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WORLD MARITIME UNIVERSITY
MALMO, SWEDEN

A COMPARATIVE STUDY OF DIFFERENT NAUTICAL EDUCATION AND TRAINING SYSTEMS FOR MASTER MARINERS AND A PROPOSED SYSTEM FOR ALGERIA.

BY

MOHAMED BOUHI

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

GENERAL MARITIME ADMINISTRATION

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

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THE MAIN OBJECTIVE OF THIS PAPER IS TO DESCRIBE THE EDUCATION AND TRAINING SYSTEMS FOR MASTER MARINERS IN VARIOUS DEVELOPED COUNTRIES, TO ATTEMPT TO DISTIL AND SORT OUT THEIR COMMON ELEMENTS AND THE DIFFERENCES THAT COULD EXIST AMONG THEM, TO COMPARATIVELY SITUATE THE PRESENT ALGERIAN SYSTEM AND FINALLY TO PROPOSE FOR MY COUNTRY A SYSTEM WHICH IN MY PERSONAL POINT OF VIEW COULD BEST CONTRIBUTE TO THE IMPROVEMENT OF MARITIME EDUCATION AND TRAINING OF DEEP-SEA MASTERS IN ALGERIA.

CHAPTER I DESCRIBES THE DEVELOPMENTS AND CHANGES THAT HAVE OCCURRED TO SEAFARING AS IT IS NOWADAYS LOOKED AT FROM THE PROFESSIONAL POINT OF VIEW. IT ALSO EMPHASIZES THE IMPORTANCE OF THE HUMAN FACTOR IN CASUALTIES AND THE ROLE OF MARITIME ACADEMIES IN THIS RESPECT.

TRAINING OF SEAFARERS IN GENERAL AND THE STCW CONVENTION IN PARTICULAR ARE DISCUSSED AS WELL.

CHAPTER II GIVES A FULL DESCRIPTION OF THE EDUCATION AND TRAINING OF MASTER MARINERS IN THE THREE SCANDINAVIAN COUNTRIES.

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CHAPTER IV DESCRIBES THE EDUCATION AND TRAINING OF MASTER MARINERS IN THE UNITED STATES OF AMERICA.

CHAPTER V DESCRIBES THE EDUCATION AND TRAINING OF MASTER MARINERS IN THE SOVIET UNION.

CHAPTER VI IS A COMPARATIVE STUDY OF THE EDUCATION AND TRAINING OF DEEP-SEA MASTERS IN THE COUNTRIES DESCRIBED EARLIER.
CHAPTER VII IS ALLOCATED TO THE EDUCATION AND TRAINING OF MASTER MARINERS IN ALGERIA. THE CHAPTER IS DIVIDED INTO THREE PARTS. THE FIRST PART DEALS WITH MARITIME ACTIVITIES IN ALGERIA WHILE THE SECOND ONE PRESENTS THE ALGERIAN SYSTEM OF BOTH GENERAL AND MARITIME EDUCATION. THE THIRD PART IS EXCLUSIVELY DEVOTED TO THE PRESENT ALGERIAN SYSTEM OF TRAINING OF MASTER MARINERS. 

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CHAPTER X FINALLY GIVES SOME CONCLUSIONS AND RECOMMENDATIONS. 

AT THE END OF THIS PAPER, THERE IS A LIST OF REFERENCES AND A BIBLIOGRAPHY FROM WHICH INFORMATION HAS BEEN COLLECTED FOR THE ELABORATION OF THIS PAPER.
WITH THESE FEW WORDS I WOULD LIKE TO PUT ON RECORD MY DEEP GRATITUDE AND WARMEST THANKS TO MY COURSE PROFESSOR AND TO THE PERMANENT STAFF OF THE WORLD MARITIME UNIVERSITY FOR THEIR ASSISTANCE, ADVICE AND ENCOURAGEMENT FOR THE ELABORATION OF THIS PAPER.

I AM IN PARTICULAR UNDEBTED TO MRS. INGER BATTISTA FOR HAVING ACCEPTED TO CORRECT MY WRITTEN ENGLISH.

I OWE SPECIAL DEBTS OF GRATITUDE TO MY COUNTRY FOR HAVING GIVEN ME THE OPPORTUNITY TO ATTEND THE TWO-YEAR COURSE AT THE WORLD MARITIME UNIVERSITY IN MALMO.

FINALLY, MY BEST REGARDS ARE DIRECTED TO MY COLLEAGUES AND FRIENDS OF THE WORLD MARITIME UNIVERSITY.

MOHAMED BOUHI.
ABBREVIATIONS

IMO: INTERNATIONAL MARITIME ORGANIZATION.

ILO: INTERNATIONAL LABOUR ORGANIZATION.

MOT: MINISTRY OF TRANSPORT.

MET: MARITIME EDUCATION AND TRAINING.

STCW: INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCH-KEEPING FOR SEAFARERS.

WMU: WORLD MARITIME UNIVERSITY.

SOLAS: INTERNATIONAL CONVENTION ON SAFETY OF LIFE AT SEA.

ISM: INSTITUT SUPERIEUR MARITIME.

GRT: GROSS REGISTERED TONS.

IN ALGERIA, ALMOST 99% OF THE COUNTRY'S FOREIGN TRADE IS TRANSPORTED BY SEA. NEEDLESS TO SAY, MARITIME TRANSPORT IS CONSIDERED BY FAR THE MOST DETERMINANT FACTOR IN THE OVERALL ECONOMIC AND SOCIAL DEVELOPMENT OF THE COUNTRY. PARTICIPATION IN WORLD TRADE IS, HOWEVER, DEPENDENT ON A COUNTRY'S INFRASTRUCTURE, ITS HUMAN CAPABILITIES AND ADMINISTRATIVE STRUCTURE. AMONG THESE CONSIDERATIONS, THE HUMAN PERFORMANCE IS RECOGNIZED AS THE VITAL AND MOST OVERRIDING FACTOR WHICH DETERMINES THE DEGREE OF DEVELOPMENT OF ANY COUNTRY. IN SHIPPING THE HUMAN ELEMENT PLAYS AN IMPORTANT ROLE. IT OBVIOUSLY HAS A TREMENDOUS BEARING ON THE ECONOMIC OPERATION OF SHIPS AS WELL AS ON SAFE NAVIGATION AND PROTECTION OF THE MARINE ENVIRONMENT. THE SAFE MOVEMENT OF THE WORLD MARITIME TRADE IS ULTIMATELY IN THE HANDS OF THOSE PEOPLE NAVIGATING AND PILOTING THE WORLD MERCHANT FLEET.

SINCE SHIPPING IS AN INTERNATIONAL INDUSTRY WHICH UTILIZES CAPITAL INTENSIVE EQUIPMENT, THE ACQUISITION OF SHIPS
FOR THE ESTABLISHMENT OF A MERCHANT FLEET AND/OR THE CONSTRUCTION OF SHIPS AND PORT INSTALLATIONS IS NOT SO DIFFICULT ONCE THE APPROPRIATE POLICY DECISIONS ARE TAKEN. HOWEVER, THE APPROPRIATE MARINE PERSONNEL REQUIRED TO MAN/OPERATE AND ADMINISTER THEM IS ALWAYS DIFFICULT TO OBTAIN OR AT LEAST IT TAKES LONG PERIODS AND CONSIDERABLE INVESTMENT TO ACQUIRE HIGHLY QUALIFIED AND SKILLED MANPOWER.

THE MAIN REASONS IN SUPPORT FOR HAVING WELL-TRAINED AND QUALIFIED SEAFARERS CAN BE SUMMARIZED AS FOLLOWS:

- TRAINING OF SEAFARERS IMPROVES SAFETY STANDARDS AND EFFICIENCY, BOTH OF WHICH ARE VITAL IN THE SAFE AND ECONOMIC OPERATION OF SHIPS.

- WELL TRAINED AND QUALIFIED SEAFARERS DO EFFECTIVELY AND EFFICIENTLY PARTICIPATE IN THE ECONOMIC DEVELOPMENT OF THEIR RESPECTIVE COUNTRIES. IN THE CASE OF DEVELOPING COUNTRIES, THE EDUCATION AND TRAINING OF NATIONAL SEAFARERS REDUCES THE DEPENDENCE ON FOREIGN EXPATRIATES.

- TRAINED SEAFARERS OF A COUNTRY INCREASE THE EMPLOYMENT POTENTIAL OF SEAFARERS OF THAT COUNTRY ON THE NATIONAL AND INTERNATIONAL LEVEL.

- SHIPOWNERS ARE BECOMING VERY KEEN ON EMPLOYING WELL TRAINED AND SKILLED SEAFARERS.
IMPROVING THE TRAINING AND QUALIFICATIONS OF SEAFARERS IS LIKELY TO HAVE THE GREATEST EFFECT UPON SAFETY AT SEA.

THERE IS A STRONG AND INCREASING DEMAND IN INTERNATIONAL FORA SUCH AS IMO AND ILO FOR THE HIGHEST STANDARDS OF SAFETY AND MANNING OF SHIPS INCLUDING TRAINING AND COMPETENCY OF SEAFARERS OF ALL NATIONS.

TO ATTAIN SAFETY STANDARDS, THERE IS A NEED FOR AN ADEQUATE AND EFFECTIVE TRAINING OF SEAFARERS AS IT HAS BEEN RECOGNIZED BY THE IMO DIPLOMATIC CONFERENCE WHICH IN 1978 ADOPTED THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCH-KEEPING FOR SEAFARERS.

IT IS THEREFORE THE PRIME DUTY OF ALL MARITIME NATIONS OF THE WORLD, PARTICULARLY DEVELOPING COUNTRIES, TO TRAIN AND PREPARE THEIR SEAFARING PERSONNEL TO MEET THE STCW CONVENTION REQUIREMENTS SO THAT SAFETY OF LIFE AND PROPERTY AT SEA AS WELL AS THE PROTECTION OF THE MARINE ENVIRONMENT ARE BEST ACHIEVED.
CHAPTER I
1. SEAFARING AS A PROFESSION.

Shipping has undergone great changes. Gone is the time of sailing vessels. Gone is the dominance of the red ensign. Gone are the esprit de corps and strict hierarchy upon which good practice was largely based. Gone is the time of adventures, romanticism and exoticism. Shipping is today almost unrecognisable from what it was in ancient times. Seafaring has been affected too. The attraction of the sea as a career has diminished despite the growing rate of unemployment and the number of job-seekers exceeding the number of jobs available ashore. Seafaring is no more a profession that appeals to the majority of the youth. It has been normally attractive for those who went to sea for what they understood as being romantic or maybe exotic and those who sought adventures and challenges. Those who went to sea 40 or more years ago did not look for employment. They made up their minds for a different way of living. Ships were seen as the means to come to places where one sought to find what one's imagination had connected with romanticism. Such attraction and feelings are gone. Modern life has brought a more realistic picture of seafaring. Value systems into societies have become growingly materialistic. With the changes in values, the attraction of the sea as a career has diminished and the attraction of leaving the sea and staying ashore has grown. It has become an established fact that seafarers will not spend their entire working life at sea but will leave it after a certain period of sea service disregarding whether they will find attractive
EMPLOYMENT CONDITIONS ASHORE OR NOT. A LOT OF FACTORS HAVE CONTRIBUTED TO THIS PRESENT SITUATION. THE FAMILY IS OBVIOUSLY THE MAIN ATTRACTION FOR GOING ASHORE. HOWEVER, THE INCREASE IN THE STANDARDS OF LIVING, THE OPPORTUNITY TO FIND REMUNERATIVE SHOREBASED POSITIONS AND THEREFORE TO INTEGRATE PROFESSIONAL AND PRIVATE LIFE AS WELL AS THE MATERIALISTIC EMPLOYMENT CONDITIONS ASHORE BEING SOMewhat EQUAL TO THOSE OFFERED ON BOARD HAVE INCREASINGLY ALL HELPED TO MODIFYING THE ATTITUDES OF YOUNGSTERS TOWARDS THE SEA AS A CAREER. FOR F. MAIN "THE ISSUE FOR THE MAJORITY OF SEAFARERS IS NOT WHETHER TO LEAVE THE SEA BUT WHEN" SUMS UP THE PRESENT STATE OF DEVELOPMENT.

THE TIME FOR ROMANTICISM IS GONE. THE AIRLINES’ PILOTS FOR INSTANCE, ARE NEITHER ROMANTIC NOR ADVENTURERS BUT HIGHLY QUALIFIED HUMAN BEINGS TRAINED TO COPE WITH ADVANCED TECHNOLOGY FOR THE CONTROL OF A COMPLEX PROCESS. IT IS INTO THIS DIRECTION THAT SEAFARING IS MOVING AND DEVELOPING. MOTIVATION FOR GOING TO SEA CANNOT BE FOUND ANYMORE IN ROMANTICISM OR ADVENTURES BUT HAS TO BE IDENTIFIED IN THE SATISFACTION TO CONTROL A COMPLEX PROCESS, TO BEAR RESPONSIBILITIES FOR OTHERS AND TO BE INDEPENDENT IN THE DECISION-MAKING IN THE OPERATION OF A CRAFT. MODERN SHIPS DO REQUIRE HIGHLY MOTIVATED OFFICERS WHO ARE CHALLENGED BY TAKING POSITIONS SIMILAR TO THOSE OF AIRLINE PILOTS OR OTHER PERSONS BEING IN CHARGE OF A COMPLEX TECHNOLOGICAL SYSTEM. IN THIS CONTEXT, MARITIME EDUCATION AND TRAINING HAS TO ADAPT ITSELF TO THIS CHANGING TECHNOLOGICAL ENVIRONMENT.

MARITIME EDUCATION AND TRAINING WILL HAVE TO PREPARE FOR SUCH AN ADAPTABILITY. SEAFARERS SHOULD BE TRAINED TO OPERATE NOT ONLY SHIPS OF TODAY BUT OF TOMORROW AS WELL. MARITIME EDUCATION HAS ON THE OTHER HAND TO BE SHORE-ORIENTED. THE FLUCTUATION FROM SHIP TO SHORE HAS
TO BE ACCEPTED TO CHANNEL IT INTO THE MARITIME INDUSTRY SHOULD BE ONE OF THE FUTURE TASKS OF MET AND MARITIME EDUCATIONAL AUTHORITIES. SEAFARERS SHOULD BE ENABLED TO FIND A USEFUL OCCUPATION IN THE MARITIME INDUSTRY ASHORE ONCE THEY DECIDE TO LEAVE THE SEA. THE SOCIETY HAS THE RIGHT TO EXPECT A RETURN OF INVESTMENT FROM FORMER SEAFARERS.

2. TRAINING OF SEAFARERS/ROLE OF A MARITIME ACADEMY.

TRAINING OF SEAFARERS IS A SUBJECT WHICH CAN BE LOOKED AT FROM DIFFERENT POINTS OF VIEW ALL OF WHICH ARE OF PRIME IMPORTANCE. HOWEVER, IT CAN BE BEST UNDERSTOOD BY LOOKING AT ITS ENVIRONMENT AND THE INFLUENCES IT IS SUBJECT TO. IN THIS SECTION, I WILL DEAL WITH THE FOLLOWING ASPECTS OF MARITIME EDUCATION AND TRAINING.

1. THE ECONOMY ASPECT
2. THE SAFETY AND MARINE ENVIRONMENT ASPECT
3. THE TECHNOLOGY ASPECT
4. THE SOCIETY ASPECT

1. THE ECONOMY ASPECT.

PARTICIPATING IN WORLD TRADE IS AN IMPORTANT FACTOR DETERMINING THE PACE OF ECONOMIC AND SOCIAL DEVELOPMENT. THE MAIN OBJECTIVE OF SHIPPING IS TO MAKE PROFIT. THERE MIGHT BE SOME OTHER IMPORTANT REASONS FOR HAVING A NATIONAL MERCHANT FLEET SUCH AS THE NATIONAL INDEPENDENCE IN THE CARRIAGE OF GOODS BY SEA AND THE VALUE OF A MERCHANT FLEET IN TIMES OF CRISIS AND
EMERGENCIES. HOWEVER, A MERCHANT FLEET IS CONSIDERED IN NORMAL TIMES AS A MEANS OF GENERATING INCOME AND EMPLOYMENT. INCOME FROM SHIPPING FOR A SHIPOWNER AND FOR A COUNTRY PLAYS AN IMPORTANT ROLE IN THE OPERATION OF SHIPS AND A NATIONAL MERCHANT FLEET. IT RESULTS FROM THIS ECONOMIC ASPECT OF SHIPPING THAT MARITIME EDUCATION AND TRAINING HAS TO ADAPT TO COMMERCIAL NECESSITIES. INDEED, MARITIME EDUCATION AND TRAINING SHOULD IN ORDER TO COPE WITH CHANGES IN SHIPPING WHICH ARE TO A GREAT EXTENT DICTATED BY ECONOMIC CONSIDERATIONS DESIGN ITS CONTENTS AND METHODS OF TRAINING SO AS TO ENSURE THAT COMMERCIAL AND MANAGERIAL ASPECTS OF SHIPPING ARE BEST FULFILLED.

2. THE SAFETY AND MARINE ENVIRONMENT PROTECTION ASPECT

SAFETY OF NAVIGATION AND PROTECTION OF THE MARINE ENVIRONMENT ARE THE TWO ITEMS ON WHICH THE INTERNATIONAL MARITIME ORGANIZATION (IMO) HAS CONCENTRATED ITS ACTIVITIES. THE INTERNATIONAL CONVENTION ON SAFETY OF LIFE AT SEA (SOLAS-1974) AND OTHER INTERNATIONAL CONVENTIONS HAVE TREMENDOUSLY CONTRIBUTED TO MARITIME SAFETY. HOWEVER, SAFETY OF NAVIGATION AND PROTECTION OF THE MARINE ENVIRONMENT CANNOT BE ACHIEVED IF SEAFARERS ARE NOT TRAINED ACCORDINGLY. IN 1974, IMO ADOPTED A RECOMMENDATION ON BASIC PRINCIPLES AND OPERATIONAL GUIDANCE RELATING TO NAVIGATIONAL WATCH-KEEPING. IT WAS, HOWEVER, NOT BEFORE 1978 THAT AN OVERALL APPROACH TO QUALIFICATION REQUIREMENTS FOR SHIPBOARD PERSONNEL ON A GLOBAL BASE WAS MADE. IMO ADOPTED THEN THE INTERNATIONAL CONVENTION ON
STANDARDS OF TRAINING, CERTIFICATION AND WATCH-KEEPING FOR SEAFARERS KNOWN UNDER THE TERM OF "STCW" CONVENTION. MARITIME ACADEMIES HAVE IN THIS CONTEXT TO ENSURE THAT SAFETY OF NAVIGATION AND PROTECTION OF THE MARINE ENVIRONMENT ARE AN INTEGRAL PART AND SHOULD CONSTITUTE THE ESSENTIAL PORTION IN THE TRAINING SYLLABUS FOR SEAFARERS.

3. THE TECHNOLOGY ASPECT.

MODERN TECHNOLOGY ABOARD HAS SPREAD. IT HAS BECOME AN INTEGRAL PART OF TODAY'S LIFE. IT HAS COMPLETELY SHAPED THE SHIPPING INDUSTRY. SHIPS OF TODAY DO NOT RESEMBLE TO THOSE OF ANCIENT TIMES. THE INTRODUCTION OF AUTOMATION AND SOPHISTICATED SHIPBOARD EQUIPMENT HAVE TO A GREAT EXTENT REDUCED SEAFARERS' TASKS. HOWEVER, FROM A SOCIAL POINT OF VIEW MODERN TECHNOLOGY HAS A NEGATIVE IMPACT ON SEAFARERS. IT HAS HELPED FOR ECONOMIC CONSIDERATIONS TO REDUCE THE NUMBER OF CREWS ABOARD. NEVERTHELESS, MODERN TECHNOLOGY HAS NOW ARRIVED. WE HAVE TO ACCEPT IT. WE HAVE TO DEVELOP AN EMOTION-FREE TOWARDS IT AND APPRECIATE THE ADVANTAGES IT OFFERS. MARITIME EDUCATION HAS TO ADAPT ITSELF TO IT. MODERN TECHNOLOGY REQUIRES KNOWLEDGE, COMPREHENSION, ANALYTIC AND EVALUATIVE CAPABILITIES FROM THE FUTURE SHIPBOARD OFFICER AS WELL AS COMPETENCE FOR AND IN DECISION-MAKING. MARITIME ACADEMIES HAVE TO BEAR A GREAT DEAL OF RESPONSIBILITY IN EDUCATING AND TRAINING THE REQUIRED HIGHLY SKILLED SEAFARERS. MARITIME EDUCATION AND TRAINING WILL HAVE TO PROFIT FROM THE AVAILABILITY OF MODERN TRAINING EQUIPMENT TO PROVIDE QUALIFIED SEAFARERS.

4. THE SOCIETY ASPECT.
THE INFLUENCE OF SOCIETY ON MARITIME EDUCATION AND TRAINING HAS RESULTED IN A NEW DEVELOPMENT OF ATTITUDES. SEAFARING AS IT HAS BEEN ALREADY EXPLAINED IS NO MORE SEEN AS SOMETHING SPECIAL. IT HAS EVEN LOST ITS ATTRACTION. THE MAJORITY OF YOUNG PEOPLE ARE MORE AND MORE RELUCTANT TO A SEAFARING CAREER. THE INCREASE IN THE STANDARDS OF LIVING AND MORE RECENTLY THE IMPACT OF GENERAL EDUCATION ON SEAFARING HAVE LED TO A MORE SHORE-ORIENTED ATTITUDE. BECAUSE MARITIME EDUCATION HAS BEEN KEPT SEPARATED FROM GENERAL EDUCATION, THE MAJORITY OF THE YOUTH DO NOT FIND IT ATTRACTIVE TO ATTEND MERCHANT MARINE STUDIES. THEY GENERALLY CHOOSE STREAMS LEADING TO RECOGNIZED ACADEMIC DEGREES. IN THIS RESPECT, MARITIME EDUCATION AND TRAINING HAS TO COME CLOSER TO LAND-BASED EDUCATION. IN COUNTRIES WHERE THIS DEVELOPMENT HAS NOT YET TAKEN PLACE, EG. ALGERIA, MARITIME EDUCATION WILL STILL HAVE TO ADAPT TO THE NEW ROLE OF EDUCATION AND TRAINING FOR A CERTIFICATE OF COMPETENCY AND AN ACADEMIC DEGREE. MET HAS TO BE INTEGRATED IN THE GENERAL EDUCATION SYSTEM. A HIGHER ACADEMIC AND PROFESSIONAL STANDARD OF FUTURE GRADUATES OF MET WILL BEST ENSURE THE FUTURE ATTRACTION FOR A SEAFARING CAREER.

CERTAIN DEVELOPED COUNTRIES SUCH AS, GERMANY (F.R.), THE NETHERLANDS, THE UNITED STATES AND MANY OTHERS GIVE A GOOD EXAMPLE THAT SEAFARING CAN STILL BE A RECOGNIZED PROFESSION AND THAT IT CAN BECOME RATHER EASY TO ATTRACT GRADUATES FROM HIGHER SCHOOLS TO A MERCHANT MARINE ACADEMY.
3. CONCLUSIONS.

A LOT OF CHANGES HAVE OCCURRED TO THE SHIPPING INDUSTRY. MARITIME EDUCATION HAS TO ADAPT TO THESE CHANGES. MET HAS TO PLAY A MORE ACTIVE ROLE THAN IT DID BEFORE. IT SHOULD EVEN TAKE THE LEAD IN THE PLANNING AND IMPLEMENTATION OF CHANGES. IN THIS DEVELOPING TECHNOLOGICAL ERA, SEAFARERS HAVE TO BE PROFESSIONALLY AND ACADEMICALLY BETTER QUALIFIED THAN THOSE OF PREVIOUS GENERATIONS. TO DO SO, MARITIME ACADEMIES WILL CONTINUOUSLY HAVE TO SCRUTINIZE THEIR TRAINING SYLLABI, WILL HAVE TO ABANDON OUTDATED CONTENTS AND INTRODUCE NEW ONES.

