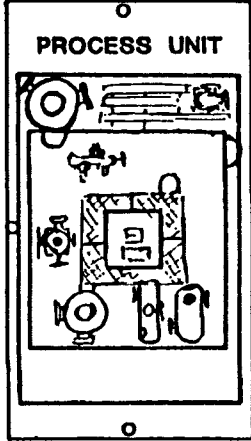
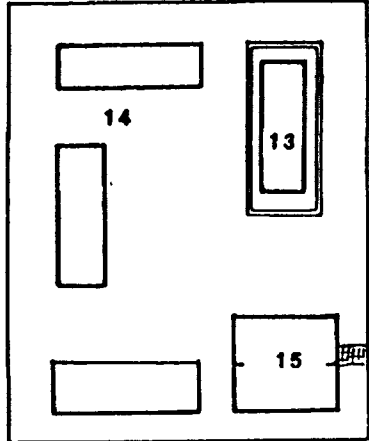
- Basic Offshore Survival
- Combined Survival/Firefighting
- Fast Rescue Craft/Rescue Ship Operations
- Aircraft Emergency Escape (Dry and Wet)
- Totally Enclosed Lifeboat Coxswains
- Refresher Courses
- Basic Sea Survival
- Related Maritime Emergency Response Courses designed on request

Europaweg 930, 3199 LC Maasvlakte  
(Roiterdam) Harbour no. 8301, The Netherlands  
Telephone: 01819 - 6 31 55  
Telefax: 01819 - 6 39 35



Artist's Impression (subject to later change).





# TRAINING SITE



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 930 Europaweg (N-15)  
 Harbour no. 8301, 3199 LC MAASVLAKTE,  
 Rotterdam, Holland  
 telephone: 31 1819 63155  
 telefax: 31 1819 63935  
 telex: 29586 risc nl

- - FIRE HYDRANT
- ∅ - HYDRANT/MONITOR COMBI
- 1 - PRODUCT MANIFOLD
- 2 - PUMP WITH LEAKING FLANGE
- 3 - LPG MANIFOLD
- 4 - GAS CYLINDERS
- 5 - ROAD TANK WAGGON
- 6 - DRUMS IN RING
- 7 - LPG RAIL WAGON
- 8 A/D - EXTINGUISHER OBJECTS
- 9 - HELI- DECK
- 10 - GASOLINE TANK WAGGON
- 11 - 11 M DIA PRODUCT TANK
- 12 - PIPE ALLEY
- 13 - TEST AREA
- 14 - CONTAINERS
- 15 - COMPUTER ROOM
- 16 - GASDETECTION OBJECTS

150.

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