3. THE IMPORTANCE OF THE HUMAN FACTOR IN CASUALTIES.

EVERY YEAR A LARGE NUMBER OF MARITIME ACCIDENTS OCCURS, SOME OF THEM RESULTING IN HEAVY LOSS OF LIFE, VAST POLLUTION OF THE MARINE ENVIRONMENT AND ENORMOUS LOSS OF PROPERTY. TODAY, IT IS RECOGNIZED THAT THE MAJORITY OF MARITIME ACCIDENTS ARE CAUSED BY HUMAN ERRORS AND INEXPERIENCE RATHER THAN FAILURE OF SHIPS AND EQUIPMENT. NO MATTER HOW WELL BUILT OR WELL EQUIPPED A SHIP MAY BE, ITS SAFE AND EFFICIENT OPERATION IS LARGELY DEPENDENT ON THE COMPETENCY OF ITS CREW. IN AN INVESTIGATION STUDY UNDERTAKEN BY LIVERPOOL UNDERWRITERS, IT HAS BEEN SHOWN THAT 80% OF MARITIME CASUALTIES WERE CAUSED BY THE HUMAN FACTOR. FITTING SHIPS WITH THE MOST ADVANCED AND SOPHISTICATED EQUIPMENT DOES NOT, IN MY VIEW, COMPLETELY CONTRIBUTE TO SAFETY OF NAVIGATION AND PROTECTION OF THE MARINE ENVIRONMENT. TRAINING OF SEAFARERS, THOSE IN CHARGE OF THE OPERATION OF SHIPS, IS THE MOST IMPORTANT FACTOR THAT HAS
TO BE DEALT WITH SERIOUSLY. WE HAVE ALL WITNESSED THAT CHANGES IN THE SHIPPING INDUSTRY HAVE BEEN MORE RAPID AND MORE FREQUENT THAN THOSE RELATED TO MARITIME EDUCATION AND TRAINING. TECHNOLOGY AND TRAINING CANNOT BE DIVORCED. TRAINING SHOULD EVEN TAKE THE LEAD SO AS TO ENSURE THAT CLEANER AND SAFER SEAS WILL BE ACHIEVED.

SINCE SHIPPING IS AN INTERNATIONAL INDUSTRY NOT ONLY WITH REGARD TO TRADE BUT ALSO TO SHIPS, SAFETY AND CREWS IT IS THEREFORE IMPORTANT TO ENHANCE MARITIME SAFETY AND SECURE THE PROTECTION OF THE MARINE ENVIRONMENT BY ESTABLISHING BASIC REQUIREMENTS ON THE TRAINING OF SEAFARERS ON AN INTERNATIONAL LEVEL. SHIPS FROM DIFFERENT COUNTRIES OF THE WORLD ARE MANNED BY CREWS OF DIFFERENT TRAINING BACKGROUNDS. THIS SITUATION HAS LED TO THE ADOPTION, IN 1978, OF THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCH-KEEPING FOR SEAFARERS (STCW) BY THE INTERNATIONAL MARITIME ORGANIZATION (IMO).

4. THE 1978 STCW CONVENTION.

THE HISTORICAL BACKGROUND OF THE STCW CONVENTION AND ITS REQUIREMENTS MAY BE SUMMARIZED AS FOLLOWS:

AFTER IMCO, NOW IMO, CAME INTO BEING IN 1959 ITS MAJOR ACTION WAS TO CONVENE AN INTERNATIONAL CONFERENCE ON SAFETY OF LIFE AT SEA WHICH ADOPTED IN 1960 THE SOLAS CONVENTION AND A NUMBER OF RECOMMENDATIONS. ONE OF THESE RECOMMENDATIONS, RECOMMENDATION NO. 39, ON THE TRAINING OF MASTERS, OFFICERS AND SEAMEN IN THE USE OF AIDS TO NAVIGATION AND OTHER DEVICES CALLED ON CONTRACTING GOVERNMENTS PARTIES TO SOLAS CONVENTION TO TAKE ALL PRACTICAL STEPS TO ENSURE THAT THE EDUCATION AND TRAINING OF SEAFARERS IN THE USE OF AIDS TO NAVIGATION AND OTHER DEVICES
Provided for their safety is sufficiently comprehensive and that it is satisfactorily kept up-to-date. It also recommended that within their respective sphere of activity IMCO and ILO should cooperate closely with each other and with other interested governments to this end.

In response to recommendation No 39, the Governing Body of ILO and the IMCO Maritime Safety Committee established a Joint IMCO/ILO Committee on Training. The Joint Committee first met in December 1964 and prepared an international maritime guide called the "Document for Guidance-1964". This document made recommendations on the education and training of masters and seamen in the use of aids to navigation, life saving appliances and other devices for the prevention, detection and extinction of fires.

The document was adopted by IMCO Maritime Safety Committee and the Governing Body of ILO. However, the document was still considered as guidance only.

In 1971, the IMCO Council decided therefore that further action was still necessary to strengthen and improve the standards of training and qualifications of seafarers and requested the Maritime Safety Committee to give urgent consideration to the preparation of international standards of training, certification and watch-keeping for seafarers. It was also in 1971 that the IMCO Assembly decided to convene a conference on the training and certification of seafarers. The preparatory work for that conference was carried out by the Sub-Committee on Standards of Training and Watch-keeping which prepared a Draft Convention and a number of draft recommendations which formed together the basic documentation for the conference.

The STCW conference was the largest so far of IMO’s diplomatic conferences. It was attended by 72 states and a total of 450 participants including observers from a
LARGE NUMBER OF INTERNATIONAL ORGANIZATIONS. THE CONFERENCE UNANIMOUSLY ADOPTED THE CONVENTION, ITS ANNEX AND 23 RESOLUTIONS. THE CONVENTION IS REGARDED AS ONE OF THE MOST IMPORTANT SAFETY CONVENTIONS EVER DEVELOPED. IT REPRESENTS THE FIRST ATTEMPT TO ESTABLISH GLOBAL MINIMUM PROFESSIONAL STANDARDS FOR SEAFARERS AND PRESCRIBES MINIMUM REQUIREMENTS WHICH ALL COUNTRIES ARE REQUIRED TO MEET OR EXCEED.

IN THE MAJORITY OF ESTABLISHED MARITIME COUNTRIES, STANDARDS OF TRAINING ARE OFTEN HIGHER THAN THOSE STIPULATED IN THE CONVENTION. IN DEVELOPING COUNTRIES, HOWEVER, THESE STANDARDS ARE NOT SO HIGH AND BY RATIFYING OR ACCEPTING THE CONVENTION, GOVERNMENTS UNDERTAKE TO IMPLEMENT AND ENFORCE ITS REQUIREMENTS.

THE CONVENTION IS DIVIDED INTO TWO PARTS. THE FIRST PART CONTAINS THE ARTICLES AND THE SECOND ONE THE REGULATIONS. THE RESOLUTIONS WHICH ARE SEPARATE ENTITIES ARE NOT MANDATORY.

1. THE ARTICLES.

THE ESSENTIALLY LEGAL PROVISIONS OF THE STCW CONVENTION ARE CONTAINED IN THE ARTICLES. THEY CAN BE SUMMARIZED AS FOLLOWS:

ARTICLE I STATES THE GENERAL OBLIGATIONS OF PARTIES TO THE CONVENTION. STATES ARE REQUIRED TO TAKE ALL NECESSARY STEPS TO GIVE FULL AND COMPLETE EFFECT TO THE CONVENTION AND ITS ANNEX IN ORDER TO ENSURE THAT SEAFARERS ARE QUALIFIED AND FIT FOR THEIR DUTIES FROM THE POINT OF VIEW OF SAFETY OF LIFE AND PROPERTY AT SEA AND THE PROTECTION OF THE MARINE ENVIRONMENT.

ARTICLE II GIVES SOME RELEVANT DEFINITIONS.

ARTICLE III STATES THE APPLICATION OF THE CONVENTION. THE CONVENTION APPLIES TO SEAFARERS SERVING ONBOARD
SEA-GOING VESSELS OTHER THAN:
-WARSHIPS
-NAVAL AUXILLARIES
-GOVERNMENT OWNED SHIPS NOT ENGAGED ON A COMMERCIAL SERVICE
-FISHING VESSELS
-PLEASURE YACHTS NOT ENGAGED IN TRADE
-WOODEN SHIPS OF PREMITIVE BUILD

ARTICLE VI REFERS TO CERTIFICATES OF SERVICE. IT STIPULATES THAT CERTIFICATES WILL BE ISSUED TO MASTERS, OFFICERS AND RATINGS WHO MEET THE REQUIREMENTS SPECIFIED IN THE ANNEX TO THE CONVENTION. IT ALSO STATES THAT CERTIFICATES FOR MASTERS AND OFFICERS NEED TO BE ENDORSED BY THE ISSUING ADMINISTRATION. A FORM OF CERTIFICATE ENDORSEMENT IS GIVEN IN REGULATION 1/2 OF THE ANNEX. THE CONFERENCE RECOGNIZED THE IMPORTANCE AND URGENCY OF HARMONIZING THE CERTIFICATES FOR MASTERS AND OFFICERS AND FOR THAT REASON ADOPTED RESOLUTION NO 21 WHICH INVITES IMO TO DEVELOP A STANDARD FORM AND TITLE FOR AN INTERNATIONAL CERTIFICATE.

ARTICLE VII INCLUDES THE FOLLOWING TRANSITIONAL PROVISIONS WHICH APPLY TO STATES FOR WHICH THE CONVENTION HAS ENTERED INTO FORCE:
-CERTIFICATES PREVIOUSLY ISSUED REMAIN VALID
-THE ADMINISTRATION CONCERNED MAY DURING A PERIOD OF 5 YEARS CONTINUE TO ISSUE CERTIFICATES OF COMPETENCY IN ACCORDANCE WITH ITS PREVIOUS PRACTICE TO CANDIDATES WHO HAD STARTED THEIR SEA-SERVICE BEFORE THE ENTRY INTO FORCE OF THE CONVENTION FOR THAT STATE. HOWEVER, ALL OTHER CANDIDATES MUST BE EXAMINED AND CERTIFICATED IN ACCORDANCE WITH THE STANDARDS LAID DOWN BY THE CONVENTION.

ARTICLE VIII REFERS TO DISPENSATIONS. IN THE CONTEXT OF EXCEPTIONAL NECESSITY AN ADMINISTRATION MAY ISSUE
A DISPENSATION FOR A SEAFARER PERMITTING HIM TO SERVE IN A SPECIFIED SHIP IN A POSITION FOR WHICH HE DOES NOT HOLD THE APPROPRIATE CERTIFICATE. THE DISPENSATION MAY NOT BE ISSUED FOR A PERIOD OF MORE THAN 6 MONTHS. BESIDES, THE SEAFARER MUST BE QUALIFIED TO FILL THE POST IN A SAFER MANNER AND MUST BE PROPERLY CERTIFIED TO FILL THE POST IMMEDIATELY BELOW.

ARTICLE X DEALS WITH CONTROL PROCEDURES OF SHIPS. WHILE IN THE PORT OF A STATE FOR WHICH THE CONVENTION HAS ENTERED INTO FORCE, SHIPS ARE SUBJECT TO CONTROL BY PROPERLY AUTHORIZED OFFICERS. SUCH CONTROL MAY BE LIMITED TO THE VERIFYING THAT SEAFARERS WHO ARE REQUIRED TO BE CERTIFICATED BY THE CONVENTION DO HOLD A VALID CERTIFICATE OR A VALID DISPENSATION. SEAFARERS MAY EVEN BE ASSESSED TO SHOW THEIR ABILITY TO MAINTAIN THE REQUIRED WATCH-KEEPING STANDARDS IF THERE ARE REASONS TO BELIEVE THAT SUCH STANDARDS ARE NOT COMPLIED WITH IF THE SHIP WHILE IN A PORT OR ITS APPROACHES HAS BEEN INVOLVED IN A COLLISION, GROUNDING, STRANDING OR HAS DISCHARGED WHEN UNDER WAY, ANCHOR OR BERTH SUBSTANCES NOT PERMITTED UNDER INTERNATIONAL CONVENTIONS, OR HAS BEEN MANOEUVRED IN AN ERRATIC OR UNSAFE MANNER OR HAS NOT FOLLOWED NAVIGATIONAL COURSE MARKS OR TRAFFIC SEPARATION SCHEMES.

2. THE REGULATIONS.

THE STCW CONVENTION CONTAINS IN ITS ANNEX 25 REGULATIONS WHICH ARE GROUPED IN SIX (6) CHAPTERS. EACH CHAPTER HEADING INDICATES THE APPLICATION OF THE REGULATION IT CONTAINS. IT IS NOT INTENDED TO DEAL WITH EACH CHAPTER IN DETAILS SINCE THESE NOTES ARE MERELY DESIGNED TO GIVE A GENERAL INTRODUCTION TO THE CONVENTION.
CHAPTER I ENTITLED "GENERAL PROVISIONS" CONTAINS FOUR (4) REGULATIONS OF GENERAL APPLICATION.

CHAPTER II, ENTITLED "MASTER-DECK DEPARTMENT" CONTAINS EIGHT (8) REGULATIONS COVERING WATCH-KEEPING AND CERTIFICATION REQUIREMENTS FOR MASTERS, DECK OFFICERS AND RATINGS WHO FORM PART OF NAVIGATIONAL WATCHES.

SUCH REQUIREMENTS INCLUDE SPECIFICATION OF THE EDUCATION AND PRACTICAL TRAINING OF SEAFARERS IN THE DECK DEPARTMENT FOR VARIOUS CLASSES OF SHIPS WHICH ARE CLASSED IN RANGES OF GRT AND INCLUDE ALSO SPECIFICATION FOR THE CONTINUED PROFICIENCY AND UPDATING OF KNOWLEDGE OF MASTERS AND DECK OFFICERS.

CHAPTERS III AND IV CONTAIN REGULATIONS WHICH ARE VERY SIMILAR IN FORM TO THE REGULATIONS OF CHAPTER I.

CHAPTER III APPLIES TO ENGINEER OFFICERS AND RATINGS WHO FORM PART OF AN ENGINEERING WATCH ON VARIOUS CLASSES OF SHIPS WHICH ARE CLASSED IN RANGES OF PROPULSION POWER. CHAPTER IV APPLIES TO RADIO OFFICERS AND RADIO-TELEPHONE OPERATORS AND CONTAINS MANDATORY PROVISIONS CONCERNING RADIO WATCH-KEEPING AND MAINTENANCE.

CHAPTER V, ENTITLED "SPECIAL REQUIREMENTS FOR TANKERS" CONTAINS THREE (3) REGULATIONS EACH OF WHICH APPLIES TO A SPECIAL TYPE OF TANKER. THEY ARE REGARDED AS COMPLEMENTING THE REGULATIONS OF CHAPTERS II AND III BY GIVING ADDITIONAL AND SPECIAL REQUIREMENTS FOR THE EDUCATION AND TRAINING OF DECK AND ENGINEER OFFICERS.

CHAPTER VI, ENTITLED "PROFICIENCY IN SURVIVAL CRAFT" CONTAINS ONE REGULATION ONLY. IT APPLIES TO ALL SEAFARERS IRRESPECTIVE OF DISCIPLINE AND, WHILE NOT REQUIRING EVERY SEAFARER TO HOLD A CERTIFICATE OF PROFICIENCY IN SURVIVAL CRAFT, SPECIFIES THE CONDITIONS UNDER WHICH SUCH CERTIFICATE MAY BE AWARDED.
3. THE RESOLUTIONS.

THE RESOLUTIONS OF THE CONFERENCE ARE NOT PART OF THE CONVENTION AND ARE THEREFORE NOT MANDATORY. A RESOLUTION CAN BE USED BY A GOVERNMENT IN WHOLE, PART OR NOT AT ALL. THERE ARE 23 SUCH RESOLUTIONS. MOST OF THEM EXPAND UPON THE CONVENTION REGULATIONS BY GIVING MORE DETAILS OR MORE SUGGESTED EXTENTIONS. IT WAS DECIDED TO INCORPORATE THESE RESOLUTIONS BECAUSE THERE WAS INSUFFICIENT SUPPORT FOR THEIR ADOPTION AS MANDATORY REQUIREMENTS.

CONCLUSIONS.

THE STCW CONVENTION IS THE MOST IMPORTANT MARITIME SAFETY CONVENTION EVER DEVELOPED THAT HAS PROVIDED FOR A BROAD SET OF INTERNATIONALLY AGREED UPON STANDARDS OF TRAINING FOR SEAFARERS. IT OUTLINES THE MINIMUM KNOWLEDGE REQUIRED FOR MASTERS, MATES, ENGINEERS AND RATINGS. FOR DEVELOPING COUNTRIES, THE STCW CONVENTION SHOULD BE REGARDED AS AN OPPORTUNITY TO RAISE THEIR MARITIME TRAINING PROGRAMS SO AS TO REACH THE REQUIRED TRAINING LEVEL OF THOSE DEVELOPED COUNTRIES OR AT LEAST TO MEET THE MINIMUM REQUIRED STANDARDS PRESCRIBED BY THE CONVENTION. IT IS MY BELIEF THAT INTERNATIONAL MARITIME SAFETY AND PROTECTION OF THE MARINE ENVIRONMENT CAN ONLY BE ACHIEVED IF SEAFARERS OF ALL COUNTRIES OF THE WORLD ARE WELL TRAINED TO OPERATE SAFELY AND EFFICIENTLY THE WORLD MERCHANT FLEET.
CHAPTER II

NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN SCANDINAVIA.

1. SWEDEN

2. DENMARK

3. NORWAY
NAUTICAL EDUCATION IN SWEDEN

I. GENERAL INTRODUCTION.

THE TRAINING OF MERCHANT MARINE OFFICERS HAS FOR A LONG TIME BEEN AN ESTABLISHED FACT IN SWEDEN. PRIOR TO 1658 WHEN THE FIRST SCHOOL FOR THE TRAINING OF MATES WAS ESTABLISHED IN STOCKHOLM, NAVIGATORS FOR MERCHANT VESSELS WERE TRAINED ABOARD WARSHIPS. BY THE EARLY 1840'S REGULAR TRAINING SCHEMES FOR MERCHANT SHIP'S OFFICERS WERE INSTITUTED AND SEVERAL NAVIGATION SCHOOLS WERE FOUNDED THROUGHOUT THE COUNTRY.

AT FIRST NO SPECIAL QUALIFICATIONS WERE NEEDED TO GAIN ADMITTANCE TO THESE SCHOOLS WHOSE COURSES OF INSTRUCTION WERE OFTEN OF A SHORTER DURATION, BUT AS TIME WENT BY THE NEED OF HAVING SHIP'S OFFICERS WITH GREATER SKILLS AND KNOWLEDGE AROSE AND CANDIDATES WERE THEREFORE REQUIRED TO SATISFY CERTAIN STANDARDS OF PREPARATORY EDUCATION. NOWADAYS, NAVIGATING OFFICERS IN PARTICULAR AND SEAFARERS IN GENERAL RECEIVE THEIR THEORETICAL INSTRUCTION IN A NUMBER OF SCHOOLS INTEGRATED IN THE GENERAL EDUCATIONAL SYSTEM UNDER THE CUSTODY OF THE MINISTRY OF EDUCATION AND CULTURAL AFFAIRS.

CERTIFICATION OF SWEDISH SEAFARERS IS, HOWEVER, THE RESPONSIBILITY OF THE NATIONAL ADMINISTRATION OF SHIPPING AND NAVIGATION (NASAN) WHICH IS A GOVERNMENTAL INSTITUTION UNDER THE MINISTRY OF TRANSPORT AND TELECOMMUNICATIONS. CANDIDATES FOR A SEA CAREER UNDERGO A PERIOD OF PRACTICAL PRE-TRAINING WHICH FOR FUTURE NAVIGATING OFFICERS MUST BE FULFILLED AT SEA ABOARD MERCHANT VESSELS AS ORDINARY ABLE SEAMEN OR APPRENTICE-OFFICERS FOR A PERIOD OF AT LEAST 36 MONTHS OF SEAFARING PRACTICE BEFORE ADMITTANCE TO A NAVIGATION SCHOOL OR A COLLEGE. BESIDES, THEY ARE REQUIRED TO HAVE COMPLETED A MINIMUM OF TWO YEARS HIGH
SCHOOL EDUCATION WITH A SPECIALIZATION IN TECHNICAL SUBJECTS. A BRIEF DESCRIPTION OF THE PRESENT EDUCATIONAL SYSTEM MIGHT BE USEFUL IN UNDERSTANDING THE EDUCATION AND TRAINING OF SWEDISH MERCHANT MARINE OFFICERS.

II. PRESENT GENERAL EDUCATIONAL SYSTEM.

THE GOVERNING AUTHORITY IN SWEDEN RESPONSIBLE OF GENERAL EDUCATION AT THE PRIMARY, SECONDARY AND HIGHER LEVEL IS THE MINISTRY OF EDUCATION AND CULTURAL AFFAIRS UNDER WHICH THE NATIONAL BOARD OF EDUCATION (A CENTRAL CIVIL SERVICE DEPARTMENT) IS IN CHARGE OF THE COORDINATION, PLANNING AND RATIONALIZATION OF THE SCHOOL SYSTEM AS WELL AS PEDAGOGICAL RESEARCH AND DEVELOPMENT. THE SCHOOL SYSTEM IS DIVIDED INTO THREE LEVELS OF GENERAL EDUCATION:

II.1. COMPULSORY SCHOOL (7/16).

CHILDREN IN SWEDEN START SCHOOL IN AUTUMN OF THE CALENDAR YEAR IN WHICH THEY REACH THE AGE OF SEVEN (7). THEY ATTEND A NINE (9) YEAR COMPULSORY COMPREHENSIVE SCHOOL FROM THE AGE OF SEVEN TO SIXTEEN YEARS OLD. THE COMPULSORY SCHOOL HAS NINE GRADES DIVIDED INTO THREE LEVELS.
- JUNIOR LEVEL (GRADE 1-3, LOWER PRIMARY)
- MIDDLE LEVEL (GRADE 4-6, UPPER PRIMARY)
- SENIOR LEVEL (GRADE 7-9, LOWER SECONDARY)

THE OVERALL AIM IS THAT COMPULSORY SCHOOL CLASSES SHOULD BE UNDIFFERENTIATED WHICH MEANS THAT ALL CLASSMATES SHOULD STAY TOGETHER FROM THE BEGINNING. A GRADE CONSISTS OF A 40-WEEK ACADEMIC YEAR DIVIDED INTO AN AUTUMN TERM AND A SPRING TERM.
II.2. UPPER SECONDARY SCHOOL (16/19).

UPPER SECONDARY SCHOOL IS NON-COMPULSORY. IT PROVIDES A WIDE RANGE OF COURSES VARYING IN LENGTH FROM TWO TO FOUR YEARS AND COMPRISING 23 DIFFERENT STUDY LINES. THERE IS NO FORMAL DISTINCTION BETWEEN GENERAL LINES AND VOCATIONAL LINES. THEY ALL CONTAIN SUBJECTS OF A GENERAL NATURE AS WELL AS VOCATIONAL SUBJECTS. AS FAR AS NAUTICAL EDUCATION IS CONCERNED, IT IS SIGNIFICANT TO POINT OUT THAT THERE IS NO SPECIALIZATION AT THE UPPER SECONDARY LEVEL. IT REQUIRES COMPLETION OF SCHOOLING BEFORE TRAINING OF THIS TYPE IS GIVEN AT A UNIVERSITY OR AT A COLLEGE LEVEL OR AT ANY SPECIALISED NAVIGATION SCHOOL.

I.3. HIGHER EDUCATION.

ALL POST-SECONDARY EDUCATION IS INCLUDED IN THE DEFINITION OF HIGHER EDUCATION WHICH INCLUDES NOT ONLY TRADITIONAL UNIVERSITY STUDIES BUT ALSO TRAINING OF NURSES, TEACHERS AND MERCHANT MARINE OFFICERS AS WELL.

III. TRAINING OF MASTER MARINERS.

THE EDUCATION AND TRAINING OF DEEP-SEA MASTERS IS GIVEN AT COLLEGES AND UNIVERSITIES. IT IS OF THREE YEARS DURATION. HOWEVER, BECAUSE OF FINANCIAL REASONS SOME STUDENTS PREFER TO COMPLETE THEIR SHORE-BASED TRAINING IN TWO TERMS. THEY FIRST ATTEND A TWO-YEAR COLLEGE COURSE WHERE A MATE CERTIFICATE OF COMPETENCY IS OBTAINED. AFTER A CERTAIN PERIOD OF SEA-SERVICE, THEY COME BACK TO THE COLLEGE FOR A THIRD YEAR OF STUDY AND PASS THEIR MASTER CERTIFICATE. OTHERS OBTAIN THEIR MASTER CERTIFICATE AFTER THREE CONSECUTIVE YEARS OF STUDY. NEVERTHELESS, 85% OF
STUDENTS DO FOLLOW THE SECOND WAY WITH THE HELP OF THE
GOVERNMENT WHICH GRANTS GENEROUS LOANS FOR STUDY
PURPOSES.

IT HAS BEEN STATED AT THE BEGINNING THAT PRECONDITION FOR
ENTRY INTO A NAUTICAL COLLEGE IS COMPLETION OF AT LEAST
36 MONTHS PRACTICAL SEA-TRAINING. THIS TRAINING AT SEA
REQUIRED FOR ADMITTANCE IS PROVIDED ABOARD A NUMBER OF
OPERATING CARGO SHIPS WHICH HAVE ESPECIALLY BEEN FITTED
WITH PEDAGOGICAL INSTALLATIONS TO CARRY AND TRAIN
APPRENTICES ON REGULAR COMMERCIAL VOYAGES. THIS CONTROLLED
PRE-SEA TRAINING ON MOST OF THESE VESSELS AIMS AT GIVING
YOUNG MEN AND WOMEN A GOOD BASIC KNOWLEDGE OF SEAMANSHIP
AND ENOUGH THEORETICAL TRAINING TO PREPARE THEM FOR ENTRY
INTO AN OFFICER'S NAUTICAL SCHOOL.

ANOTHER TYPE OF SEA-TRAINING WHICH IS USUALLY REFERRED TO
UNDER THE TERM OF NON-CONTROLLED SEA SERVICE IS THAT
CANDIDATES WHO HAVE COMPLETED THEIR UPPER SECONDARY
SCHOOL AND WISHING TO START A SEA CAREER ARE RECRUITED
BY SHIPPING COMPANIES AS ORDINARY SEAMEN. UPON COMPLETION
OF THE REQUIRED SEA SERVICE, THEY APPLY FOR ADMITTANCE TO
A NAUTICAL COLLEGE WHERE NO ENTRANCE EXAMINATION IS
REQUIRED BUT ONLY DOCUMENTARY EVIDENCE OF THE SEA-SERVICE
PERFORMED.

STUDENTS ADMITTED TO A NAUTICAL COLLEGE FOLLOW FIRST A
TWO-YEAR COURSE WHICH LEADS TO A MATE CERTIFICATE.
DURING THE FIRST YEAR, THE CURRICULUM FOCUSES ON BASIC
SUBJECTS SUCH AS MATHEMATICS, BASIC MECHANICAL AND ELEC-
TRICAL ENGINEERING, NATURAL SCIENCES AND ENGLISH.
PROFESSIONALLY ORIENTED SUBJECTS SUCH AS VISUAL AND RADIO
COMMUNICATIONS, NAVIGATION, SEAMANSHIP AND RADAR START
GRADUALLY IN THE SAME YEAR.

IN THE SECOND YEAR, THE PROGRAM GIVES A DEEPER KNOWLEDGE
OF SUBJECTS STUDIED DURING THE FIRST YEAR AND IN ADDITION
PROVIDES A NUMBER OF COURSES IN THE LEGAL, ECONOMIC AND
ADMINISTRATIVE FIELDS. A GREAT DEAL OF SIMULATOR TRAINING IS INCLUDED WHERE DIFFERENT AND DANGEROUS SITUATIONS ARE STUDIED. FINALLY A PROJECT REPORT ON A CHOSEN SUBJECT IS SUBMITTED AT THE END OF THE SECOND YEAR.

THE TWO-YEAR CURRICULUM OF STUDY IS SHOWN BELOW.

- MATHEMATICS
- CHEMISTRY
- ENGLISH
- SHIP'S CONSTRUCTION AND STABILITY
- PHYSICS
- ELECTRICAL ENGINEERING
- RADIO COMMUNICATIONS
- RULES OF THE ROAD
- NAVIGATION
- CONTROL ENGINEERING
- MARINE ENGINEERING
- SEAMANSHIP
- MARITIME LAW
- CARGO HANDLING AND STOWAGE
- MEDICAL CARE
- ENVIRONMENT AND SAFETY
- SHIP'S ADMINISTRATION
- FIRE PREVENTION AND FIRE FIGHTING
- COMPUTER SCIENCE
- PROJECT WORK

AT THE END OF THE SECOND YEAR, A FINAL EXAMINATION IS CARRIED OUT AND SUCCESSFUL STUDENTS ARE AWARDED A UNIVERSITY CERTIFICATE IN NAUTICAL SCIENCE WHICH IS AN ACADEMIC DEGREE AND A MATE CERTIFICATE OF COMPETENCY ISSUED BY THE NATIONAL ADMINISTRATION OF SHIPPING AND NAVIGATION. THIS CERTIFICATE GIVES THE HOLDER THE RIGHT TO SERVE AS
WATCH-KEEPING OFFICER (MATE) ABOARD ANY VESSEL IN OCEAN TRADE.

THE REQUIREMENTS FOR THE AWARD OF A CERTIFICATE OF COMPETENCY AS MATE A AS CONTAINED IN THE 1982 ORDINANCE (SECTION 6) CONCERNING THE COMPETENCY OF SEAFARERS ARE AS FOLLOWS:

a). THE CANDIDATE MUST HAVE PASSED THE EXAMINATION OF A MATE (UNIVERSITY CERTIFICATE IN NAUTICAL SCIENCE - 80 POINTS) OBTAINABLE IN THE NAUTICAL STUDY PROGRAM AT A UNIVERSITY OR A COLLEGE AND,

b). MUST HAVE COMPLETED AT LEAST 36 MONTHS DECK SERVICE. NOT LESS THAN 27 MONTHS OF THIS PERIOD MUST HAVE BEEN SERVED IN EXTENDED COASTING OR MORE EXTENSIVE TRADE, INCLUDING AT LEAST 12 MONTHS ABOARD A MERCHANT SHIP WITH A GROSS TONNAGE OF NOT LESS THAN 1200 TONS IN NORTH SEA TRADE OR MORE EXTENSIVE TRADE. IN THE CASE OF A PERSON WHO HAS SERVED AS ASSISTANT OFFICER IN NORTH SEA TRADE OR MORE EXTENDED TRADE FOR AT LEAST 6 MONTHS, THE REQUIRED TOTAL PERIOD MAY BE REDUCED TO 30 MONTHS.

FROM MATE "A" TO MASTER CERTIFICATE.

IT IS REQUIRED THAT STUDENTS WHO HAVE OBTAINED THEIR MATE CERTIFICATE OF COMPETENCY MUST SERVE AT SEA AS MATES FOR AT LEAST 36 MONTHS BEFORE THEY BECOME ELIGIBLE FOR ENTRY INTO A UNIVERSITY OR A NAUTICAL COLLEGE AND SIT FOR A MASTER CERTIFICATE EXAMINATION.

THE EDUCATION LEADING TO A MASTER CERTIFICATE LASTS ONE YEAR DURING WHICH THE PROGRAM AIMS TO PROVIDE STUDENTS WITH A HIGHER LEVEL OF NAUTICAL AND TECHNICAL KNOWLEDGE. MOST COURSES GIVE STUDENTS A DEEPER INSIGHT INTO SUBJECTS THAT WERE DEALT WITH DURING THE MATE PROGRAM. THE CURRICULUM IS DIVIDED INTO COMPULSORY COURSES AND ELECTIVE ONES FROM WHICH TWO SUBJECTS AT LEAST SHOULD BE CHOSEN.
A SUMMARY OF THESE SUBJECTS IS AS FOLLOWS:

PART I. COMPULSORY COURSES.

- MATHEMATICS
- ELECTRICAL ENGINEERING
- CARGO HANDLING AND STOWAGE
- SHIPPING ECONOMICS
- ENGLISH
- CONTROL ENGINEERING
- ENVIRONMENT AND SAFETY
- MEDICAL CARE
- NAUTICAL INSTRUMENTS
- NAVIGATION
- SHIP’S CONSTRUCTION AND STABILITY
- SEAMANSHIP
- PROJECT PAPER

PART II. ELECTIVE COURSES.

- ECONOMY FOR TRANSPORTATION
- SHIPOWNERS’ ORGANIZATION
- SHIP HYDROMECHANICS
- CHEMICAL TANKER OPERATION
- SHIP’S MECHANICS
- OFFSHORE OPERATION TECHNIQUES
- SHIP’S ADMINISTRATION

AT THE END OF THE YEAR, STUDENTS WHO SUCCESSFULLY PASS THE FINAL EXAMINATION ARE AWARDED A BACHELOR OF SCIENCE DEGREE IN NAUTICAL SCIENCE AND A MASTER MARINER CERTIFICATE OF COMPETENCY. THE LATTER CERTIFICATE GIVES ONE THE RIGHT TO SERVE AS CHIEF-OFFICER ABOARD ANY VESSEL IN OCEAN TRADE. HOWEVER, THE MASTER POSITION IS REACHED AFTER
A CERTAIN PERIOD OF SEA SERVICE.

THE REQUIREMENTS FOR THE AWARD OF A MASTER MARINER CERTIFICATE OF COMPETENCY AS CONTAINED IN THE 1982 ORDINANCE (SECTION 5) CONCERNING THE COMPETENCY OF SEAFARERS ARE AS FOLLOWS:

a). THE CANDIDATE MUST HAVE PASSED THE EXAMINATION OF A MASTER MARINER (BACHELOR OF SCIENCE DEGREE IN NAUTICAL SCIENCE) OBTAINABLE IN THE NAUTICAL STUDY PROGRAM AT A UNIVERSITY OR A COLLEGE OR A NAUTICAL SCHOOL AND

b). AFTER OBTAINING A CERTIFICATE OF COMPETENCY AS MATE A THE CANDIDATE MUST HAVE BEEN EMPLOYED FOR AT LEAST 36 MONTHS AS MATE ABOARD A MERCHANT SHIP WITH A GROSS TONNAGE OF AT LEAST 200 TONS. NOT LESS THAN 18 MONTHS OF THIS PERIOD OF SERVICE MUST HAVE BEEN SERVED AT SEA IN EXTENDED COASTING TRADE OR MORE EXTENSIVE TRADE INCLUDING AT LEAST 9 MONTHS ABOARD A SHIP WITH A GROSS TONNAGE OF AT LEAST 1200 EITHER AS MASTER OR CHIEF OFFICER OR AS MATE ABOARD A SHIP WITH A GROSS TONNAGE OF AT LEAST 3000 TONS IN RESTRICTED OCEAN TRADE OR OCEAN TRADE.


B). EXTENDED COASTING TRADE: TRADE TO OR FROM SWEDISH
OR FOREIGN PORTS SITUATED ON THE BALTIC SEA OR IN WATERS CONNECTED WITH THE BALTIC SEA BY MARITIME COMMUNICATIONS BUT NOT BEYOND A LINE RUNNING FROM HANSHOLM TO LINDESNAS AND TRADE THROUGH THE KIEL CANAL NOT BEYOND A LINE RUNNING FROM ESBJERG VIA LATITUDE 53N LONGITUDE 4E TO THE LIGHTHOUSE BLANKENBERGHE.

C) NORTH SEA TRADE: ANY TRADE OTHER THAN THAT DEFINED UNDER A) AND B) BUT NOT BEYOND A LINE TRONDHEIM FIORD - SHETLAND NORTH POINT AND FROM THERE WESTWARDS TO LONGITUDE II W FROM THERE ALONG THAT LONGITUDE ALONG THE WEST COAST OF IRELAND TO LATITUDE 48N AND FROM THERE EASTWARDS ALONG THAT LONGITUDE TO BREST.

D) RESTRICTED OCEAN TRADE: TRADE ON EUROPEAN PORTS OTHER THAN THOSE MENTIONED UNDER A) AND C) BUT NOT TRADE NORTH OR WEST OF THE LINE MENTIONED UNDER B). ADDITIONALLY TRADE ON NON EUROPEAN PORTS IN THE MEDITERRANEAN AND THE BLACK SEA AS WELL AS TRADE ON THE WEST COAST OF NORTH AFRICA OF LATITUDE 25N, ON THE CANARY ISLANDS AND ON MADEIRA ISLAND.

E) OCEAN TRADE: ALL TRADE OTHER THAN THOSE DEFINED UNDER A) TO D).
STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN SWEDEN

- Completion of 11 years general education.
- 36 months controlled sea service as apprentice.
- Or 36 months non-controlled sea service as ordinary seaman.
- 02 years shorebased studies.
- Mate certificate.
- 36 months non-controlled sea-service.
- 01 year shorebased studies.
- Master mariner certificate.
1. GENERAL INTRODUCTION.

NAUTICAL EDUCATION IN DENMARK IS UNDER THE CONTROL AND MANAGEMENT OF THE DIRECTORATE FOR MARITIME EDUCATION WHICH IS A GOVERNMENTAL INSTITUTION UNDER THE MINISTRY OF INDUSTRY AND COMMERCE.


THE ACT STIPULATES THAT ANY IMPORTANT ISSUE ON NAUTICAL EDUCATION HAS TO PASS THROUGH A MARITIME EDUCATION COUNCIL, AN ADVISORY BODY, WHOSE MEMBERS ARE REPRESENTATIVES OF SHIPOWNERS AND SEAFARERS ASSOCIATIONS, MARITIME LECTURERS AND STUDENTS ORGANIZATIONS, THE ROYAL NAVY AND THE MINISTRY'S DEPARTMENT OF SHIPPING.

THE DIRECTORATE IS IN CHARGE OF ALL NAUTICAL SCHOOLS AND TRAINING VESSELS. IT APPOINTS TEACHERS, ALLOCATES ECONOMIC RESOURCES, PRESCRIBES SYLLABUSES AND ISSUES TEXTBOOKS TO BE USED BY CADETS.


THE TEACHING STAFF IN ALL NAUTICAL SCHOOLS HOLDS MASTERS' EXAMINATION CERTIFICATE AND CERTIFICATE OF COMPETENCY AS MASTERS OR MATES. BEYONDS THEIR PROFESSIONAL BACKGROUND, MARITIME LECTURERS GET ADDITIONAL EDUCATION OF THREE YEARS DURATION AT A TECHNICAL UNIVERSITY THAT LEADS TO AN ACADEMIC MASTER OF SCIENCE DEGREE. FOR CERTAIN SPECIFIC SUBJECTS PHYSICIANS, LAWYERS AND LANGUAGE TEACHERS ARE
EMPLOYED. ANOTHER IMPORTANT FEATURE OF THE DANISH EDUCATION ORGANIZATION IS THAT LECTURERS FROM ALL NAUTICAL SCHOOLS GET TOGETHER ONCE A YEAR FOR A THREE DAY CONGRESS WHERE THE CONTENTS OF COURSES OF STUDY, THE IMPORTANCE OF INDIVIDUAL SUBJECTS AS COMPARED TO OTHER SUBJECTS AND OTHER MATTERS ARE DISCUSSED. THE INSTRUCTIONS AND DECISIONS OF THE DIRECTORATE ARE PREPARED IN THE LIGHT OF SUCH DISCUSSIONS SO AS TO ENSURE A CONTINUOUS IMPROVEMENT OF PROFESSIONAL SKILLS AND EDUCATIONAL METHODS.

II. TRAINING OF DEEP-SEA MASTERS.

TRAINING OF FOREIGN-GOING MASTERS IS OPEN TO ALL YOUNG MEN AND WOMEN HAVING ATTENDED PRIMARY AND SECONDARY SCHOOL FOR NOT LESS THAN NINE (09) YEARS. CANDIDATES SHOULD BE PHYSICALLY AND MEDICALLY FIT FOR A SEA CAREER. THIS TYPE OF TRAINING IS SPLIT INTO THREE PHASES:

A. PRE-SEA TRAINING (BOARDING SCHOOL OR SAILING VESSEL)

B. SEA-GOING SERVICE (SERVICE ONBOARD MERCHANT VESSELS)

C. FINAL VOCATIONAL TRAINING COURSE.

D. NAUTICAL COLLEGE.

A). PRE-SEA TRAINING.

PRE-SEA TRAINING IS GIVEN TO YOUNG MEN AND WOMEN USUALLY BETWEEN SIXTEEN (16) AND TWENTY (20) YEARS OF AGE WHO HAVE COMPLETED THEIR PRIMARY AND SECONDARY EDUCATION FOR NOT LESS THAN NINE (09) YEARS. THE TRAINEES LEAVE GENERALLY THE SCHOOL SYSTEM AFTER NINE TO TWELVE YEARS AND ARE THEN ADMITTED TO A PRE-SEA TRAINING WHICH IS A FIVE MONTH BASIC COURSE AT ONE OF THE FIVE BOARDING SCHOOLS. THREE OF
They are state-owned and two private. This basic course may be provided on board sail-training vessels. During this period, the trainees are taught general basic subjects according to the curriculum below:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Subjects</td>
<td>100</td>
</tr>
<tr>
<td>Ship's Machinery</td>
<td>60</td>
</tr>
<tr>
<td>Work-Shop Practice</td>
<td>120</td>
</tr>
<tr>
<td>Navigation</td>
<td>40</td>
</tr>
<tr>
<td>Life Boat Drills</td>
<td>80</td>
</tr>
<tr>
<td>Safety at Sea</td>
<td>40</td>
</tr>
<tr>
<td>Fire-Fighting</td>
<td>40</td>
</tr>
<tr>
<td>Basic Seamanship</td>
<td>80</td>
</tr>
<tr>
<td>Basic Marine Technology</td>
<td>40</td>
</tr>
<tr>
<td>Ship's Maintenance Work</td>
<td>140</td>
</tr>
<tr>
<td>Basic First Aid- and Hygiene</td>
<td>20</td>
</tr>
<tr>
<td>Gymnastics and Swimming</td>
<td>60</td>
</tr>
</tbody>
</table>

Total: 800 hours

During this course, special attention is paid to the instruction of trainees in the use of safety equipment such as lifeboats, liferafts, lifejackets, portable radio apparatus.....etc.

Another important subject is fire detection and extinction. Besides the above mentioned twenty (20) hours in fire-fighting which are theoretical lessons, trainees spend a whole day on practical fire-fighting at one of the fire-fighting centers where they are always called upon to keep the principle of safety first in mind.

B). Seagoing Service.
SEAGOING SERVICE MUST BE A SEA-TRAINING PERIOD SPENT ON BOARD MERCHANT VESSELS OF TWENTY (20) TONS OR MORE IN THE DECK DEPARTMENT AS MATE APPRENTICE OR ORDINARY SEAMAN OR ALTERNATE SERVICE ON DECK AND IN THE ENGINE-ROOM AS SHIP’S ASSISTANT.

THE REQUIRED SEA-TRAINING PERIOD MAY BE COMPLETED IN FOUR DIFFERENT WAYS:

I). A SEA-SERVICE AS MATE APPRENTICE ON DECK ON BOARD MERCHANT VESSELS OF 200 TONS OR MORE FOR A PERIOD OF 20.5 MONTHS OF WHICH 12 MONTHS AT LEAST SHOULD BE SPENT IN FOREIGN TRADE. DURING HIS SEA SERVICE AS APPRENTICE, THE TRAINEE TAKES PART IN THE DIFFERENT WORK ACTIVITIES ON BOARD ACCORDING TO A CADET’S TRAINING MANUAL PROVIDED BY THE SCHOOL AND APPROVED BY THE DIRECTORATE FOR NAUTICAL EDUCATION. ON COMPLETION OF THE TRAINING SCHEME, THE MANUAL MUST BE PRESENTED TO THE DIRECTORATE BEFORE ADMISSION TO A NAUTICAL COLLEGE.

II). A SEA-SERVICE ON BOARD SEAGOING VESSELS OF 20 TONS OR MORE ON DECK FOR A PERIOD OF 18 MONTHS OF WHICH 12 MONTHS AT LEAST SHOULD BE SPENT ON BOARD MERCHANT VESSELS OF 200 TONS OR MORE IN FOREIGN TRADE AS AN ORDINARY SEAMAN. UPON COMPLETION OF THEIR SEA-SERVICE, TRAINEES ARE REQUIRED TO FOLLOW A 10 WEEK FINAL VOCATIONAL TRAINING COURSE FOR DECK CREW AT A SHORE-BASED TRAINING SCHOOL BEFORE ADMISSION TO A NAUTICAL COLLEGE.

III). A SEA-SERVICE ON BOARD SEAGOING VESSELS OF 20 TONS OR MORE ON DECK OR IN THE ENGINE DEPARTMENT FOR A PERIOD OF 18 MONTHS OF WHICH 12 MONTHS AT LEAST SHOULD BE SPENT ON BOARD MERCHANT VESSELS OF 200 TONS OR MORE IN FOREIGN TRADE AS A SHIP ASSISTANT. THE TRAINEE IS REQUIRED AFTERWARDS TO UNDERTAKE, AS UNDER 2 ABOVE, AN ADDITIONAL
10 WEEK FINAL VOCATIONAL TRAINING COURSE FOR SHIP'S ASSISTANTS AT A SHORE-BASED TRAINING INSTITUTION.

IV). A SEA-SERVICE ON BOARD MERCHANT VESSELS OF 20 TONS OR MORE ON DECK FOR A 36 MONTH PERIOD OF WHICH 12 MONTHS AT LEAST SHOULD BE SPENT ON BOARD MERCHANT VESSELS OF 200 TONS OR MORE IN FOREIGN TRADE AS AN ORDINARY SEAMAN. A FIVE MONTH TRAINING COURSE AT AN APPROVED PRE-SEA TRAINING SCHOOL MAY BE INCLUDED IN THE 36 MONTHS SERVICE. THIS WAY OF OBTAINING THE REQUIRED SEAGOING SERVICE IS NOT SHOWN IN THE DIAGRAM AS IT IS NOT TYPICAL. DANISH TRAINEES WILL HAVE TO OBTAIN THEIR SEAGOING SERVICE AS DESCRIBED UNDER 1,2 OR 3 BUT FOREIGNERS COMPLYING WITH THE FOURTH WAY WILL BE ACCEPTED FOR ENTRANCE IN A NAUTICAL COLLEGE.

C). FINAL VOCATIONAL TRAINING COURSE.

THIS COURSE AIMS MAINLY AT GIVING THE TRAINEES WHO HAVE COMPLETED THEIR SEAGOING SERVICE UNDER 1,2,3 AND 4 AN ADDITIONAL TRAINING THAT QUALIFIES THEM AS ABLE SEAMEN OR EXPERIENCED SHIP'S ASSISTANTS. THE COURSE IS DIRECTED TOWARDS DECK CREWS AND SHIP'S ASSISTANTS. IT DOES NOT THEREFORE CONCERN THE FIRST CATEGORY OF TRAINEES WHO GENERALLY HAVE A HIGHER EDUCATIONAL BACKGROUND. THE CURRICULUM OF THIS COURSE IS SHOWN BELOW:

SAFETY AT SEA, AT WORK & FIRE-FIGHTING 100 HOURS
SHIP'S MACHINERY & KNOWLEDGE OF ELECTRICITY 60 "
WORKSHOP PRACTICE & SHIP'S MAINTENANCE 120 "
NAVIGATION & RULES OF THE ROAD 20 "
PRACTICAL SEAMANSHIP 30 "
MARINE TECHNOLOGY 20 "
FIRST AID & HYGIENE 10 "

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IN ADDITION TO THESE SUBJECTS, THE TRAINEES ATTEND A FIRE-FIGHTING COURSE OF THREE (03) DAYS DURATION.

V). THE NAUTICAL COLLEGE

ADMISSION TO A NAUTICAL COLLEGE REQUIRES COMPLETION OF THE PRE-SEA TRAINING AND SEAGOING SERVICE FOR THE FIRST CATEGORY OF TRAINEES AS DESCRIBED EARLIER, WHILE FOR THE REMAINING CATEGORIES TRAINEES ARE REQUIRED TO HAVE FULLY COMPLETED THEIR PRE-SEA TRAINING, SEAGOING SERVICE AND THE FINAL VOCATIONAL TRAINING COURSE.

THERE IS NO ENTRANCE EXAMINATION REQUIRED FOR ADMISSION TO THE FIRST TERM OF THE FIRST YEAR. PREPARATION TIME AT A NAUTICAL COLLEGE WHICH LEADS TO A MATE 2 CLASS LICENSE IS OF THREE YEARS DURATION AND IS COMPLETED NORMALLY WITHOUT A BREAK.

IT IS IMPORTANT TO NOTE AT THIS STAGE THAT THE YEAR IS DIVIDED INTO TWO TERMS. AFTER EACH TERM STUDENTS SIT FOR AN EXAMINATION AND ONLY SUCCESSFUL STUDENTS ARE ALLOWED TO PARTICIPATE IN THE SECOND TERM AND SO ON TILL THE FINAL THIRD YEAR EXAMINATION.

STUDENTS WITH A SUFFICIENT LEVEL OF ATTAINMENT MAY SKIP EITHER THE FIRST TERM OR EVEN THE WHOLE FIRST YEAR PROVIDED THAT THEY SIT FOR AN EXAMINATION IN BASIC SUBJECTS AND NAUTICAL SUBJECTS. IN THIS WAY SOME 40 TO 50 PERCENT OF STUDENTS SKIP THE FIRST SIX MONTHS WHEREAS ONLY FEW CAN SKIP THE FIRST YEAR OF STUDY TIME AT THE NAUTICAL COLLEGE.

UPON COMPLETION OF THE THREE YEARS OF STUDY AND AFTER HAVING SUCCESSFULLY PASSED THE REQUIRED EXAMINATIONS
STUDENTS OBTAIN A MATE 2 CLASS LICENSE WHICH ENTITLES THE HOLDER TO SERVE AS WATCH-KEEPING OFFICER ON BOARD ANY VESSEL WITHOUT LIMITATION, OR CHIEF-MATE OF VESSELS OF LESS THAN 1600 TONS (IN ACCORDANCE WITH REGULATIONS II/2, II/3, II/4 OF THE STCW CONVENTION OF 1978).

AFTER 12 MONTHS SEA-SERVICE WHERE MATE 2 CLASS LICENSE IS REQUIRED, A MATE 1ST CLASS LICENSE IS THUS ISSUED. THIS LICENSE ENTITLES THE HOLDER TO BE CHIEF-MATE OF ANY VESSEL WITHOUT ANY RESTRICTIONS.

AFTER TWO YEARS OF SEA-SERVICE ONBOARD SEAGOING VESSELS IN A POSITION AS MATE WHERE MATE 2ND CLASS LICENSE IS REQUIRED OF WHICH ONE YEAR AT LEAST AS CHIEF-MATE, A MASTER LICENSE IS ISSUED. IT GIVES ONE THE RIGHT TO BE MASTER OF ANY VESSEL WITHOUT RESTRICTIONS. HOWEVER, IT IS IMPORTANT TO BEAR IN MIND THAT MASTER POSITION IS REACHED AFTER AT LEAST THREE YEARS SEA-SERVICE FROM THE TIME A MASTER LICENSE WAS DELIVERED.

FINALLY, I SHOULD MENTION THAT CERTIFICATION OF DANISH SEAFARERS IS THE RESPONSIBILITY OF THE DIRECTORATE FOR NAUTICAL EDUCATION AS WELL.

CURRICULUM OF THE THREE YEARS OF STUDY AT A NAUTICAL COLLEGE:

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>1ST YEAR</th>
<th>2ND YEAR</th>
<th>3RD YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANISH LANGUAGE</td>
<td>160</td>
<td>120</td>
<td>-</td>
</tr>
<tr>
<td>COMPUTER SCIENCE</td>
<td>-</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>ENGLISH</td>
<td>240</td>
<td>120</td>
<td>200</td>
</tr>
<tr>
<td>PHYSICS, CHEMISTRY</td>
<td>360</td>
<td>160</td>
<td>-</td>
</tr>
<tr>
<td>MACHINERY &amp; FIRE-FIGHTING</td>
<td>-</td>
<td>100</td>
<td>-</td>
</tr>
</tbody>
</table>

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III. COMPULSORY AND REFRESHER COURSES.

I. COMPULSORY COURSES.

IN ADDITION TO THE CURRICULUM PROVIDED ABOVE, STUDENTS MUST ATTEND CERTAIN COMPULSORY COURSES. IF THEY ARE NOT COMPLETED IN A SATISFACTORY WAY, STUDENTS WILL NOT BE ALLOWED TO SIT FOR THE FINAL EXAMINATION. THESE COMPULSORY COURSES OFFERED WITHIN THE THREE YEAR STUDY TIME AT A NAUTICAL COLLEGE ARE LISTED BELOW:

- SAFETY AT SEA 03 DAYS
- RADAR SIMULATOR & ARPA COURSE 08 "
- CRUISE ABOARD TRAINING VESSEL 28 "
- PRACTICAL FIRE-FIGHTING COURSE 05 "
- ENGINE & MAINTENANCE COURSE 01 "
- PERSONNEL MANAGEMENT 05 "
- FIRST AID COURSE 03 "

TOTAL 53 DAYS

II. REFRESHER COURSES.

THE DIRECTORATE FOR NAUTICAL EDUCATION ISSUES EACH YEAR A CATALOGUE OF REFRESHER AND UP-DATING COURSES WHICH ARE TO BE OFFERED AT NAUTICAL COLLEGES. A SELECTION OF SOME OF THESE COURSES IS GIVEN BELOW FROM THE 1986 CATALOGUE.

<table>
<thead>
<tr>
<th>Course</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td>ARPA Simulator Course</td>
<td>04 DAYS</td>
</tr>
<tr>
<td>Bridge Procedures</td>
<td>02 &quot;</td>
</tr>
<tr>
<td>Transport of Dangerous Goods</td>
<td>03 &quot;</td>
</tr>
<tr>
<td>Ship's Electronics</td>
<td>180 &quot;</td>
</tr>
<tr>
<td>Meteorology &amp; Weather Routeing</td>
<td>03 &quot;</td>
</tr>
<tr>
<td>Modern Communications Equipment</td>
<td>10 &quot;</td>
</tr>
<tr>
<td>Radar Fault-Finding</td>
<td>05 &quot;</td>
</tr>
</tbody>
</table>
STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN DENMARK

Completion of 09 years general education.

Pre-sea training course ashore 05 months.

20 months controlled sea-service as mate apprentice.

18 months sea-service as ordinary seaman.

Final vocational training course ashore deck assist.

03 years shorebased studies.

2nd mate certificate.

01 year non-controlled sea-service.

First mate certificate.

02 years non-controlled sea-service.

Master mariner certificate.
NAUTICAL EDUCATION IN NORWAY

I. GENERAL INTRODUCTION.

NAUTICAL EDUCATION IN NORWAY HAS FOR A LONG TIME RECEIVED GREAT ATTENTION AS PART OF THE VOCATIONAL TRAINING EFFORTS SINCE SHIPPING HAS BEEN AND STILL IS ONE OF THE MAIN INDUSTRIES OF THE COUNTRY.

NAUTICAL EDUCATION AND TRAINING IS PART OF THE GENERAL EDUCATIONAL SYSTEM, THERE IS NO SEPARATION BETWEEN GENERAL AND MARITIME EDUCATION. THERE IS ONLY ONE LEGAL AND ADMINISTRATIVE SYSTEM INTENDED TO INCORPORATE ACADEMIC EDUCATION AND ALL KINDS OF VOCATIONAL TRAINING AT THE CORRESPONDING LEVEL.

THERE ARE, THEREFORE, TWO MINISTRIES HEAVILY ENGAGED IN EDUCATIONAL MATTERS:

- THE MINISTRY OF CHURCH AND EDUCATION BEING ROUGHLY IN CHARGE OF PRIMARY AND SECONDARY EDUCATION.

- THE MINISTRY OF CULTURAL AND SCIENTIFIC AFFAIRS IN CHARGE OF COLLEGES AND UNIVERSITIES FOR HIGHER EDUCATION.

THE CERTIFICATION OF SEAFARERS IS THE RESPONSIBILITY OF THE NORWEGIAN MARITIME DIRECTORATE, WHICH IS A GOVERNMENTAL INSTITUTION UNDER THE MINISTRY OF TRADE AND SHIPPING. THIS IS LAID DOWN BY THE ACT OF 5 JUNE 1981 CONCERNING CERTIFICATION OF PERSONNEL ON BOARD NORWEGIAN SHIPS, DRILLING UNITS AND OTHER MOBILE OFFSHORE INSTALLATIONS.

II. GENERAL EDUCATIONAL SYSTEM.
IN ORDER TO UNDERSTAND THE NORWEGIAN SYSTEM OF NAUTICAL EDUCATION, A QUICK LOOK AT THE GENERAL EDUCATIONAL SYSTEM IS THEREFORE NECESSARY.

THERE ARE THREE LEVELS OF GENERAL EDUCATION IN NORWAY:


THROUGHOUT THE JUNIOR STAGE AND THE FIRST YEAR OF THE YOUTH STAGE, ALL PUPILS GO THROUGH THE SAME SUBJECTS IN THE SAME ORDER WHILE FOR THE LAST TWO YEARS OF THE YOUTH STAGE PUPILS HAVE THE OPPORTUNITY TO CHOOSE A STREAM WHICH WILL GIVE THEM A CERTAIN PREPARATION FOR A VOCATIONAL TRAINING AT THE UPPER SECONDARY LEVEL.

II.2. THE UPPER SECONDARY SCHOOL WHICH IS THE SECOND PHASE OF THE GENERAL EDUCATIONAL SYSTEM LASTS THREE YEARS (17-19). IT IS DIVIDED INTO NINE (9) BRANCHES OF STUDY, EACH OF THEM CORRESPONDS APPROXIMATELY TO A SECTOR OF EDUCATION. THESE BRANCHES OF STUDY ARE LISTED BELOW:

- GENERAL SUBJECTS
- FISHING
- COMMERCE AND OFFICE WORK
- TRADE AND INDUSTRY
- APPLIED CRAFT AND ESTHETIC SUBJECTS
- DOMESTIC SCIENCE SUBJECTS
- MARITIME SUBJECTS
- SOCIAL SUBJECTS AND HYGIENE
- SPORTS
THE BRANCH OF GENERAL SUBJECTS AIMS MAINLY AT GIVING STUDENTS A COMPREHENSIVE EDUCATION AND QUALIFICATIONS FOR ADMITTANCE TO COLLEGES AND UNIVERSITIES. IT GIVES A CERTAIN PREPARATION FOR THOSE WISHING TO CONTINUE THEIR HIGHER EDUCATION.

THE REMAINING BRANCHES ARE OFTEN REFERRED TO UNDER THE GENERAL TERM OF VOCATIONAL TRAINING. ITS MAIN OBJECT IS TO GIVE STUDENTS A PRACTICAL AND GENERALLY SHORTER TRAINING IN ORDER TO TAKE UP EMPLOYMENT IN FIELDS REQUIRING THIS TYPE OF TRAINING.

THE FOLLOWING DIAGRAM SHOWS THE GENERAL EDUCATIONAL SYSTEM UP TO THE SECONDARY LEVEL.

THIRD YEAR: ADVANCED COURSE II.
SECOND YEAR: ADVANCED COURSE I.
FIRST YEAR: BASIC COURSE
BASIC SCHOOL: NINE(9) YEARS.

AS FAR AS MARITIME EDUCATION IS CONCERNED, WE CAN ALREADY MENTION THAT IT STARTS AT THE UPPER SECONDARY SCHOOL LEVEL (BASIC COURSE), BUT AS IT IS THE MAIN OBJECT OF THIS PAPER IT WILL BE DEALT WITH SEPARATELY LATER ON.
II.3. HIGHER EDUCATION.

HIGHER EDUCATION IS GIVEN AT COLLEGES AND UNIVERSITIES LEVELS. IT IS BASED ON STUDENTS EDUCATED FROM UPPER SECONDARY SCHOOLS. THEREFORE ALL KIND OF EDUCATION AFTER THE TWELVE YEARS (12) MENTIONED UNDER II.1 AND II.2 IS CONSIDERED TO BE HIGHER EDUCATION. THE ORGANIZATION OF HIGHER EDUCATION HAS BEEN DIVIDED INTO TWO SEGMENTS, ONE CALLED THE COLLEGE SYSTEM AND THE OTHER THE UNIVERSITY SYSTEM. THE PARTICULARITY IS SUPPOSED TO BE THE PARTING LINE IS THAT THE COLLEGE SYSTEM PROVIDES A SHORT DURATION VOCATIONAL EDUCATION WHEREAS THE UNIVERSITY SYSTEM GIVES AN EDUCATION MORE IN DEPTH.

TRAINING OF SEAFARERS.

NAUTICAL EDUCATION LEADING TO A SECOND-MATE CERTIFICATE OF COMPETENCY IS OPEN TO ALL YOUNG PEOPLE WHO HAVE COMPLETED THEIR NINE YEARS OF BASIC SCHOOLING, AND REACHED THE AGE OF SEVENTEEN (17). IT INVOLVES A MAXIMUM OF THREE YEARS DURATION.

THE BASIC MARITIME COURSE GIVES A THEORETICAL AND PRACTICAL INTRODUCTION TO THE WORK ON BOARD SHIPS AND OFFSHORE INSTALLATIONS.

THE ALLOCATION OF TEACHING PERIODS FOR THE THREE YEARS OF STUDY IS GIVEN BELOW:

I.1. MARITIME BASIC COURSE.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORWEGIAN</td>
<td>76</td>
</tr>
<tr>
<td>PHYSICAL EDUCATION</td>
<td>76</td>
</tr>
<tr>
<td>WORK METHODS</td>
<td>722</td>
</tr>
<tr>
<td>NAUTICAL SUBJECTS</td>
<td>190</td>
</tr>
<tr>
<td>ENGINE DRAWING</td>
<td>76</td>
</tr>
<tr>
<td>MATHS, PHYSICS, CHEMISTRY</td>
<td>114</td>
</tr>
<tr>
<td>OPTIONS</td>
<td>76</td>
</tr>
</tbody>
</table>

**Total: 1330 Hours**

THE SUBJECT OF WORK METHODS INVOLVES MECHANICAL WORK AND PRACTICAL SEAMANSHIP. THE OPTIONS IS A COURSE MOSTLY USED FOR ENGLISH INSTRUCTION.
I.2. ADVANCED COURSE I.

- MATHEMATICS 76 HOURS
- PHYSICS 76 "
- DRAWING 76 "
- ENGLISH 76 "
- VOCATIONAL THEORY 380 "
- WORK METHODS 836 "

TOTAL 1520 HOURS

This course may be replaced by sea-service on board merchant vessels or workshop training wherever service of this nature is required.

Work methods and vocational theory consist of seamanship and machinery, automation, welding, piping and electro-technique. The advanced course I consists of modules with an obligatory part which covers most of the subjects and an optional part which gives the opportunity for intensified training towards specialization in one of the following lines:

- NAUTICAL LINE
- ENGINEERING LINE
- ELECTRO AUTOMATION LINE
- DRILLING TECHNIQUE LINE

I.3. ADVANCED COURSE II, NAUTICAL LINE.

This course consists of two parts. Part one is common to all lines while part two is specifically nautical.
PART I.

- EDP 76 HOURS
- NORWEGIAN 76 "
- ENGLISH 114 "
- MATHEMATICS 152 "
- PHYSICS, CHEMISTRY 152 "

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TOTAL 570 HOURS

PART II.

- NAVIGATION 266 HOURS
- COMMUNICATIONS 95 "
- CARGO HANDLING 152 "
- RADAR & NAVIGATION SIMULATION 171 "
- OPTIONS 76 "

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TOTAL 760 HOURS

CERTIFICATION.

CERTIFICATION OF NORWEGIAN SEAFARERS AS I HAVE STATED AT THE BEGINNING IS THE RESPONSIBILITY OF THE MARITIME DIRECTORATE. HOWEVER IT IS IMPORTANT TO NOTE THAT ON COMPLETION OF THE THREE YEARS OF STUDY AT AN UPPER SECONDARY SCHOOL, THE TRAINEES ARE GRANTED TWO CERTIFICATES:

- A CERTIFICATE SHOWING THE TRAINEE’S LEVEL WITHIN THE GENERAL EDUCATIONAL SYSTEM. THIS CERTIFICATE IS GRANTED BY THE SCHOOL.
A PROFESSIONAL DECK OFFICER CLASS 3 CERTIFICATE OF COMPETENCY ISSUED BY THE MARITIME DIRECTORATE.

THE LATTER CERTIFICATE INTITLES THE HOLDER TO SERVE AS A WATCH-KEEPING OFFICER (MATE) ON BOARD ANY VESSEL WITHOUT RESTRICTIONS. UPON COMPLETION OF TWELVE (12) MONTHS SEA-SERVICE AS MATE THE CANDIDATE HAS THE POSSIBILITY TO SERVE AS:
- CHIEF MATE ON BOARD PASSENGER-SHIPS OF UP TO 1200 TONS IN SMALL COASTING TRADE (1).
- CHIEF MATE ON BOARD CARGO SHIPS OR OTHER SHIPS OF 1200 TONS IN UNRESTRICTED TRADE (2).
- MASTER OF PASSENGER-SHIPS OF UP TO 1200 TONS IN PROTECTED WATERS (3).
- MASTER OF PASSENGER-SHIPS OF UP TO 600 TONS IN SMALL COASTING TRADE.
- MASTER OF CARGO SHIPS OR OTHER SHIPS OF UP TO 1200 TONS IN UNRESTRICTED TRADE.

THESE REGULATIONS ARE LAID DOWN IN THE ACT OF 5 JUNE 1981 RELATING TO CERTIFICATION OF PERSONNEL ON NORWEGIAN SHIPS DRILLING UNITS AND OTHER MOBILE OFFSHORE INSTALLATIONS (PARAGRAPH 6, SECTION 5-2, PAGE 15).


2) PROTECTED WATERS: TRADE IN NORWEGIAN WATERS WHICH ARE PROTECTED AGAINST WAVES AND WIND FROM THE OPEN SEA AS
WELL AS IN ALL MORE RESTRICTED WATERS (ACT OF 5 JUNE 1981, PARAGRAPH 1, SECTION 10.3, PAGE 6).

3) UNRESTRICTED TRADE: NO LIMITS TO THE TRADING AREA (ACT OF 5 JUNE 1981, PARAGRAPH 1, SECTION 12, PAGE 6).

ON COMPLETION OF TWENTY-FOUR (24) MONTHS OF SEA-SERVICE, THE CANDIDATES ARE ADMITTED TO A MARITIME COLLEGE FOR FURTHER EDUCATION LEADING TO THE HIGHEST MARITIME CERTIFICATES AS WE ARE GOING TO SEE.

HIGHER EDUCATION IN NORWAY.

HIGHER EDUCATION IS GIVEN AT COLLEGES AND UNIVERSITIES. THE GOVERNMENT MINISTRY IN CHARGE OF HIGHER EDUCATION IS THE MINISTRY OF CULTURAL AND SCIENTIFIC AFFAIRS. THE GOVERNMENTAL OBJECT FOR HIGHER EDUCATION IS TO GIVE STUDENTS THE OPPORTUNITY FOR A MAXIMUM PERSONNEL DEVELOPMENT.

THE OVERALL AIM IS TO PREPARE STUDENTS FOR THEIR WORKING LIFE, THEREFORE GREAT EMPHASIS IS MADE ON THE QUALITY OF EDUCATION AND THE SCIENTIFIC WORK AT THE INSTITUTION.

THE EDUCATION FOR OBTAINING HIGHEST MARITIME CERTIFICATES IS GIVEN AT MARITIME COLLEGES. THIS EDUCATION IS OF THREE YEARS' DURATION AND IS SPLIT INTO THREE SPECIALITIES (NAUTICAL, ENGINEERING AND ELECTRO-AUTOMATION). AN ADDITIONAL THIRD YEAR OF STUDY IN MANAGEMENT, ECONOMICS AND ADMINISTRATION LEADS TO A MASTER CERTIFICATE FOR THOSE AIMING AT BECOMING SHIPS' CAPTAINS.
DURING THE TWO YEARS OF STUDY AT A MARITIME COLLEGE, STUDENTS FROM THE THREE SPECIALITIES HAVE COMMON SUBJECTS WHICH ARE LISTED BELOW:

- EDP
- MATHEMATICS
- PHYSICS
- CHEMISTRY
- ENGLISH
- SAFETY
- MARITIME LAW
- MANAGEMENT
- SHIPPING ECONOMICS

A. NAUTICAL DEPARTMENT.

THE EDUCATION OF NAUTICALS CULMINATES IN GRADUATION AS MARITIME ENGINEERS. IT AIMS TO OFFER A NAUTICAL TRAINING AT ENGINEERING LEVEL FOR PERSONNEL IN LEADING POSITIONS ON BOARD MERCHANT VESSELS AND ABOARD VESSELS OF THE OFF-SHORE INDUSTRY.

THE TRAINING OF NAUTICALS LASTS TWO YEARS AND EACH YEAR IS DIVIDED INTO TWO TERMS. THE SUBJECTS ARE ALSO DIVIDED INTO COMMON AND SPECIAL ONES. THE COMMON SUBJECTS HAVE ALREADY BEEN LISTED, BELOW ARE THE SUBJECTS PURELY INTENDED TO NAUTICALS.

- NAVIGATION
- TRAINING ON SIMULATORS
- RULES OF THE ROAD
- CARGO HANDLING
- MECHANICS
- NAVAL ARCHITECTURE
- ELECTRICAL ENGINEERING
AFTER HAVING COMPLETED TWO YEARS OF STUDY AT A MARITIME COLLEGE AND SUCCESSFULLY PASSED THE REQUIRED EXAMINATIONS STUDENTS FROM THE NAUTICAL DEPARTMENT ARE GRANTED TWO CERTIFICATES:

- A MARITIME ENGINEER CERTIFICATE WHICH IS AN ACADEMIC DIPLOMA. IT IS DELIVERED BY THE COLLEGE.

- A DECK OFFICER 2nd CLASS CERTIFICATE ISSUED BY THE MARITIME DIRECTORATE.

A DECK OFFICER 2nd CLASS CERTIFICATE GIVES THE RIGHT TO THE HOLDER TO SERVE AS:
- CHIEF MATE ABOARD ANY VESSEL IN ANY TRADE, OR
- MASTER OF PASSENGER-SHIPS OF UP TO 1600 TONS IN SMALL COASTING TRADE, OR
- MASTER OF FISHING VESSELS, CARGO SHIPS AND OTHER VESSELS OF UP TO 1600 TONS IN UNLIMITED TRADE.

FOR NAUTICAL STUDENTS, AN ADDITIONAL THIRD YEAR AT THE SHIP OPERATION AND MANAGEMENT DEPARTMENT LEADS TO A MASTER CERTIFICATE. THE STUDY PROVIDES THE NECESSARY THEORETICAL BASIS REQUIRED FOR ISSUING A MASTER CERTIFICATE. IT ALSO AIMS AT OFFERING AN UPDATED LEADERSHIP TRAINING FOR PERSONNEL CHARGED WITH FUTURE DEVELOPMENTS AND MANAGEMENT OF SHIPS AND SHIPPING COMPANIES.

A DEGREE FROM A MARITIME COLLEGE, NAUTICAL DEPARTMENT, COMPLIES WITH THE REQUIREMENTS FOR OBTAINING CHIEF-OFFI-
CER CERTIFICATE WITH AN ADDITIONAL DEGREE FROM THE SHIP OPERATION AND MANAGEMENT DEPARTMENT, STUDENTS FROM THE NAUTICAL BRANCH WILL HAVE ACQUIRED THE THEORETICAL TRAINING NEEDED FOR A MASTER CERTIFICATE.

BELOW ARE THE SUBJECTS ALLOCATED TO THE THIRD YEAR OF STUDY:

- ADMINISTRATION
- PERSONNEL MANAGEMENT
- ORGANIZATION AND TRAINING ON BOARD SHIPS
- MARITIME LAW
- MARITIME INSURANCE
- PROJECT PAPER

A MASTER CERTIFICATE OR DECK OFFICER I CLASS GIVES THE RIGHT TO THE HOLDER TO SIGN AS CHIEF-OFFICER ON ANY SHIP IN ANY TRADE. AFTER TWO YEARS SEA-SERVICE OF WHICH ONE YEAR AT LEAST AS CHIEF-OFFICER, A CERTIFICATE OF COMPETENCY AS MASTER-MARINER IS ISSUED.

B. UPDATING AND REFRESHER COURSES.

A CERTAIN NUMBER OF UPDATING AND REFRESHER COURSES ARE OFFERED EACH YEAR AT ALL MARITIME COLLEGES. SOME OF THEM ARE LISTED BELOW:

- AUTOMATIC RADAR PLOTTING AID COURSE (ARPA)
- DP OPERATOR COURSE FOR NAVIGATORS
- FIRE FIGHTING COURSE
- SHIP HANDLING SIMULATOR COURSE
- TRANSPORT OF DANGEROUS GOODS
- BRIDGE PROCEDURE
- WEATHER ROUTEING

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STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN NORWAY

**Completion of 09 years general education.**

**03 years shorebased studies.**

**2nd-mate certificate.**

**18 months non-controlled sea service.**

**02 years shorebased studies.**

**Chief-mate certificate.**

**02 years non-controlled sea-service.**

**01 year shorebased studies.**

**Master mariner certificate.**
CHAPTER III

NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN WEST-EUROPE.

1. GERMANY (F.R)

2. NETHERLANDS

3. FRANCE.
NAUTICAL EDUCATION IN THE FEDERAL REPUBLIC OF GERMANY

I. GENERAL INTRODUCTION.

TRAINING OF SEAFARERS IN THE FEDERAL REPUBLIC OF GERMANY IS EXECUTED IN ACCORDANCE WITH THE PRINCIPLES GOVERNING THE NATIONAL TRAINING PROGRAMME. IT IS THEREFORE CONSIDERED TO BE EQUIVALENT TO THAT PROVIDED TO OTHER INDUSTRIES. THE MINISTRY OF EDUCATION, SCIENCE AND ARTS IS IN CHARGE OF MARITIME EDUCATION AND TRAINING WHILE THE MINISTRY OF TRANSPORT IS RESPONSIBLE FOR THE CERTIFICATION OF ALL SEAFARERS.


THE EDUCATION AND TRAINING OF SEAFARERS IN THE FEDERAL REPUBLIC OF GERMANY CHANGED FOR DIFFERENT REASONS IN 1970. THE MAIN REASON WAS THE NECESSITY TO INTRODUCE A BROADER BASIS OF MARITIME EDUCATION THROUGH WHICH A BETTER LINK UP WOULD BE ESTABLISHED WITH THE GENERAL EDUCATIONAL SYSTEM. IN DOING SO, TWO TRAINING INSTITUTIONS WERE ESTABLISHED: THE FACHOBERSCHULE (FOS), A HIGHER TRADE SCHOOL AND THE FACHHOCHSCHULE (FAS), A HIGHER NAUTICAL SCHOOL, PROVIDING BOTH A PROFESSIONAL EDUCATION UP TO UNIVERSITY LEVEL AND GIVING ONE THE CHANCE TO RECEIVE AN ACADEMIC DEGREE WHICH IN A WAY WILL FACILITATE A LATER ENTRY INTO SHORE-BASED POSITIONS.

ANOTHER REASON WAS THAT SEA-TRAINING PERIODS WERE TOO
LONG (IN FORMER TIMES 4 YEARS) BEFORE ONE COULD BE ADMITTED AT A NAUTICAL COLLEGE. IT GAVE THE GERMAN AUTHORITIES A FEELING THAT SEAFARERS COME BACK AFTER THE COMPLETION OF THEIR SEA-SERVICE WITH A POOR KNOWLEDGE OF BASIC SCIENCE AND A REDUCED ABILITY TO FOLLOW ADVANCED SHORE-BASED COURSES.


II. THE GENERAL EDUCATIONAL SYSTEM.


III. NAUTICAL CERTIFICATE STRUCTURE.

THREE DIFFERENT NAUTICAL CERTIFICATES ARE IN EXISTENCE. THEY VARY FROM EACH OTHER IN THE GEOGRAPHICAL TRADING AREA, THE VESSEL'S SIZE AND THE RANK THE HOLDER IS INTITLED TO HOLD.

THE LOWEST CERTIFICATE WHICH MIGHT BE CALLED HOME-TRADE LICENSE AUTHORIZES ONE TO COMMAND SHIPS OF LIMITED TONNAGE (1000 TONS). THE MEDIUM CERTIFICATE GIVES THE
RIGHT TO SERVE AS MASTER OF FOREIGN-GOING SHIPS OF UP TO 4000 TONS, OR TO SAIL ON BOARD OCEAN-GOING VESSELS UP TO SECOND-MATE POSITION.

THE THIRD CERTIFICATE WHICH IS THE HIGHEST ONE FOR DEEP-SEA MASTERS HAS NO RESTRICTIONS.

IV. TRAINING OF FOREIGN-GOING MASTERS (MASTERS A G).

THERE ARE TWO WAYS OF ENTERING INTO NAUTICAL HIGH SCHOOLS (FHS) WHICH GIVE A HIGHER EDUCATION UP TO A DEEPSEA MASTER CERTIFICATE.

IV.1. UPON COMPLETION OF TEN (10) YEARS OF GENERAL EDUCATION, A TWO-YEAR COURSE IS TAKEN AT A HIGHER TRADE SCHOOL (FOS). IN FACHOBERSCHULE, THE COURSES ARE DESIGNED TO GIVE BASIC TRAINING WHICH IS CONSIDERED AS A STEPPING-STONE FOR FURTHER EDUCATION AT A NAUTICAL HIGH SCHOOL. THE FIRST YEAR OF STUDY AT THE FACHOBERSCHULE CONSISTS OF THREE WEEKS SAFETY TRAINING COURSE AND THIRTY-FIVE (35) WEEKS OF SEA-SERVICE ON BOARD A TRAINING VESSEL. IT IS SUPPLEMENTED BY A TEN (10) MONTHS EDUCATION Ashore. This is considered to be equivalent to the Eleventh Form of General Education.

AFTER A TWO-YEAR COURSE AT A HIGHER TRADE SCHOOL, TWELVE (12) MONTHS OF SEA-SERVICE IS REQUIRED AS OFFICER-ASSISTANT IN ORDER TO BE ELIGIBLE TO ENTER A NAUTICAL HIGH SCHOOL. 80% OF CANDIDATES ENTER HIGHER NAUTICAL SCHOOLS IN THIS WAY.

IV.2. UPON COMPLETION OF TWELVE (12) YEARS OF GENERAL EDUCATION FROM A SPECIALISED GRAMMAR SCHOOL OR THIRTEEN YEARS OF EDUCATION FROM A GRAMMAR SCHOOL, CANDIDATES ATTEND A THREE WEEK SAFETY COURSE ASHORE. THEREAFTER
TWENTY-FOUR (24) MONTH SEA-SERVICE IS REQUIRED OF WHICH NINE (9) MONTHS AS AN APPRENTICE-OFFICER AND FIFTEEN (15) MONTHS AS AN ASSISTANT-OFFICER.

WHEN SEA-SERVICE IS COMPLETED CANDIDATES BECOME ELIGIBLE FOR ENTRY IN A NAUTICAL HIGHER SCHOOL AND ABOUT 18% DO IT THIS WAY.

THE STUDY TIME AT A NAUTICAL HIGH SCHOOL IS THREE YEARS. THE COURSE IS DIVIDED INTO SIX SEMESTERS OF EIGHTEEN (18) WEEKS EACH. THE STUDIES ARE PERFORMED IN TWO PARTS: BASIC STUDIES IN TWO SEMESTERS AND ADVANCED STUDIES IN FOUR SEMESTERS. ON COMPLETION OF THE BASIC STUDIES, EXAMINATION HAS TO BE PASSED.

THE COURSE SYLLABUS OF THE BASIC STUDIES IS SHOWN BELOW:

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>1st.SEMESTER</th>
<th>2nd.SEMESTER</th>
<th>TOTAL HOURS</th>
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<td>EX</td>
<td>LHW</td>
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<tr>
<td>ENGINES</td>
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</table>
AS I HAVE MENTIONED EARLIER, AT THE END OF THE BASIC STUDIES AN EXAMINATION HAS TO BE PASSED AND IF ALL THE REQUIREMENTS SPECIFIED IN THE EXAMINATION REGULATIONS HAVE BEEN MET, STUDENTS FOLLOW THEN THE SECOND PART OF STUDY WHICH CONSISTS OF THE FOLLOWING SUBJECTS.

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<td>EX</td>
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A final examination after the 6th semester serves to establish whether the candidate has acquired a solid knowledge and the ability to work on a scientific basis. The examination also serves as an indication whether the candidate is professionally suited for the independent task of a foreign trade master.

The final examination consists of:

- Navigation
- Maritime law
- Seaman's
- Meteorology
- Shipping economics
- Submitting of a thesis

Graduates obtain a polytechnic degree equivalent to a Bachelor of Science degree in nautical science issued on behalf of the Ministry of Education, Science and Arts and a professional watch-keeping certificate of competency delivered by the Federal Ministry of Transport. Upon completion of twenty-four (24) months of sea service as deck officer, the AG foreign trade master certificate is awarded without any further examinations or studies.
V. REFRESHER AND UP-DATING COURSES.

DURING THE LAST DECADE A NUMBER OF REFRESHER AND UPDATING COURSES HAVE BEEN DEVELOPED ON A ONE-WEEK BASIS. THESE COURSES ARE TO CONTRIBUTE TO THE SAFETY AND EFFICIENCY OF SHIPPING AND PROVIDE SHIPBOARD PERSONNEL WITH A HIGHER DEGREE OF PROFESSIONAL MOBILITY. SOME OF THESE COURSES WHICH ARE OFFERED EACH YEAR ARE LISTED BELOW:

1. RADAR SIMULATOR COURSE: PREVENTING COLLISIONS WHEN NAVIGATING WITH RADAR AND UNDER RESTRICTED CONDITIONS OF VISIBILITY.
2. TRAINING COURSE IN THE USE OF AUTOMATIC RADAR PLOTTING AIDS (ARPA).
3. SHIPHANDLING SIMULATOR COURSE.
4. INFORMATION PROCESSING IN SHIPPING, USE OF COMPUTERS.
5. SHIPPING MANAGEMENT. VOYAGE, OPERATING AND CAPITAL COSTS.
6. SHIPPING MANAGEMENT. RATIONALIZATION OF CARGO HANDLING COSTS.
7. MARITIME LAW.
8. SHIP'S TANK OPERATION COURSE.
9. LIQUIFIED GAS TANKER OPERATION COURSE.
10. ECONOMIC OPERATION OF SHIP'S ENGINES.
11. CHEMICAL TANKER OPERATION COURSE.
12. OIL TANKER OPERATION COURSE.
13. STABILITY AND CARGO SECURING.
14. SHIPMENT OF DANGEROUS GOODS.

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54
STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN THE FEDERAL REPUBLIC OF GERMANY

Completion of 12 years general education.

9 months shipboard training as officer apprentice.

15 months shipboard training as officer-assist.

3 years shorebased studies.

02 years non-controlled sea service.

Master mariner certificate.

Deck officer certificate.
I. GENERAL INTRODUCTION.

TRAINING OF SEAFARERS IN THE NETHERLANDS HAS CONSIDERABLY CHANGED LIKE IN MANY OTHER EUROPEAN COUNTRIES. THE TECHNOLOGICAL CHANGES THAT HAVE OCCURED TO THE SHIPPING INDUSTRY DURING THE LATE SIXTIES INCITED SHIPOWNERS, SEAFARERS AND TRAINING INSTITUTIONS TO DEMAND FOR A CHANGE IN THE SYSTEM OF MARITIME EDUCATION SO THAT A UNIFORM, LESS EXPENSIVE AND STABLE SYSTEM COULD BE INTRODUCED WHICH WOULD ALSO MEET THE REQUIREMENTS OF DEVELOPING SKILLED AND WELL TRAINED PERSONNEL FOR THE NATIONAL MERCHANT FLEET WHICH WAS SUBJECT TO RAPID CHANGES IN MARINE TECHNOLOGY, MANAGEMENT AND SOCIAL STRUCTURE. AT THE TIME WHEN AUTOMATION WAS INTRODUCED ON DUTCH FLAG VESSELS IN ORDER TO REDUCE MANNING COSTS, DECK AND ENGINEROOM APPRENTICES WHEN RETURNING TO SCHOOLS REGULARLY PASSED THE COMPLAINT THAT THEY WERE INADEQUATELY TRAİNED TO OPERATE SUCH VESSELS. AS A RESULT OF THESE COMPLAINTS A NEW SYSTEM WAS INTRODUCED WHICH STARTED ON AN EXPERIMENTAL BASIS IN 1973, AND IN 1978 WHEN THE SYSTEM PROVED TO BE A SUCCESS IT WAS IMPLEMENTED AS A PERMANENT DUAL-PURPOSE SYSTEM.

BEFORE GOING DEEPLY INTO THE NEW SYSTEM OF NAUTICAL EDUCATION, I THINK THAT AN UNDERSTANDING OF THE OLD SYSTEM WOULD BE VERY USEFUL.

PRIOR TO 1973, TRAINING OF SEAFARERS WAS OF A SANDWICH SYSTEM WHICH WAS AND STILL IS IN USE ALL OVER THE WORLD. CANDIDATES TO A SEA CAREER WERE TRAINED EITHER FOR DECK OR ENGINE DEPARTMENT, COMBINING SHORT SHORE-BASED STUDIES AND SEA-TIME. THIS TYPE OF TRAINING WAS TOO EXPENSIVE, LONG AND NOT DIRECTED TOWARDS TECHNOLOGICAL INNOVATIONS.
THAT MADE SHIPPING IN THE FOREFRONT OF THE LEADING INDUSTRIES.
CANDIDATES WISHING TO BE TRAINED AS DECK OFFICERS WERE RECRUITED AT THE AGE OF FIFTEEN (15) UPON COMPLETION OF NINE (09) YEARS OF GENERAL EDUCATION. CANDIDATES START THEIR REAL EDUCATION THROUGH A PRE-SEA TRAINING OF TWELVE (12) MONTHS DURATION AS DECK APPRENTICES. SEA-SERVICE WAS THEN FOLLOWED BY TWO YEARS OF SHORE-BASED STUDIES. AT THE END OF THE SECOND YEAR AN EXAMINATION WAS CARRIED OUT BY THE MINISTRY OF TRANSPORT. SUCCESSFUL STUDENTS WERE GRANTED A SECOND-MATE CERTIFICATE WHICH INTITLES THEM TO SERVE AS WATCH-KEEPING OFFICERS FOR A PERIOD OF TWENTY FOUR (24) MONTHS. WHEN SEA-TIME WAS COMPLETED, TRAINEES WERE REQUIRED TO GO THROUGH A NINE (9) MONTH EDUCATION IN A NAUTICAL SCHOOL. A FIRST MATE CERTIFICATE WAS ISSUED BY THE MINISTRY OF TRANSPORT TO THOSE STUDENTS FOUND THROUGH AN EXAMINATION PROCESS ELIGIBLE TO RECEIVE A CERTIFICATE. THE LATTER CERTIFICATE GAVE THE RIGHT TO SERVE AS FIRST MATE ON BOARD ANY VESSEL IN FOREIGN TRADE FOR A PERIOD OF TWENTY-FOUR (24) MONTHS. FINALLY AFTER COMPLETION OF THE REQUIRED SEA-TIME, TRAINEES ATTENDED A NINE (9) MONTH COURSE AT A NAUTICAL SCHOOL OF WHICH A RADAR AND NAVIGATION SIMULATOR COURSE WAS PROVIDED. UPON COMPLETION OF THIS COURSE A FINAL ASSESSMENT WAS CARRIED OUT BY THE MINISTRY OF TRANSPORT AND A FOREIGN GOING MASTER CERTIFICATE WAS GRANTED.
OLD STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS
IN THE NETHERLANDS

- Completion of 09 years general education.
- 01 year sea-service on deck.
- 02 years shorebased studies.
- Examination by M.O.T.
- 2nd mate certificate.
- 02 years non-controlled sea-service.
- 09 months shorebased studies.
- Examination by M.O.T.
- First mate certificate.
examination by m.o.t

master mariner certificate.
II. THE NEW SYSTEM OF NAUTICAL EDUCATION: TRAINING OF FOREIGN-GOING MASTERS.

The new system of nautical education which was definitively established in 1985 as a permanent system is based on the principle of dual-purpose training of future marine officers. It calls, however, for an explanation as one may assimilate it to the French or Japanese system. In the Dutch concept, a dual-purpose officer is a merchant marine officer who, besides his/her highest competency in the main discipline (deck or engine), holds a watch-keeping competency in the other discipline. This transformation of the traditional training has also been expressed in the terms of "semi-integrated officer" or "maritime officer", but the meaning remains the same as explained above.

Within the new system of training, there are three levels of study namely:

1. L.V.E: LOWER VOCATIONAL EDUCATION (TRAINING OF RATINGS)

2. I.V.E: INTERMEDIATE VOCATIONAL EDUCATION (TRAINING OF OFFICERS OF SHIPS OF LESS THAN 4000 GRT).

3. H.V.E: HIGHER VOCATIONAL EDUCATION (TRAINING OF OFFICERS OF SHIPS OF UNLIMITED TONNAGE).

The third level of study leads to a master foreign-going unrestricted certificate where both ministries of education and transport are involved. Candidates after successful completion of their study-time receive a bachelor of science degree from the ministry of education. From the ministry of transport they receive a second-mate.
CERTIFICATE OF COMPETENCY AS DECK OFFICER AND A THIRD ENGINEER CERTIFICATE.

THE NEW SYSTEM OF TRAINING OF FOREIGN-GOING MASTERS IS OF FOUR YEARS DURATION. CANDIDATES FOR A SEA CAREER ARE RECRUITED AT THE AGE OF SEVENTEEN (17) AFTER HAVING COMPLETED THEIR HIGHER GENERAL EDUCATION AND SUCCESSFULLY PASSED A MEDICAL TEST.

DURING THE TWO FIRST YEARS OF STUDY, STUDENTS GATHER A BROAD KNOWLEDGE WHERE ALL ITEMS OF THE JOB-PROFILE ARE LECTURED AND SUPPORTED BY NECESSARY THEORY AT A SUBSTANTIAL LEVEL. THE SUBJECTS LECTURED AMOUNT TO THIRTY-FOUR (34) WEEKLY LECTURE HOURS IN THE FIRST AND SECOND YEAR.

A ROUGH DIVISION OF THESE SUBJECTS OVER FIRST AND SECOND YEAR IS AS FOLLOWS:

<table>
<thead>
<tr>
<th></th>
<th>1st Year</th>
<th>2nd Year</th>
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</thead>
<tbody>
<tr>
<td>1. GENERAL SUBJECTS</td>
<td>15%</td>
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</tr>
<tr>
<td>2. EXACT SCIENCES</td>
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<td>12%</td>
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<td>3. PROFESSIONAL SUBJECTS</td>
<td>18%</td>
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</tr>
<tr>
<td>4. NAVIGATION/SEAMANSHIP</td>
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<td>26%</td>
</tr>
<tr>
<td>5. MARINE ENGINEERING</td>
<td>17%</td>
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</table>

A BREAKDOWN OF ITEMS 1 TO 5 COVERS THE FOLLOWING SUBJECTS

ITEM 1.

- DUTCH LANGUAGE
- ENGLISH LANGUAGE
- MANAGEMENT
- MASTERS BUSINESS
- PRE SEA TRAINING
- FIRST AID

ITEM 2.

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ITEM 3.

- AUTOMATION
- ELECTRICAL ENGINEERING
- SHIP'S CONSTRUCTION
- RADIO TELEPHONY

ITEM 4.

- MANOEUVRING
- METEOROLOGY
- NAVIGATION
- NAVIGATIONAL INSTRUMENTS
- PASSAGE PLANING
- CARGO HANDLING
- RULES OF THE ROAD

ITEM 5.

- PRACTICAL ENGINEERING
- WORKSHOP PRACTICE
- PROPULSION SYSTEMS
- AUXILLARY SYSTEMS

DURING THE FIRST YEAR OF THE STUDY-TIME, ALL STUDENTS SPEND A FORTHNIGHT ON BOARD THE TRAINING VESSEL "PRINSES MARGRIET" ON THE NORTH SEA AS COVERED ON ITEM 1.

THE AIM OF THE THIRD YEAR, WHICH ALL STUDENTS SPEND AT SEA
IS:
- TO GAIN EXPERIENCE IN SHIP’S OPERATION AS IT REALLY OCCURS ON BOARD.
- TO COMPARE THEORETICAL KNOWLEDGE WITH DAILY PRACTICE ON BOARD SHIPS.
- TO SUPPORT AND SUPPLEMENT THEORETICAL KNOWLEDGE WITH DAILY PRACTICE.
- TO PREPARE STUDENTS FOR THEIR FUTURE JOB AS DUAL PURPOSE OFFICERS.


DURING THEIR SEA-TRAINING, TRAINEES ARE UNDER THE SUPERVISION OF THE SHIPBOARD STAFF WHICH INSTRUCTS THEM AND CHECKS THEIR DAILY ACTIVITIES. A "WORK-BOOK" WHICH IS PROVIDED BY THE SCHOOL CONTAINS A NUMBER OF ITEMS ON WHICH THE TRAINEE HAS TO REFER DURING HIS/HER SEA-TIME.

BEFORE THE BEGINNING OF THE FOURTH YEAR TRAINEES FORWARD THEIR "WORK-BOOK" TO THEIR SCHOOL WHERE IT IS REVIEWED BY THE MINISTRY OF TRANSPORT AND THE SCHOOL. IN CASE IT IS CONSIDERED INSUFFICIENT AN EXTRA SEA-TIME MAY BE ORDERED AFTER THE FINAL EXAMINATION.

IN THE FOURTH AND FINAL YEAR OF STUDY, SPECIALIZATION IS
INTRODUCED SO THAT STUDENTS MUST MAKE A CHOICE BETWEEN EITHER NAVIGATION OR MARINE ENGINEERING FOR FUTURE HIGHEST CERTIFICATION AFTER LEGALLY REQUIRED SEA-TIME AND UPDATING COURSES ARE COMPLETED.

THE SUBJECTS LECTURED IN THE FOURTH YEAR AMOUNT TO TWENTY EIGHT (28) LECTURE HOURS AND CONSIST OF THREE PARTS. A BREAKDOWN OF THESE SUBJECTS IS GIVEN BELOW.

PART I.

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PART II.

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TOTAL HOURS PER WEEK 28 28

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III. CERTIFICATION.

AT THE END OF THE FOURTH YEAR AND AFTER A FINAL EXAMINATION STUDENTS ARE GRANTED A 2nd MATE CERTIFICATE OF COMPETENCY AS DECK OFFICERS AND A 3rd ENGINEER CERTIFICATE BY THE MINISTRY OF TRANSPORT, WHILE THE MINISTRY OF EDUCATION ISSUES A CERTIFICATE OF HIGHER VOCATIONAL EDUCATION WHICH IS EQUIVALENT TO A BACHELOR OF SCIENCE DEGREE.

IV. FROM FIRST CERTIFICATE UP TO MASTER CERTIFICATE.

TO OBTAIN A MASTER CERTIFICATE OF COMPETENCY THERE IS NO FURTHER EDUCATION OR EXAMINATION REQUIRED. ONLY SEA-TIME HAS TO BE COMPLETED IN THE FOLLOWING MANNER:

- AFTER TWO YEARS SEA-SERVICE FROM THE TIME A 2nd MATE CERTIFICATE WAS ISSUED, A 1st MATE CERTIFICATE OF COMPETENCY IS THEREFORE DELIVERED.

- AFTER TWO YEARS SEA-SERVICE FROM THE TIME A 1st MATE CERTIFICATE WAS ISSUED, A MASTER FOREIGN-GOING CERTIFICATE OF COMPETENCY IS GRANTED. HOWEVER, IT IS REQUIRED TO GO THROUGH A RADAR/NAVIGATION COURSE OF TWO WEEKS DURATION BEFORE A MASTER CERTIFICATE IS ISSUED.
NEW STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS
IN THE NETHERLANDS

- completion of 11 years general education.
- 2 years shorebased studies, dual-purpose.
- 1 year controlled sea-service dual-purpose.
- 1 year shorebased studies, deck specialization.
- examination by school & m.o.t.
- 2nd-mate & 3rd engineer certificate.
- 2 years non-controlled sea-service.
- chief-mate certificate.
- 2 years non-controlled sea-service.
- master mariner certificate.
NAUTICAL EDUCATION IN FRANCE

I. GENERAL INTRODUCTION.

Training of seafarers in France is exclusively carried out and directly controlled by the State through the intermediary of the Secretariat of State in charge of the sea.

Training of seafarers for the shipping industry is on an equivalent level to that provided to the other industries. It takes, thus, into account the necessity of providing highly qualified personnel to ensure the proper operation and maintenance of merchant vessels and the need to make a maritime career which will permit seafarers to qualify for employment ashore after a certain period of sea-service.

This concept of maritime training, which responds to the necessity of ensuring in the common interest of shipowners and seafarers, a better relationship between the maritime profession and the general labour supply and to facilitate employment ashore for seafarers has led to the preparation and implementation of a new regulation regarding training of seafarers.

The new training system creates a single type of training for officers of whom masters will also have qualifications to operate and manage a ship engine-room.

This dual-purpose training has led to the disappearance of separate certificates of competency for deck and engineer officers.

There are two types of seafarers' training institutions. The national merchant marine academies which are in charge of training officers only are spread over the country and constitute a network of modern schools which provide a maritime training adapted to the needs of the shipping
INDUSTRY.
THEY GIVE FUTURE OFFICERS A THEORETICAL AND PRACTICAL INSTRUCTION IN THE OPERATION, MAINTENANCE AND REPAIR OF ALL COMPLICATED EQUIPMENT FOUND ON BOARD MERCHANT VESSELS AND WHICH THEY ARE CALLED UPON TO USE.
THE MARITIME APPRENTICESHIP SCHOOLS WHICH EDUCATE AND TRAIN RATINGS ARE ADMINISTERED BY AN ASSOCIATION COMPOSED OF REPRESENTATIVES OF THE GOVERNMENT, SHIPOWNERS AND SEAFARERS' ORGANIZATIONS.
THE INSTRUCTION GIVEN AT THE APPRENTICESHIP SCHOOLS HAS A CHARACTER ANALOGOUS TO THE CONDITIONS OF WORK AND LIFE ON BOARD SHIPS. TRAINEES, BESIDES THEIR EDUCATIONAL PROGRAMME, ARE TAUGHT HABITS OF DISCIPLINE AND CALLED ON TO DEVELOP A SENSE OF RESPONSIBILITY WHICH ARE BOTH ESSENTIAL TO AN EFFICIENT SHIPBOARD RATING.

II. CERTIFICATION.
THE SECRETARIAT OF STATE IN CHARGE OF THE SEA IS RESPONSIBLE FOR THE CERTIFICATION OF ALL FRENCH SEAFARERS. HOWEVER, CERTIFICATES OF COMPETENCY ISSUED TO MARINE OFFICERS ARE OF TWO KINDS:
- ONE FOR THEORETICAL STUDIES INDICATING THE LEVEL OF KNOWLEDGE ACQUIRED DURING SHORE-BASED TRAINING. THIS FIRST CERTIFICATE, WHICH IS GRANTED BY THE NATIONAL MERCHANT MARINE ACADEMY, INTITLES THE HOLDER TO SIGN ON AS AN APPRENTICE-OFFICER.
- THE SECOND CERTIFICATE IS ISSUED BY THE COMPETENT MARITIME ADMINISTRATION AFTER A CERTAIN PERIOD OF SEA-SERVICE. IT INDICATES THAT TRAINEES HAVE ACQUIRED THE NECESSARY EXPERIENCE ON BOARD MERCHANT VESSELS AND THEREFORE GIVES A CERTAIN FORM OF GUARANTEE TO THE COMPETENT AUTHORITIES THAT TRAINEES POSSESS THE REQUIRED
QUALIFICATIONS AND EXPERIENCE TO PERFORM THEIR DUTIES. THESE CERTIFICATES ARE CONSIDERED TO BE EQUIVALENT TO A BACHELOR OF SCIENCE DEGREE WHICH IS NORMALLY DELIVERED BY THE MINISTRY OF EDUCATION. HOWEVER, THIS EQUIVALENCE OF CERTIFICATES HAS AT THIS MOMENT NOT BEEN OFFICIALLY DECIDED.

THE FOLLOWING CERTIFICATES OF COMPETENCY ARE ISSUED FOR OFFICERS OF OCEAN-GOING VESSELS:

- MASTER FIRST CLASS
- MASTER SECOND CLASS
- OFFICER TECHNICIAN
- NAVIGATING OFFICER

III. TRAINING OF DEEP-SEA MASTERS, FIRST CLASS.


LEVEL I: IT IS THE HIGHEST LEVEL CORRESPONDING WITH THE STREAM FOR MASTERS FIRST CLASS OF THE MERCHANT NAVY. ITS MAIN CHARACTERISTIC IS A DUAL TRAINING FOR BRIDGE AND ENGINE FUNCTIONS. THE OFFICERS CAN THEREFORE WORK EITHER
ON THE BRIDGE OR IN THE ENGINE-ROOM.

-LEVEL II: THE EDUCATION IS GIVEN IN TWO STREAMS, EITHER DECK OR ENGINE AND FROM THERE TRAINEES CAN REACH THE DUAL TRAINING SYSTEM. THIS TYPE OF TRAINING CONCERNS:
  - THE OFFICER TECHNICIAN (OT) FOR THE ENGINE-ROOM.
  - THE NAVIGATING OFFICER (OCQ) FOR THE BRIDGE DEPARTMENT.

BOTH OF THEM MAY BECOME MASTER SECOND CLASS (C2NM) OF THE MERCHANT NAVY AND WILL HAVE THE DUAL FUNCTION OF BRIDGE AND ENGINE-ROOM OFFICER.

AS MY PAPER IS MAINLY DIRECTED TOWARDS THE TRAINING OF DEEP-SEA MASTERS, I WILL THEREFORE CONCENTRATE ON THE FIRST TYPE OF TRAINING, THAT IS TO SAY, THE LEVEL I OF THE FRENCH SYSTEM.

THE TRAINING OF MASTERS FIRST CLASS OF THE FRENCH MERCHANT NAVY IS REGULATED BY THE ACT 3445 OF OCTOBER 7, 1985. IT STIPULATES THAT THIS TYPE OF TRAINING IS TO BE MADE AVAILABLE TO ALL YOUNG MEN AND WOMEN WHO HAVE SUCCESSFULLY PASSED THE SECONDARY SCHOOL EXAMINATION (BACCALAUREATE C) AND REACHED THE AGE OF SEVENTEEN.

HOWEVER, CANDIDATES SHOULD NOT BE OLDER THAN 23. BESIDES THE GENERAL CONDITIONS OF HEALTH, SIGHT AND HEARING, CANDIDATES ARE REQUESTED TO GO THROUGH AN ENTRANCE EXAMINATION WHICH IS HELD ON A NATIONAL LEVEL.

THE ENTRANCE EXAMINATION SUBJECCTS ARE GIVEN BELOW:

PART I. WRITTEN EXAMINATION.

-FIRST TEST OF MATHEMATICS 03 HOURS
-SECOND TEST OF MATHEMATICS 03 "
-PHYSICS 03 "
-FRENCH 03 "
-ENGLISH 02 "

70
PART II. ORAL EXAMINATION.

-MATHEMATICS
-PHYSICS
-GEOGRAPHY
-ENGLISH

PART III. PRACTICAL EXAMINATION (OPTIONAL).

-DRAWING 4 HOURS

THE EDUCATION AT LEVEL I WHICH LEADS TO A MASTER FIRST CLASS CERTIFICATE IS OF FOUR (4) YEAR SHORE-BASED THEORETICAL TRAINING AND SIXTY MONTHS SEA-SERVICE. DURING THE FIRST AND SECOND YEAR OF THE COURSE, STUDENTS SPEND A TWO-MONTH COMPULSORY SEA-TRAINING PERIOD ON BOARD MERCHANT VESSELS. IN THE TWO FIRST YEARS OF STUDY, STUDENTS ARE TAUGHT GENERAL THEORETICAL AND PRACTICAL SUBJECTS WHICH ARE GIVEN BELOW.

ALLOCATION OF TEACHING SUBJECTS DURING THE FIRST YEAR OF STUDY.

PART I. THEORY

- MATHEMATICS, MECHANICS 4.30 HOURS
- ELECTRICITY 1.30 "
- COSMOGRAPHY 1.30 "
- NAVIGATION 4.00 "
- ENGINES 4.00 "
- ENGLISH 3.00 "
- LAW 1.00 "
- RULES OF THE ROAD 1.00 "

71
### PART II. PRACTICE.

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<tr>
<td>Navigation</td>
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<tr>
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<tr>
<td>Rawing</td>
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<tr>
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**TOTAL** 6.15 HOURS

### TOTAL GENERAL: 32.45 HOURS PER WEEK.

### ALLOCATION OF TEACHING SUBJECTS DURING THE SECOND YEAR OF STUDY.

### PART I. THEORY

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<td>Ship Design</td>
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</tbody>
</table>

72
PART II. PRACTICE

- ENGINES 1.00 HOURS
- ELECTRICITY 1.30 "
- ELECTRONICS 0.30 "
- NAVIGATION 1.00 "
- AUTOMATION 1.00 "
- ROWING 6.30 "

TOTAL 12.00 HOURS

TOTAL GENERAL: 34.30 HOURS PER WEEK.

ALLOCATION OF TEACHING SUBJECTS DURING THE THIRD YEAR OF STUDY.

PART I. THEORY

- ELECTRICITY 1.30 HOURS
- ELECTRONICS 1.30 "
- ENGINES 5.00 "
- ENGLISH 3.00 "
- SHIPS THEORY 0.45 "
- EVOLUTION 0.45 "
- LAW 1.00 "
- SHIPS OPERATION 0.45 "
- AUTOMATION 2.00 "
- METEOROLOGY 1.00 "

73
RULES OF THE ROAD
SAFETY
NAVIGATION

0.30 HOURS
1.30 "
2.15 "

PART I. PRACTICE

ENGINES
ENGINE ROOM
ELECTRICITY
ELECTRONICS
NAVIGATION
AUTOMATION
VISITS TO YARDS, PORTS

1.00 HOURS
3.00 "
3.00 "
1.00 "
1.00 "
1.00 "
1.00 "

TOTAL 21.00 HOURS

TOTAL GENERAL: 32 HOURS PER WEEK.

THE THIRD YEAR OF STUDY IS COMPLETED BY A FINAL EXAMINATION. SUCCESSFUL STUDENTS ARE GRANTED A DIPLOMA AS APPRENTICE-OFFICER OF THE MERCHANT NAVY. IT INTITLIES THE HOLDER TO SIGN ON ANY MERCHANT VESSEL AS AN APPRENTICE OFFICER (CADET). UPON COMPLETION OF TEN (10) MONTHS OF SEA-SERVICE, A CERTIFICATE OF COMPETENCY AS WATCH-KEEPING OFFICER IS ISSUED BY THE COMPETENT MARITIME ADMINISTRATION.

THE YOUNG OFFICER IS REQUESTED TO COMPLETE HIS/HER SEA EXPERIENCE THROUGH ANOTHER TEN MONTH SEA-SERVICE OF WHICH THREE MONTHS AT LEAST SHOULD BE SPENT IN EACH DEPARTMENT. THE FOURTH YEAR IS SPENT AT A NATIONAL MERCHANT MARINE ACADEMY WHERE THE FOLLOWING TOPICS ARE TAUGHT.
THE ALLOCATION OF TEACHING SUBJECTS IN THE FOURTH YEAR OF STUDY IS AS FOLLOWS:

**PART I. THEORY**

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<td>Engines</td>
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<tr>
<td>English</td>
<td>3.00</td>
</tr>
<tr>
<td>Ship’s Theory</td>
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<tr>
<td>Navigation</td>
<td>1.15</td>
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<tr>
<td>Documents</td>
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<tr>
<td>Ship’s Handling</td>
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<td>Report</td>
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<tr>
<td>Ship’s Operation</td>
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<tr>
<td>Radar Simulator</td>
<td>1.30</td>
</tr>
<tr>
<td>Safety</td>
<td>0.45</td>
</tr>
<tr>
<td>Automation</td>
<td>2.30</td>
</tr>
<tr>
<td>Shipping Economics</td>
<td>1.00</td>
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<tr>
<td>Accountancy</td>
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<td>Hygiene</td>
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**Total** 23.15 HOURS

**PART II. PRACTICE**

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<td>Automation</td>
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<tr>
<td>Hygiene</td>
<td>0.30</td>
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<tr>
<td>Visits</td>
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</table>

**Total** 8.30 HOURS

75
THE FOURTH YEAR OF STUDY GIVES ONE THE OPPORTUNITY TO RECEIVE A DIPLOMA OF HIGHER STUDIES OF THE MERCHANT NAVY. IT ALSO GIVES THE POSSIBILITY TO SERVE EITHER AS CHIEF-OFFICER AFTER THE REQUIRED SEA-SERVICE AS WATCH-KEEPING OFFICER ON THE DECK DEPARTMENT, OR SECOND-ENGINEER AND THEN CHIEF-ENGINEER WHEN THE REQUIRED SEA SERVICE AS WATCH-KEEPING OFFICER IN THE ENGINE-ROOM HAS BEEN COMPLETED.

THE FIRST CLASS MASTER CERTIFICATE OF COMPETENCY IS DELIVERED AFTER FOURTY-SIX (46) MONTHS SEA SERVICE OF WHICH SIXTEEN (16) MONTHS AT LEAST SHOULD BE SPENT IN EACH DEPARTMENT (DECK & ENGINE) FROM THE TIME A DIPLOMA AS OFFICER OF THE MERCHANT NAVY HAS BEEN GRANTED.
STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN FRANCE

- Completion of 12 years general education.
- Competitive entrance examination.
- 3 years shore-based studies.
- Merchant navy officer diploma.
- 10 months controlled sea-service.
- Diploma of higher merchant marine studies.
- 36 months non-controlled sea-service.
- First class master certificate.

- Merchant navy officer certificate.
- 10 months non-controlled sea-service.
- 01 year shore-based studies.
- Diploma of higher merchant marine studies.
- 36 months non-controlled sea-service.
- First class master certificate.
CHAPTER IV

NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN THE UNITED STATES.
NAUTICAL EDUCATION IN THE UNITED STATES OF AMERICA IS SAID TO OWE ITS ORIGIN IN THE SETTING-UP OF THE MARITIME COLLEGE OF THE STATE UNIVERSITY OF NEW YORK IN 1874 WHEN A TWO-YEAR "SCHOOLSHIP" COURSE WAS CONCEIVED BY STEPHEN B. LUCE, ADMIRAL IN THE NAVY. IN 1876, A LEGISLATION WAS PASSED ESTABLISHING ANOTHER MARITIME TRAINING INSTITUTION THE U.S. COAST GUARD ACADEMY.

THE TRAINING OF SEAFARERS WAS FIRST GIVEN ABOARD MERCHANT SHIPS WHILE TEMPORARY LAND-BASED SITES WERE USED FOR INSTRUCTION ON PHYSICAL FITNESS, THE STUDY OF MATHEMATICS AND SCIENCES.

HOWEVER AT THE TURN OF THE CENTURY, THE INCREASED DEMAND FOR TRAINED PERSONNEL FOR THE MERCHANT MARINE INDUSTRY RESULTED IN THE EXPANSION OF THESE TRAINING INSTITUTIONS TO PERMANENT SHORE-BASED SITES AND CURRICULA WERE DESIGNED TO MEET THE ACADEMIC AND PROFESSIONAL REQUIREMENTS ESPECIALLY IN VIEW OF THE TECHNOLOGICAL CHANGES THAT STARTED TO OCCUR TO THE SHIPPING INDUSTRY. THE CREATION OF FEDERAL MERCHANT MARINE ACADEMIES, ONE SUCH AT KING'S POINT-NEW YORK, WAS ALSO IN RESPONSE TO THIS DEMAND. IT IS, HOWEVER, SIGNIFICANT TO NOTE THAT DURING WORLD WAR II THE LATTER ACADEMY DEVOTED ALL ITS RESOURCES TOWARDS MEETING THE EMERGENCY PERSONNEL NEEDS OF THE MERCHANT MARINE WHOSE GRADUATES WERE AND STILL ARE SERVING AS RESERVE OFFICERS IN THE AMERICAN NAVY. THERE EXISTS A STRONG RELATIONSHIP BETWEEN THE MERCHANT MARINE ACADEMIES AND THE UNITED STATES NAVY. THE NAVY'S INTEREST IN THE MERCHANT MARINE ACADEMIES STEMS FROM THE NATIONAL DEFENSE REQUIREMENTS FOR AN ADEQUATE MERCHANT MARINE.
MANNED BY WELL-TRAINED OFFICERS WHO POSSESS AN UNDERSTANDING OF NAVAL PROCEDURES SO THAT MERCHANT VESSELS ARE CAPABLE OF OPERATING WITH THE NAVY IN TIMES OF PEACE, WAR OR NATIONAL EMERGENCY. IN ADDITION, GRADUATES OF THE MERCHANT MARINE ACADEMIES HAVE HISTORICALLY BEEN A SOURCE OF ACTIVE-DUTY NAVAL OFFICERS IN TIMES OF MOBILIZATION OR CONTINGENCY SITUATION. NEEDLESS TO SAY, MARITIME EDUCATION AND TRAINING IS GIVEN ITS REAL IMPORTANCE IN THE UNITED STATES OF AMERICA. IT IS GEARED TOWARDS FULFILLING THE U.S. NATIONAL POLICY OF PROVIDING A PRODUCTIVE AND COMPETITIVE MERCHANT FLEET AND A STRONG MARITIME INDUSTRY.

II. TRAINING OF MERCHANT MARINE OFFICERS.


THE TRAINING OF MERCHANT MARINE OFFICERS IS GIVEN AT ONE MARITIME ACADEMY OPERATED BY THE FEDERAL GOVERNMENT, THE U.S. MERCHANT MARINE ACADEMY, AND FIVE TRAINING INSTITUTIONS WHICH FORM A PART OF THE COLLEGE LEVEL EDUCATIONAL SYSTEM IN THE STATES IN WHICH THEY ARE LOCATED.

THE TRAINING IS OF FOUR YEARS DURATION AND LEADS TO A BACHELOR OF SCIENCE DEGREE AND A U.S. COAST GUARD LICENSE AS THIRD MATE OR ASSISTANT ENGINEER OR BOTH (DUAL-PURPOSE OFFICER). IN ADDITION, GRADUATES ARE COMMISSIONED AS ENSIGNS IN THE U.S. NAVY RESERVE.
THE U.S MERCHANT MARINE ACADEMY AT KING'S POINT, NEW YORK, OFFERS FOUR MAJOR PROGRAMS OF STUDY:

1) MARINE TRANSPORTATION FOR THE PREPARATION OF DECK OFFICERS.
2) MARINE ENGINEERING FOR THE PREPARATION OF ENGINE OFFICERS.
3) A COMBINATION OF THE TWO PROGRAMS MENTIONED ABOVE, A DUAL LICENSE PROGRAM, LEADS TO A LICENSE IN EACH SPECIALITY.
4) MARINE ENGINEERING SYSTEMS WHICH IN ADDITION TO LEADING TO A THIRD ASSISTANT ENGINEER LICENSE, IS ACCREDITED BY THE ACCREDITING BOARD FOR ENGINEERING AND TECHNOLOGY. THE CURRICULUM INCLUDES GREATER DEPTH IN MATHEMATICS AND A SIGNIFICANT ENGINEERING DESIGN COMPONENT AS COMPARED TO THE MARINE ENGINEERING CURRICULUM.

GRADUATES OF MERCHANT MARINE ACADEMIES ARE INITIALLY EMPLOYED ABOARD AMERICAN FLAG VESSELS AS LICENSED SHIP'S OFFICERS. HOWEVER, MANY GRADUATES AFTER FULFILLING THEIR OBLIGATION AT SEA MOVE ASHORE TO LEADERSHIP POSITIONS IN THE MARITIME INDUSTRY. SOME AREAS IN WHICH THEY ARE TYPICALLY EMPLOYED ARE LISTED BELOW.

- ADMIRALTY LAW
- STEVEDORING AND TECHNICAL OPERATIONS
- OCEANOGRAHY
- MARINE INSURANCE
- CANAL AND HARBOUR PILOTS
- MARINE SURVEYING
- MARITIME TRAINING
- STEAMSHIP COMPANY MANAGEMENT
- NAVAL ARCHITECTURE
- MARINE ENGINEERING
- SHIP CHARTERING
III. TRAINING OF DEEP-SEA MASTERS.

TRAINING OF FOREIGN-GOING MASTER MARINERS IN THE UNITED STATES IS AS IT HAS BEEN STATED BEFORE OF FOUR (4) YEARS THEORETICAL AND PRACTICAL STUDIES LEADING TO THE FIRST THIRD MATE CERTIFICATE OF COMPETENCY. THIS TYPE OF TRAINING IS PROVIDED IN ALL MERCHANT MARINE ACADEMIES AND MARITIME COLLEGES. THE LENGTH OF STUDY AS WELL AS THE STUDY PROGRAMS OFFERED ARE BASICALLY THE SAME IN ALL TRAINING INSTITUTIONS. HOWEVER, THE ADMISSION REQUIREMENTS FOR THOSE STUDENTS WISHING TO BE ENROLLED AT ANY MERCHANT MARINE ACADEMY OR MARITIME COLLEGE ARE VERY RIGID AND VIGOROUS AS WE SHALL SEE.

III.1. QUALIFICATIONS FOR ADMISSION.

ALL CANDIDATES MUST MEET CERTAIN REQUIREMENTS OF CITIZENSHIP, AGE AND MORAL CHARACTER. BUT APPLICATIONS ARE CONSIDERED WITHOUT REGARD TO RACE, COLOUR, SEX, NATIONAL OR ETHNIC ORIGIN.

a). CITIZENSHIP.

ALL CANDIDATES MUST BE CITIZEN OF THE UNITED STATES EITHER BY BIRTH OR BY NATURALIZATION, EXCEPT FOR FOREIGN STUDENTS.
b) AGE.

CANDIDATES MUST BE AT LEAST 17 YEARS OF AGE, BUT NOT HAVE PASSED THEIR 25TH BIRTHDAY ON JULY 1ST OF THE YEAR ADMISSION.

c) MORAL CHARACTER.

CANDIDATES MUST BE OF A GOOD MORAL CHARACTER.

d) NAVAL RESERVE MIDSHIPMEN REQUIREMENTS.

CANDIDATES MUST MEET THE PHYSICAL, CHARACTER AND SECURITY REQUIREMENTS FOR APPOINTMENT AS MIDSHIPMEN OF THE U.S. NAVAL RESERVE.

III. 2. SCHOLASTIC REQUIREMENTS.

CANDIDATES TO BE APPOINTED TO ANY MERCHANT MARINE ACADEMY OR MARITIME COLLEGE MUST HAVE SATISFACTORILY COMPLETED A HIGH SCHOOL EDUCATION AT AN ACCREDITED SECONDARY SCHOOL OR THE EQUIVALENT. IT IS ALSO REQUIRED THAT BY MARCH 1ST OF THE YEAR IN WHICH THEY ARE SEEKING ADMISSION, CANDIDATES MUST SUBMIT EVIDENCE WITH THEIR OFFICIAL APPLICATION SHOWING COMPLETION OR SCHEDULED COMPLETION OF ALL ACADEMIC REQUIREMENTS. CANDIDATES WHO HAVE SUCCESSFULLY COMPLIED WITH THE ADMISSION REQUIREMENTS ARE THEN ADMITTED TO FOLLOW A FOUR-YEAR COURSE. THE ACADEMIC YEAR IS DIVIDED INTO FOUR (4) ACADEMIC QUARTERS (TERMS). STUDENTS FROM THE FOUR DEPARTMENTS THAT IS TO SAY MARINE TRANSPORTATION, MARINE ENGINEERING-DUAL LICENSE PROGRAM AND MARINE ENGINEERING SYSTEMS-GO THROUGH A COMMON PROGRAM OF STUDY DURING THE TWO FIRST QUARTERS OF THEIR FRESHMAN YEAR. IN ADDITION TO BASIC COURSES IN MATHEMATICS, SCIENCE AND
HUMANITIES THEY TAKE INTRODUCTORY COURSES IN NAUTICAL SCIENCE AND MARINE ENGINEERING. STUDENTS ARE THUS GIVEN AN OPPORTUNITY TO INTELLIGENTLY DETERMINE AN AREA OF SPECIAL INTEREST BEFORE CHOOSING A MAJOR FIELD OF CONCENTRATION LATER ON.

THE FOLLOWING SUMMARY SHOWS THE REQUIRED COURSES OF STUDY DURING THE COMMON YEAR.

**FIRST QUARTER.**

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**TOTAL** 20.00 HOURS

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**TOTAL** 17.30 HOURS
THIRD QUARTER.

- CALCULUS & ANALYTIC GEOMETRY 3 4.00 HOURS
- PHYSICS 1 3.30 "
- NAUTICAL SCIENCE 2 (*) 5.00 "
- ENGINEERING GRAPHICS 3 *** 1.00 "
- INTRODUCTION TO MARINE ENGINEERING 2 *** 2.30 "
- ENGINEERING SHOP 2 *** 2.00 "
- FUNDAMENTALS OF NAVAL SCIENCE 3.00 "
- MARINE TRANSPORTATION 1 * 3.00 "
- PHYSICAL EDUCATION 1.00 "

TOTAL 19.30 * 17.00 ***

FOURTH QUARTER.

- CALCULUS & ANALYTIC GEOMETRY 4 4.00 HOURS
- PHYSICS 2 3.30 "
- NAUTICAL SCIENCE 3 * 5.00 "
- SAFETY OF LIFE AT SEA 1 1.30 "
- NAUTICAL SCIENCE 4 + 5.00 "
- ENGINEERING GRAPHICS 4 ** 1.00 "
- INTRODUCTION TO ELECTRICAL ENGINEERING *** 2.30 "
- METAL CUTTING PROCESSES 1 *** 1.30 "
- METAL JOINING PROCESSES 1 ** 0.45 "
- ENGLISH 3 3.00 "
- PHYSICAL EDUCATION 1.00 "

TOTAL 18.00 * - 18.45 **
UPON COMPLETION OF THE FIRST YEAR, STUDENTS PARTICIPATE IN THE SHIPBOARD TRAINING PROGRAM WHICH IS AN ESSENTIAL PART OF THEIR PROFESSIONAL EDUCATION. THIS SEA-TRAINING PROGRAM IS PROVIDED ABOARD COMMERCIALLY OPERATED MERCHANT SHIPS DURING TWO QUARTERS OF THE SOMOPHORE YEAR (SECOND YEAR) AND TWO QUARTERS OF THE JUNIOR YEAR (THIRD YEAR). EACH SAILING PERIOD IS APPROXIMATELY OF FIVE (5) MONTHS DURATION. WHILE PERFORMING THEIR TWO PERIODS OF SEA-TRAINING, CADETS ARE ASSIGNED TO SEVERAL DIFFERENT VESSELS IN ORDER TO BECOME MORE FAMILIAR WITH THE PERFORMANCE AND OPERATING CHARACTERISTICS OF VARIOUS CLASSES OF SHIPS AND THE DIVERSE OPERATING REQUIREMENTS OF DIFFERENT TRADE ROUTES, GAINING THEREFORE A VALUABLE PRACTICAL EXPERIENCE IN THE PERFORMANCE OF SHIPBOARD DUTIES.

THE SHIPBOARD TRAINING PROGRAM PROVIDES ALL CADETS WITH THE OPPORTUNITY TO USE A SHIP AS A SEAGOING LABORATORY. THEY ARE THUS GIVEN A STUDY GUIDE CALLED "SEA-PROJECT" AND IN ADDITION TO PERFORMING THEIR SHIPBOARD DUTIES, THEY ARE REQUIRED TO COMPLETE CERTAIN WRITTEN ASSIGNMENTS WHICH MUST BE FORWARDED TO THE ACADEMY FOR GRADING AND EVALUATION. THESE ASSIGNMENTS ARE CAREFULLY DESIGNED TO ENSURE THAT CADETS, WHILE ABOARD, APPLY THE KNOWLEDGE AND SKILLS LEARNED AT THE ACADEMY AND DO ACQUIRE A FIRM FOUNDATION FOR ADVANCED STUDIES UPON THEIR RETURN TO THE ACADEMY.

CADETS FROM THE MARINE TRANSPORTATION DEPARTMENT ARE
ASSIGNED THE FOLLOWING TOPICS:

- NAVIGATION
- ELECTRONIC NAVIGATION
- SEAMANSHIP
- CARGO STOWAGE
- NAVIGATION RULES AND LAW
- NAVAL ARCHITECTURE
- MARINE ENGINEERING FOR DECK
- LABOUR RELATIONS
- INTERNSHIP

DURING THEIR SHIPBOARD TRAINING, CADETS FROM THE MARINE TRANSPORTATION DEPARTMENT ARE ASSIGNED TO DECK FUNCTIONS. HOWEVER, IN THE FIRST PERIOD OF SEA-TRAINING CADETS FROM THE DECK AND ENGINE DEPARTMENTS ARE REQUIRED TO COMPLETE ASSIGNMENTS IN THE OPPOSITE DEPARTMENT TO ENSURE BASIC FAMILIARITY WITH ALL ASPECTS OF SHIP OPERATION. SINCE CADETS ARE CONSIDERED NAVAL RESERVE OFFICERS, THEY ARE REQUESTED THEREFORE TO SELECT DURING THE SECOND SAILING PERIOD A THIRTY (30) DAY SEA-TRAINING ABOARD U.S NAVY VESSELS.

THE SEA YEAR IS CONCLUDED WITH A TWO-WEEK ASHORE TRAINING IN A MARITIME RELATED ACTIVITY. DEPENDING ON THEIR FIELD OF SPECIALITY AND INDIVIDUAL INTERESTS, CADETS ARE ASSIGNED TO A SHIPPING COMPANY, SHIPYARD, SHIP BROKERAGE, CHARTERING FIRM, STEVEDORING COMPANY, SURVEYOR’S OFFICE, TOWING COMPANY, PORTS OR OTHER SIMILAR ENTREPRISES. EACH STUDENT IS REQUIRED TO SUBMIT A WRITTEN REPORT TO THE ACADEMY ABOUT THIS EXPERIENCE.

IT HAS BEEN SAID EARLIER THAT SHIPBOARD TRAINING IS PERFORMED DURING TWO QUARTERS OF THE SECOND YEAR AND TWO QUARTERS OF THE THIRD YEAR. BETWEEN PERIODS OF SHIPBOARD TRAINING AND DURING THE REMAINING QUARTERS, STUDENTS
RETURN TO THE ACADEMY AND CONTINUE THEIR ACADEMIC WORK. CADETS FROM THE MARINE TRANSPORTATION DEPARTMENT (DECK) FOLLOW A CURRICULUM CONSISTING OF APPROPRIATE PROFESSIONAL AND TECHNICAL COURSES IN NAUTICAL SCIENCES AND COMMON COURSES IN THE SCIENCES, HUMANITIES AND MANAGEMENT.

THE FOLLOWING SUMMARY SHOWS THE PROGRAMS OF STUDY OF STUDENTS FROM THE MARINE TRANSPORTATION DEPARTMENT DURING THE SECOND AND THIRD YEARS.

SECOND YEAR.

- PHYSICS 3,4 17.00 HOURS
- SAFETY OF LIFE AT SEA 1.30 "
- ENGINEERING SCIENCE 3.00 "
- INTRODUCTION TO COMPUTER SCIENCE 3.00 "
- HISTORY 1 3.00 "
- ECONOMICS 1 & 2 6.00 "
- STATISTICS 3.00 "
- MANAGERIAL PROCESS 3.00 "
- NAVAL WEAPONS SYSTEMS 3.00 "

THIRD YEAR.

- MARINE MATERIALS HANDLING 1&2 6.00 HOURS
- MARINE ELECTRONICS 1 3.00 "
- SEAMANSHIP 1 2.00 "
- NAVIGATION 1 4.00 "
- HISTORY 2 & 3 6.00 "
- BUSINESS & MARITIME LAW 5.00 "
- ACCOUNTING FOR MANAGEMENT 3.00 "
- NAVAL OPERATIONS 1 3.00 "
- PHYSICAL EDUCATION 1.00 "
THE FOURTH YEAR OF STUDY WHICH IS CALLED THE SENIOR YEAR IS DEVOTED ENTIRELY TO THE COMPLETION OF INTENSIVE STUDY IN THE MAJOR FIELD AND TO THE PREPARATION FOR THE WRITTEN EXAMINATION ADMINISTERED BY THE U.S. COAST GUARD AND WHICH LEADS TO A THIRD MATE LICENSE.

THE CURRICULUM OF STUDY DURING THE FOURTH YEAR IS AS FOLLOWS:

- MARINE SAFETY 2 3.00 HOURS
- SEAMANSHIP 2 3.00 "
- NAVIGATION 2 2.00 "
- MARINE ELECTRONICS 3 & 4 6.30 "
- HUMANITIES 12.00 "
- INTERNATIONAL LAW OF THE SEA 3.00 "
- MARITIME LABOUR RELATIONS 3.00 "
- MARINE TRANSPORTATION 2 3.00 "
- MARINE INSURANCE 3.00 "
- NAVAL OPERATIONS 2 3.00 "
- PHYSICAL EDUCATION 2.00 "
- ELECTIVES 12.00 "
- COMMUNICATIONS 1.00 "
- NAVIGATION LABORATORY 1.00 "
- BRIDGE SIMULATION 3.00 "
- LICENSE SEMINAR 2.00 "
- CARGO STOWAGE & SHIP’S STABILITY 3.00 "
- PRINCIPLES OF NAVAL ARCHITECTURE 3.00 "

IV. DEGREES AND CREDENTIALS AWARDED.

ALL STUDENTS WHO SUCCESSFULLY PASS THE U.S. COAST GUARD LICENSE EXAMINATION ARE AWARDED A THIRD MATE CERTIFICATE
OF COMPETENCY WHICH GIVES THEM THE RIGHT TO SERVE AS THIRD MATES (WATCH-KEEPING OFFICERS) ABOARD OCEAN-GOING VESSELS, BESIDES A BACHELOR OF SCIENCE DEGREE IN NAUTICAL SCIENCE ISSUED BY THE ACADEMY OR THE MARITIME COLLEGE ON BEHALF OF THE STATE UNIVERSITY.

V. FROM THIRD MATE LICENSE TO MASTER CERTIFICATE.

CANDIDATES FOR HIGHER GRADES SUCH AS SECOND-MATE, CHIEF-MATE AND MASTER ARE REQUESTED TO SIT FOR AN EXAMINATION IN ORDER TO DEMONSTRATE THEIR PROFICIENCY AND QUALIFYING EXPERIENCE. THE U.S. COAST GUARD MARINE INSPECTION CENTRES ARE IN CHARGE OF THESE EXAMINATIONS. THERE ARE ABOUT 16 EXAMINATION CENTRES SPREAD OVER THE COUNTRY.

PRIOR TO SIT FOR AN EXAMINATION, CANDIDATES MUST MEET CERTAIN REQUIREMENTS WHICH ARE BRIEFLY DESCRIBED BELOW:

a). AGE AND EXPERIENCE.

APPLICANTS MUST BE AT LEAST 21 YEARS OF AGE WITH THE EXCEPTION OF THIRD MATES WHO MUST BE AT LEAST 19 YEARS OF AGE. A MINIMUM QUALIFYING SEA-EXPERIENCE IS REQUIRED FOR EACH GRADE OF LICENSE AS FOLLOWS:

- ONE YEAR SEA SERVICE AS THIRD MATE TO QUALIFY AS SECOND MATE.
- ONE YEAR SEA SERVICE AS SECOND MATE TO QUALIFY AS CHIEF MATE.
- ONE YEAR SEA SERVICE AS CHIEF MATE TO QUALIFY AS MASTER.

b). CITIZENSHIP.

ALL APPLICANTS MUST BE CITIZENS OF THE UNITED STATES EITHER BY BIRTH OR BY NATURALIZATION. THIS MUST BE
c). PHYSICAL APTITUDE.

UPON ACCEPTANCE AND APPROVAL OF HIS/HER APPLICATION, THE CANDIDATE IS SENT TO ONE OF THE OFFICERS OF THE PUBLIC HEALTH SERVICE FOR A PHYSICAL EXAMINATION.
STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS
IN THE UNITED STATES OF AMERICA

- Completion of 12 years general education.
- 4 years shore-based studies.
  - Examination by U.S. Coast Guards.
  - 3rd mate certificate.
  - 1 year non-controlled sea-service.
- Including 1 year sea training.
- Examination by U.S. Coast Guards.
- 2nd mate certificate.
- 1 year non-controlled sea-service.
  - Examination by U.S. Coast Guards.
  - First-mate certificate.
01 year non-controlled sea-service.

examination by U.S. coast guards.

master mariner certificate.
CHAPTER V

NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN THE SOVIET UNION.
1. GENERAL INTRODUCTION.

TRAINING OF SEAFARERS IN THE SOVIET UNION HAS ALWAYS RECEIVED A GREAT ATTENTION AS BEING THE NECESSARY AND COMPLEMENTARY PART OF THE COUNTRY’S OCEAN FLEET WHICH HAS IN RECENT YEARS INCREASINGLY BEEN EXPANDING. THE PRIMARY OBJECTIVE FOR THE TRAINING OF SEAFARERS IS NOT ONLY THE PROVISION OF A SUFFICIENT NUMBER OF COMPETENT SEAFARERS TO MAN A RAPIDLY EXPANDING FLEET, BUT ALSO TO PROVIDE HIGHLY QUALIFIED CREWS TO COPE WITH THE HIGHLY SOPHISTICATED VESSELS. A GREAT EMPHASIS HAS BEEN THEREFORE PUT ON THE QUALITY OF EDUCATION AND TRAINING OF SEAFARERS.

THE MINISTRY OF THE MERCHANT MARINE AND THE MINISTRY OF HIGHER AND SECONDARY SPECIALISED EDUCATION HAVE ELABORATED AN IMPRESSIVE PROGRAM OF DEVELOPMENT OF THE SEAFARERS TRAINING INSTITUTIONS.

THERE ARE SEVERAL SEAFARERS' TRAINING INSTITUTIONS SPREAD OVER THE COUNTRY. TWO OF THEM, THE HIGHER MARINE ENGINEERING COLLEGE AT LENINGRAD WHICH I HAD THE OPPORTUNITY AND THE PLEASURE TO VISIT DURING MY FIELD-TRIP TO THE SOVIET UNION AND THE HIGHER MARINE ENGINEERING COLLEGE AT ODESSA ARE CONSIDERED PRINCIPAL MARINE COLLEGES IN THE SOVIET UNION. THEY TRAIN FUTURE MERCHANT MARINE OFFICERS FOR VARIOUS CATEGORIES OF CERTIFICATES OF COMPETENCY SUCH AS DECK OFFICERS, ENGINE OFFICERS AND RADIO OFFICERS.

THE OFFICERS' TRAINING WHICH IS OF FIVE AND HALF YEARS INCLUDES ALSO PERIODS OF PRACTICAL SEA-SERVICE ABOARD EITHER TRAINING VESSELS OR COMMERCIALY OPERATING CARGO SHIPS.

THE TRAINING OF INTERMEDIATE OFFICERS IS PROVIDED IN A NUMBER OF SCHOOLS WHICH ARE CLASSIFIED AS BEING

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INTERMEDIATE COLLEGE LEVEL. THEY OFFER A VARIETY OF COURSES LEADING TO INTERMEDIATE GRADES. THE TRAINING OF RATINGS TAKES PLACE AT SCHOOLS OF SEAMANSHIP AND VOCATIONAL TECHNICAL CENTRES OPERATED BY THE MINISTRY OF THE MERCHANT MARINE AND SITUATED IN VARIOUS MAJOR PORTS.

II. GENERAL EDUCATIONAL SYSTEM.

THERE ARE THREE LEVELS OF GENERAL EDUCATION IN THE SOVIET UNION.

II.1. PRIMARY EDUCATION: CHILDREN USED TO START THEIR BASIC EDUCATION AT THE AGE OF SEVEN. HOWEVER, A NEW SYSTEM WAS INTRODUCED RECENTLY WHICH MAKES BASIC EDUCATION COMPULSORY AT THE AGE OF SIX. IT LASTS 8 YEARS (6\(\times\)14).

II.2. SECONDARY EDUCATION: SECONDARY EDUCATION IS OF TWO YEARS DURATION (14\(\times\)16). besides ordinary secondary schools which prepare students wishing to continue their higher education, there are a lot of vocational and specialized schools providing a wide range of specialized vocational courses.

II.3. HIGHER EDUCATION: ALL POST-SECONDARY EDUCATION IS CONSIDERED HIGHER EDUCATION-

III. CERTIFICATION.

CERTIFICATION OF SEAFARERS IN THE SOVIET UNION IS THE RESPONSIBILITY OF THE MINISTRY OF THE MERCHANT MARINE. IT IS TO BE POINTED OUT THAT UPON COMPLETION OF THEIR SHORE-BASED STUDIES, STUDENTS RECEIVE TWO CERTIFICATES. AN ACADEMIC DIPLOMA GRANTED BY THE COLLEGE SHOWING THE
STUDENT’S LEVEL WITHIN THE GENERAL EDUCATIONAL SYSTEM, AND A PROFESSIONAL CERTIFICATE OF COMPETENCY.

IV. TRAINING OF MASTER MARINERS.

TRAINING OF DEEP-SEA MASTERS IS GIVEN AT HIGH MARINE ENGINEERING COLLEGES. IT IS OPEN TO ALL YOUNG MEN AND WOMEN WHO HAVE COMPLETED AT LEAST TEN YEARS OF GENERAL EDUCATION AND SUCCESSFULLY PASSED A COMPETITIVE ENTRANCE EXAMINATION. CANDIDATES ARE REQUIRED NOT TO BE OLDER THAN 30 YEARS OF AGE.

THE SHORE-BASED INSTRUCTION LASTS FIVE AND HALF YEARS OF WHICH 8 MONTHS ARE SPENT AT SEA.

AS REGARDS CURRICULA, STUDENTS ARE TAUGHT PROFESSIONAL SUBJECTS AS WELL AS SUBJECTS OF GENERAL NATURE WHICH MIGHT BE OF GREAT HELP FOR A FUTURE REINSERTION OF SEAFARERS.

A CURRICULUM OF THE FULL PERIOD OF STUDY IS GIVEN BELOW.

- ENGLISH 404 HOURS
- SAFETY OF LIFE AT SEA 58 "
- NAUTICAL GEOGRAPHY 48 "
- HIGHER MATHEMATICS 422 "
- ENGINEERING GRAPHICS 80 "
- THEORY OF MECHANICS 140 "
- PHYSICS 266 "
- APPLIED MECHANICS 112 "
- ELECTRICAL ENGINEERING 70 "
- SHIP’S MAINTENANCE 56 "
- MARINE TRANSPORTATION TECHNOLOGY 70 "
- MATHEMATICAL BASICS OF NAVIGATION 84 "
- COMPUTERS AND PROGRAMMING 70 "
- THEORY AND CONSTRUCTION OF SHIPS 116 "

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b) MID-COURSE PROJECT 14 HOURS

-NAVIGATION AND PILOT BOOK
  a) THEORY 210 "
  b) MID-COURSE PROJECT 14 "

-RADIO ELECTRONICS & NAVIGATION INSTR. 168 "
-HYDROMETEOROLOGICAL ASPECTS OF NAVIG. 70 "
-NAVIGATIONAL AIDS
  a) THEORY 228 "
  b) MID-COURSE PROJECT 15 "

-ECONOMY OF MARINE TRANSPORTATION 70 "
-NAUTICAL ASTRONOMY 154 "
-SHIP’S HANDLING
  a) THEORY 189 "
  b) MID-COURSE PROJECT 148 "

-LABOUR PROTECTION 42 "
-MERCHANT MARINE MANAGEMENT
  a) THEORY 116 "
  b) MID-COURSE PROJECT 14 "

-SHIP’S PROPULSION & MACHINERY 70 "
-INTEGRATED NAVIGATION 117 "
-SOVIET LAW & MARITIME LAW 88 "
-PHYSICAL EDUCATION 140 "
-SOCIAL SCIENCES 430 "

UPON COMPLETION OF FIVE AND HALF YEARS OF SHORE-BASED STUDIES AT A MARINE ENGINEERING COLLEGE OF WHICH EIGHT MONTHS ARE SPENT AT SEA, SUCCESSFUL STUDENTS ARE GRANTED AN ACADEMIC DIPLOMA WHICH IS CONSIDERED TO BE EQUIVALENT
TO A BACHELOR OF SCIENCE DEGREE AND A PROFESSIONAL THIRD MATE CERTIFICATE OF COMPETENCY. THIS CERTIFICATE GIVES THE RIGHT TO SERVE AS WATCH-KEEPING OFFICER (MATE) ABOARD OCEAN-GOING VESSELS.

V. FROM THIRD MATE TO MASTER CERTIFICATE.

THERE STILL IS A LONG WAY TO REACH A MASTER CERTIFICATE OF COMPETENCY. INDEED, IT IS REQUIRED FOR THOSE WHO HAVE OBTAINED THEIR THIRD MATE CERTIFICATE TO ACQUIRE THE NECESSARY SEA EXPERIENCE AND TO TAKE CERTAIN ADDITIONAL REFRESHING COURSES BEFORE THEY WILL BE GRADUALLY PROMOTED TO SECOND MATES, FIRST MATES AND FINALLY TO MASTERS. THESE REQUIREMENTS CAN BE SUMMARIZED AS Follows:

V.1. TO OBTAIN A SECOND-MATE CERTIFICATE, IT IS REQUIRED TO COMPLETE 18 MONTHS SEA-SERVICE FROM THE TIME A THIRD MATE CERTIFICATE HAS BEEN ISSUED AND TO ATTEND A REFRESHING COMPULSORY COURSE OF 2.5 MONTHS DURATION WHERE THE FOLLOWING SUBJECTS ARE TAUGHT.

-SOCIAL SCIENCES 22 HOURS
-ECONOMY OF MARINE TRANSPORTATION 26 "
-PRINCIPLES OF MANAGEMENT 26 "
-ORGANIZATION OF THE MARINE TRANSPORTATION AND COMMERCIAL EXPLOITATION OF FLEET 51 "
-SAFETY OF NAVIGATION 68 "
-TECHNICAL AIDS OF NAVIGATION 34 "
-AUTOMATION AND NAVIGATIONAL PROCESSES AND ELECTRONIC COMPUTERS 20 "
-EXPLOITATION OF VESSELS 12 "
-MARITIME LAW 18 "
-SHIPBOARD RADIO EQUIPMENT AND RULES OF RADIO COMMUNICATIONS 30 "

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V.2. To obtain a First Mate Certificate of Competency, it is also required to complete 18 months of sea service from the time a Second Mate Certificate was delivered and to attend a refreshing course of the same length as under V.1. This course consists of the following subjects:

- Social Sciences 48 hours
- Economy of Marine Transportation 26 "
- Principles of Management 26 "
- Organization of Marine Transportation 51 "
- Safety of Navigation 68 "
- Aids of Navigation and Electronic Computers 42 "
- Maritime Law 24 "
- Shipboard Radio Equipment and Rules of Radio Communications 26 "
- Business Correspondance (in English) 14 "
- Principles of Labour Code and Labour Protection 18 "
- Environment Protection 10 "
- Ship’s Documents 10 "

TOTAL 363 HOURS

V.3. To obtain a Master Certificate of Competency, it is required to have accomplished at least two years sea service from the time a First Mate Certificate has been issued. On completion of the required sea time, candidates
ATTEND A REFRESHING COURSE OF THE SAME LENGTH AND CONTENT AS UNDER V.2. THE AWARD OF A MASTER MARINER CERTIFICATE OF COMPETENCY GIVES ONE THE RIGHT TO BE MASTER OF ANY VESSEL IN ANY TRADE.
STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN THE SOVIET UNION.

- Completion of 10 years general education.
  - 5.6 years shore-based studies.
  - Third mate certificate.
  - 18 months controlled sea service.
  - 2.5 months shore-based refreshing course.
  - Second mate certificate.

- 18 months non-controlled sea service.
  - Including 08 months controlled sea service.
  - Chief-mate certificate.
  - 2 years non-controlled sea-service.
  - Master mariner certificate.
CHAPTER VI

A COMPARATIVE STUDY ON THE EDUCATION AND TRAINING OF
MASTER MARINERS IN THE EARLIER DESCRIBED COUNTRIES.
A COMPARATIVE STUDY ON THE EDUCATION AND TRAINING OF MASTER MARINERS IN THE COUNTRIES DESCRIBED EARLIER.

THE MAIN OBJECTIVE OF THIS COMPARATIVE STUDY IS TO DISTIL AND SORT OUT THE COMMON ELEMENTS AND DIFFERENCES THAT MIGHT EXIST IN THE SYSTEMS OF TRAINING FOR MASTER MARINERS OF THE COUNTRIES I HAVE PREVIOUSLY DESCRIBED. THE STUDY DOES NOT INTEND TO EXPLAIN OR TO ANALYSE WHY A GIVEN COUNTRY’S SYSTEM OF TRAINING OF MASTER MARINERS DIFFERS FROM OR IS SIMILAR TO ANOTHER COUNTRY’S SYSTEM. IT ONLY IDENTIFIES THEIR COMMON ELEMENTS AND DIFFERENCES WHICH WILL FORM THE BASIS FOR THE NEW SYSTEM OF TRAINING OF DEEP-SEA MASTERS THAT I INTEND TO PROPOSE TO MY COUNTRY.

I HAVE ARRANGED A LISTING OF ELEMENTS THAT MIGHT EXIST IN A SYSTEM FOR THE EDUCATION AND TRAINING FOR MASTER’S CERTIFICATE OF COMPETENCY.

THE STUDY IS SELF-EXPLANATORY. HOWEVER, I WOULD LIKE TO MENTION THAT FOR THE CALCULATION OF "GROSS YEARS UP TO MASTER CERTIFICATE" IT HAS BEEN CONSIDERED THAT A SEAFARER NEEDS AT LEAST 1.6 YEAR TO COMPLETE ONE YEAR SEA-SERVICE, BECAUSE OF LEAVE-TIMES.
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<th>duration of general education</th>
<th>required duration of general education</th>
<th>required specialization</th>
<th>average age of candidates</th>
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<td>maths</td>
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<td>shorebased introductory course and its duration.</td>
<td>shipboard introductory course and its duration.</td>
<td>controlled pre-sea training and its duration.</td>
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<td>average number of lectures per week.</td>
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<td>school</td>
<td>ministry of trade and shipping</td>
<td>2nd mate</td>
<td>school certificate</td>
</tr>
<tr>
<td>GERMANY, F.R</td>
<td>45 minutes</td>
<td>school</td>
<td>ministry of transport</td>
<td>deck officer certificate</td>
<td>bachelor of science degree</td>
</tr>
<tr>
<td>NETHERLANDS</td>
<td>50 minutes</td>
<td>school &amp; m.o.t</td>
<td>ministry of transport</td>
<td>2nd mate &amp; 3rd engineer</td>
<td>bachelor of science degree</td>
</tr>
<tr>
<td>FRANCE</td>
<td>50 minutes</td>
<td>school</td>
<td>secretariat of state in charge of the sea</td>
<td>merchant navy officer certificate</td>
<td>diploma of higher merchant marine st.</td>
</tr>
<tr>
<td>U.S.A</td>
<td>50 minutes</td>
<td>u.s coast guard</td>
<td>u.s coast guard</td>
<td>3rd mate</td>
<td>bachelor of science degree</td>
</tr>
<tr>
<td>U.S.S.R</td>
<td>45 minutes</td>
<td>school</td>
<td>ministry of the merchant marine</td>
<td>3rd mate</td>
<td>bachelor of science degree</td>
</tr>
<tr>
<td>ITEM</td>
<td>duration of controlled service up to master certificate</td>
<td>duration of non-controlled service up to master certificate</td>
<td>total general duration of service up to master certificate</td>
<td>total gross years up to master certificate</td>
<td>total net years up to master certificate</td>
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<td>SWEDEN</td>
<td>36 months</td>
<td>36 months</td>
<td>72 months</td>
<td>12 years</td>
<td>09 years</td>
</tr>
<tr>
<td>DENMARK</td>
<td>20 months</td>
<td>36 months</td>
<td>56 months</td>
<td>10.5 years</td>
<td>08 years</td>
</tr>
<tr>
<td>NORWAY</td>
<td>12 months</td>
<td>42 months</td>
<td>54 months</td>
<td>11 years</td>
<td>9.5 years</td>
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<tr>
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<td>24 months</td>
<td>24 months</td>
<td>48 months</td>
<td>08 years</td>
<td>07 years</td>
</tr>
<tr>
<td>NETHERLANDS</td>
<td>12 months</td>
<td>48 months</td>
<td>60 months</td>
<td>11 years</td>
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<tr>
<td>FRANCE</td>
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<td>46 months</td>
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<td>09 years</td>
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<tr>
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<td>36 months</td>
<td>48 months</td>
<td>08.5 years</td>
<td>07 years</td>
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<tr>
<td>U.S.S.R</td>
<td>08 months</td>
<td>60 months</td>
<td>68 months</td>
<td>15.5 years</td>
<td>10.5 years</td>
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<tr>
<td>Country</td>
<td>Average Age Up to Master Certificate</td>
<td>Total Certificates of Competency Issued</td>
<td>Required Certificate of Competency to Serve as Chief-Mate</td>
<td></td>
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<tr>
<td>Sweden</td>
<td>28 years</td>
<td>second-mate</td>
<td>master</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>27 years</td>
<td>second-mate first-mate master</td>
<td>first-mate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>27 years</td>
<td>second-mate chief-mate</td>
<td>chief-mate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany, F.R</td>
<td>26 years</td>
<td>deck officer master</td>
<td>master</td>
<td></td>
<td></td>
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<td>Netherlands</td>
<td>28 years</td>
<td>second-mate third-engineer first-mate &amp; master</td>
<td>master</td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>32 years</td>
<td>deck officer master</td>
<td>master</td>
<td></td>
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<tr>
<td>U.S.A</td>
<td>25 years</td>
<td>third-mate second-mate first-mate &amp; master</td>
<td>master</td>
<td></td>
<td></td>
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<tr>
<td>U.S.S.R</td>
<td>33 years</td>
<td>second/third mate first-mate master</td>
<td>master</td>
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CHAPTER VII

MARITIME EDUCATION AND TRAINING OF MASTER MARINERS IN ALGERIA.
I. SOME FACTS OF MARITIME HISTORY OF ALGERIA.

1. ALGERIA IS PART OF THE ARAB MAGHREB WHICH IS LOCATED IN NORTH AFRICA. THE ARAB MAGHREB IS COMPOSED OF MAURITANIA, THE SAHRAOUIE ARAB REPUBLIC, MOROCCO, ALGERIA, TUNISIA AND LYBIA.

ALGERIA HAS BORDERS WITH THE ABOVE MENTIONED COUNTRIES, WITH THE REPUBLIC OF MALI AND NIGER IN THE SOUTH AND WITH THE MEDITERRANEAN SEA IN THE NORTH FOR A LENGTH OF 1200 KILOMETRES. ALGERIA HAS ABOUT 11 MAJOR PORTS SITUATED IN GHAZAOUET, BENISAF, ORAN, ARZEW, MOSTAGANEM, TENES, ALGIERS, BEJAIA, SKIKDA, ANNABA AND EL KALA. PRESENTLY, THERE IS ANOTHER PORT UNDER CONSTRUCTION (PORT OF DJENDJEN). BESIDES THESE COMMERCIAL PORTS, THERE ARE A CERTAIN NUMBER OF SMALLER PORTS SPREAD ALONG THE COAST MAINLY USED BY FISHING VESSELS AND PLEASURE BOATS.

THE ALGERIAN FLEET WAS DESTROYED, IT WAS VERY EASY FOR FRANCE TO COME AND INVADE ALGERIA IN JULY 1830. THAT WAS THE END OF THE ALGERIAN MARITIME POWER.

- INEXISTENT MARITIME INFRASTRUCTURE,
- INADEQUATE MARITIME LEGISLATION,
- ACCUTE SHORTAGE OF MARINE PERSONNEL WITH THE REQUIRED QUALIFICATIONS AND EXPERIENCE,
- LACK OF MARITIME TRAINING FACILITIES FOR DIFFERENT LEVELS AND DIFFERENT SPECIALIZATIONS.

II. MARITIME ACTIVITIES IN ALGERIA.

1. THE MINISTRY OF TRANSPORT.
IN ALGERIA, THE MINISTRY OF TRANSPORT IS IN CHARGE OF ALL MARITIME ACTIVITIES INCLUDING SHIPPING AND PORTS. FISHERIES WHICH WERE DEALT WITH BY THE SAME MINISTRY WERE HOWEVER TAKEN OVER BY THE MINISTRY OF AGRICULTURE IN 1983. HOWEVER, A GREAT NUMBER OF MINISTRIES HAVE FUNCTIONS CONNECTED TO MARITIME MATTERS. THE MOST IMPORTANT ONES ARE:


SAFETY OF FISHING VESSELS IS HOWEVER DEALT WITH BY THE MINISTRY OF AGRICULTURE. OIL POLLUTION PROTECTION COMES PARTLY UNDER THE MINISTRY OF ENVIRONMENT AND PARTLY UNDER THE MINISTRY OF TRANSPORT.

THE COAST GUARDS WHICH ARE UNDER THE AUTHORITY OF THE MINISTRY OF DEFENSE PLAY AN IMPORTANT ROLE WITH REGARD TO SAFETY INSPECTION MATTERS AND SEARCH AND RESCUE OPERATIONS.

ABROAD, MARITIME AFFAIRS ARE DELEGATED TO THE CONSULATES CONNECTED WITH THE MINISTRY OF FOREIGN AFFAIRS. WITHIN THE MINISTRY OF TRANSPORT, TWO DIRECTORATES DEAL WITH MARITIME ACTIVITIES. THE MERCHANT MARINE DIRECTORATE IS A BODY COMPETENT TO ELABORATE, PROPOSE AND ADOPT THE REGULATORY PRINCIPLES AND RULES RELATING TO A NATIONAL SHIPPING POLICY. IT IS ALSO COMPETENT TO ENSURE THE SAFETY OF MARITIME NAVIGATION, EXECUTE THE CONTINGENCY PLANS IN CASE OF MARINE CASUALTY, AND ENSURE THE SAFETY STANDARDS FOR SHIPS AND LIFE AT SEA.
THE PORT DIRECTORATE IS A POLICY-MAKING AUTHORITY RESPONSIBLE FOR THE DEVELOPMENT AND SAFETY OF ALL PORTS. PORT ACTIVITIES ARE DEALT WITH BY AUTONOMOUS ENTREPRISES LOCATED IN EACH ALGERIAN PORT. THESE ENTREPRISES ARE ALL STATE-OWNED AND COME UNDER THE AUTHORITY OF THE PORT DIRECTORATE.

2. THE ALGERIAN MARITIME CODE.

THE MOST IMPORTANT MARITIME LEGISLATION ON WHICH ALL MARITIME ACTIVITIES ARE BASED IS THE COMMERCIAL MARITIME CODE WHICH WAS ADOPTED IN OCTOBER 23, 1976 BY ORDINANCE NO. 76-80. IT CONSISTS OF 887 ARTICLES WRITTEN IN TWO BOOKS WHICH ARE THEMSELVES DIVIDED INTO TITLES, CHAPTERS, SECTIONS AND PARAGRAPHS. IT CAN BE SAID THAT THE ALGERIAN MARITIME CODE MAY BE QUALIFIED AS TRADITIONAL AND INTERNATIONAL WITH RESPECT TO THE IMPLEMENTATION OF INTERNATIONAL CONVENTIONS. INDEED, MOST OF THE INTERNATIONAL CONVENTIONS TO WHICH ALGERIA IS PARTY HAVE BEEN INCLUDED INTO OUR NATIONAL MARITIME CODE.

3. IMO CONVENTIONS TO WHICH ALGERIA IS A PARTY.

MOST OF THE IMO CONVENTIONS RELATING TO MARITIME SAFETY AND MARINE POLLUTION PREVENTION HAVE BEEN RATIFIED BY ALGERIA AND INCLUDED INTO OUR NATIONAL MARITIME LEGISLATION.

IMO CONVENTIONS ENTRY INTO FORCE NATIONAL REFERENCE OF APPLICATION.

SAFETY OF LIFE AT 20.04.1954 DECREE NO. 63/345
SEA OF 1948.

SAFETY OF LIFE AT SEA OF 1960. 26.05.1965 DECREE NO.63-345 OF II.09.1963

SAFETY OF LIFE AT SEA OF 1974 25.05.1980 DECREE NO.83-50 OF 27.08.1983

PROTOCOL 78 TO SOLAS 01.05.1981 DECREE NO.83-50 OF 27.08.1983

1981 AMENDMENTS TO SOLAS 74 & PROT.78 01.09.1984


AMENDMENT 1971 APPROBATION

AMENDMENTS 75,79 AND 83


COLREG CONVENTION OF 1972 18.07.1972 ADHESION IN 1977

OIL POLLUTION PREVENTION 26.07.1958 DECREE No.63-345 OF 1963

AMENDMENT OF 1969 20.01.1978 APPROVAL

AMENDMENT OF 1971 (GREAT BARRIERS) APPROVAL

AMENDMENT OF 1971 (TANKERS) APPROVAL

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4. NATIONAL SHIPPING COMPANIES.

1. COMPAGNIE NATIONALE ALGERIENNE DE NAVIGATION.

The first shipping company to be established in 1963. This company is in charge of transporting passengers and all kinds of cargoes except oil and gas. Its services include a worldwide conventional and shortsea RO/RO trades. About 70% of our fleet (in term of number) is owned by this company. It employs 6619 people of whom 3552 are seafarers.

2. SOCIETE NATIONALE DE TRANSPORT MARITIME DES HYDROCARBURES ET DES PRODUITS CHIMIQUES (SNTM/HYPROC).

This company operates in the hydrocarbon and chemical product trades. It was established in 1982 taking over these operations and services previously handled by CNAN. It employs about 1173 people of whom 817 are navigators.

3. SOCIETE NATIONALE POUR LA RECHERCHE, LA PRODUCTION, LE TRANSPORT, LA TRANSFORMATION ET LA COMMERCIALISATION DES HYDROCARBURES (SONATRACH).

This company deals only with the bunkering business. Its monopoly is exercised in all Algerian ports.
4. COMPAGNIE ALGERO-LIBYENNE DE TRANSPORT MARITIME (CALTRAM).

IT IS A JOINT-VENTURE COMPANY BETWEEN ALGERIA AND LIBYA ON A 50/50 BASIS. THIS COMPANY OPERATES ABOUT SIX GENERAL CARGO VESSELS IN WORLDWIDE TRADE. IT WAS ESTABLISHED IN 1973. ITS HEADQUARTERS IS LOCATED IN ALGIERS.

5. ARAB MARITIME PETROLEUM TRANSPORT COMPANY (CO. AMPTC).

THIS COMPANY WAS ESTABLISHED ON MAY 6, 1972 WITH THE AIM OF PARTICIPATING IN THE TRANSPORT OF THE ARAB OIL.

6. COMPAGNIE ALGERO-MAURITANIENNE DE NAVIGATION MARITIME.


7. COMPAGNIE ALGERO-BENINOISE DE NAVIGATION MARITIME (COBENAV).

A JOINT-VENTURE SHIPPING COMPANY BETWEEN ALGERIA AND BENIN.

8. COMPAGNIE ALGERO-TUNISIENNE DE TRANSPORT MARITIME.

A NEW JOINT-VENTURE COMPANY BETWEEN ALGERIA AND TUNISIA WHICH IS EXPECTED TO START ITS ACTIVITIES IN THE VERY NEAR FUTURE.
5. THE NATIONAL FLEET.


IN 1969, ALGERIA OWNED ONLY FIVE VESSELS WHILE TODAY THE NATIONAL FLEET IS COMPOSED OF 78 VESSELS OF ALL TYPES TOTALIZING MORE THAN ONE MILLION TONS DEADWEIGHT. THE AVERAGE AGE OF THE ALGERIAN MERCHANT FLEET IS 8.6 YEARS WHICH IS BELOW BOTH THE WORLD AND DEVELOPING COUNTRIES FLEETS WHICH ARE CLOSE TO 13 YEARS.

6. NATIONAL PORTS.

ALGERIA HAS ABOUT 11 MAJOR PORTS LOCATED ALONG THE MEDITERRANEAN COAST. EACH PORT IS ADMINISTERED BY AN AUTONOMOUS ENTREPRISE ( ENTREPRISE PORTUAIRE ). THESE ENTREPRISES ARE RESPONSIBLE FOR THE GENERAL ADMINISTRATION, OPERATION AND MAINTENANCE, SAFETY AND DEVELOPMENT OF THEIR RESPECTIVE PORT. THE GOVERNMENT, HOWEVER, EXERCISES A DIRECT CONTROL ON THESE PORTS THROUGH THE INTERMEDIARY OF THE PORT DIRECTORATE WITHIN THE MINISTRY OF TRANSPORT.
THE PORT STAFF SUCH AS DIRECTORS AND HARBOUR MASTERS ARE DIRECTLY APPOINTED BY THE MINISTER OF TRANSPORT. PRIOR TO 1984, ALGERIAN PORTS WERE ADMINISTERED BY A NATIONAL PORT AUTHORITY (OFFICE NATIONAL DES PORTS) WHICH WAS A CENTRAL POLICY-MAKING ORGANIZATION LINKED TO THE MINISTRY OF TRANSPORT. THIS AUTHORITY WAS IN CHARGE OF DRAWING A UNIFIED PLAN OF DEVELOPMENT OF ALL PORTS OF THE COUNTRY. HOWEVER, FOR DIFFERENT REASONS THE ADMINISTRATIVE ORGANIZATION OF OUR PORTS WAS REVIEWED IN 1984 AND A NEW SYSTEM OF SELF-GOVERNING PORTS WAS INTRODUCED. THE ACTIVITIES OF STEVEDORING WHICH WERE HANDLED BY A SEPARATE STATE-OWNED COMPANY HAVE BEEN INTEGRATED IN THE NEW SYSTEM WHICH NOWADAYS GIVES A SINGLE ENTITY RESPONSIBLE FOR ALL PORT OPERATIONS INCLUDING PILOTAGE AND TOWAGE.
PART II
I. GENERAL EDUCATION IN ALGERIA.

1. INTRODUCTION

THE ALGERIAN POPULATION HAS BEEN EVALUATED TO 23 MILLION INHABITANTS (STATISTICS OF JULY 1987). ABOUT 65% OF THIS POPULATION IS LESS THAN 20 YEARS OF AGE. THESE FIGURES SHOW VERY CLEARLY THE HEAVY BURDEN OF RESPONSIBILITY THE ALGERIAN GOVERNMENT HAS TO ASSUME IN EDUCATING, FEEDING AND HOUSING THIS YOUNG AND INACTIVE POPULATION WHICH IS INCREASING EACH YEAR BY ABOUT 800,000 NEW BIRTHS. IN ALGERIA THE RATE OF BIRTH IS 3.2%, ONE OF THE HIGHEST IN THE WORLD.


THE NUMBER OF PUPILS IN THE PRIMARY SCHOOLS AMOUNTED IN 1987 TO 6,010,000 WHILE IN 1962 THERE WERE ONLY
800 000 pupils. In the secondary education the number increased from 12 000 in 1979-80 to 600 000 in 1987. In the higher education there are more than 300 000 students. The infrastructures were also developed in order to accommodate this huge mass of young population. For instance, only the town of Algiers has nowadays more colleges than the whole country had in 1962. The number of primary schools increased in Algiers from 379 to 1747 and colleges from 39 to 481.

The education and training of teachers, who are an essential part of the whole educational system, has also been given considerable attention in order to reduce and definitively cut the dependence on foreign countries for the supply of this type of qualified personnel. In 1962, foreign teachers represented 40%. Today in the primary education the teaching staff is completely Algerian. At the secondary level, foreign teachers represent only 15% and it is expected that in 1990 their responsibilities will be taken over by nationals who are currently being trained in approximately 60 teacher training schools spread over the country.

Finally, I would like to mention that in Algeria almost all ministries are dealing with educational matters besides the following officially recognized educational authorities:

1. The Ministry of Education: is responsible for the compulsory basic education.
2. The Ministry of Secondary and Technical Education: is in charge of secondary general and technical colleges.
3. The Ministry of Labour and Vocational Training: is in charge of the vocational training at the lower
AND HIGHER LEVELS.
4. THE MINISTRY OF HIGHER EDUCATION: IS RESPONSIBLE FOR POLYTECHNICS AND UNIVERSITIES FOR HIGHER EDUCATION.

2. GENERAL EDUCATION SYSTEM.

THERE ARE THREE LEVELS OF GENERAL EDUCATION.

1. FUNDAMENTAL EDUCATION: ALGERIAN CHILDREN START THEIR BASIC EDUCATION IN SEPTEMBER OF THE YEAR IN WHICH THEY REACH THE AGE OF SIX. THIS BASIC EDUCATION IS MADE COMPULSORY FOR ALL CHILDREN HAVING REACHED THAT AGE. IT LASTS NINE (09) YEARS (6-15).

2. SECONDARY EDUCATION: UPPER SECONDARY EDUCATION IS NOT COMPULSORY. IT IS, HOWEVER, A CONTINUITY OF THE FUNDAMENTAL EDUCATION. A NEW STRUCTURE OF SECONDARY EDUCATION HAS BEEN INTRODUCED. IT AIMS AT GIVING STUDENTS A SCIENTIFIC EDUCATION COMPRISING BOTH GENERAL AND TECHNICAL SUBJECTS. IT IS THEREFORE A CERTAIN FORM OF PREPARATION OF THOSE STUDENTS WISHING TO CONTINUE EITHER A HIGHER EDUCATION OR TO CHOOSE A VOCATIONAL STREAM AT A HIGHER LEVEL. THE EDUCATION PROVIDED AT THE UPPER SECONDARY SCHOOL LASTS THREE (03) YEARS (15-18).

3. HIGHER EDUCATION: ALL POST-SECONDARY EDUCATION IS INCLUDED IN HIGHER EDUCATION. BEIDES TRADITIONAL UNIVERSITY STUDIES, THERE ARE A LOT OF HIGHER INSTITUTES PROVIDING A HIGHER VOCATIONAL TRAINING. IN ALGERIA, ALMOST ALL MINISTERS HAVE THEIR OWN SCHOOL OR INSTITUTE. SOME EVEN HAVE MORE THAN ONE. FOR INSTANCE, THE MINISTRY OF TRANSPORT BESIDES THE
MERCHANT MARINE ACADEMY ALSO HAS AN AVIATION SCHOOL, A ROAD TRANSPORT SCHOOL AND A RAILWAY SCHOOL. SOME OF THESE SCHOOLS ARE PEDAGOGICALLY CONTROLLED BY THE MINISTRY OF HIGHER EDUCATION WHILE OTHERS ARE NOT. THIS SITUATION IS SOMEWHAT GENERATING A CERTAIN NUMBER OF PROBLEMS WHICH WILL BE DEALT WITH LATER ON.

IT CAN BE SAID THAT IN 25 YEARS' TIME, THE EDUCATION IN ALGERIA HAS BEEN CHANGING GRADUALLY AND INTELLIGENTLY IN ORDER TO MEET THE NEEDS OF OUR YOUNG POPULATION AND MOVING TOWARDS A SCIENTIFIC DEVELOPMENT.

II. MARITIME EDUCATION IN ALGERIA.

1. INTRODUCTION.

WHEN ALGERIA ESTABLISHED ITS FIRST SHIPPING COMPANY AND THEREAFTER STARTED TO PURCHASE SHIPS, THERE WAS AN OBVIOUS NEED FOR QUALIFIED AND EXPERIENCED MARINE OFFICERS TO MAN THESE VESSELS. THERE WAS NO POSSIBILITY TO RECRUIT NATIONALS SINCE NO ONE AT THAT TIME DID HAVE THE NECESSARY QUALIFICATIONS. THOSE WHO SAILLED ABOARD FRENCH-FLAG VESSELS DURING THE OCCUPATION WERE NEITHER PROPERLY TRAINED NOR DID THEY OCCUPY OFFICERS' POSITIONS. THEY SERVED AS ORDINARY RATINGS RELEGATED TO THE MAXIMUM LOWER LEVEL. ALGERIA DID NOT HAVE ANY CHOICE OTHER THAN TO EMPLOY FOREIGN OFFICERS MAINLY FROM FRANCE, EGYPT AND YUGOSLAVIA, GENEROUSLY PAID IN FOREIGN CURRENCY. THIS SITUATION OF DEPENDENCE ON FOREIGN EXPATRIATES DID NOT ONLY AFFECT THE MARITIME SECTOR BUT ALSO AFFECTED ALL OTHER ACTIVITIES.
THE ALGERIAN GOVERNMENT DECIDED THUS TO GIVE TOP PRIORITY TO THE EDUCATION AND TRAINING OF OUR HUGE HUMAN AVAILABLE RESOURCES. AS FAR AS THE MARITIME FIELD IS CONCERNED, MANY NATIONALS WERE SENT ABROAD TO STUDY NAUTICAL AND MARINE ENGINEERING SCIENCES, WHILE A SCHOOL WHICH WAS USED PRIOR TO THE INDEPENDENCE FOR THE TRAINING OF FRENCH FISHERMEN LIVING IN ALGERIA WAS CONVERTED INTO A MARITIME TRAINING INSTITUTION WITH THE MAIN OBJECTIVE OF PROVIDING IN A SHORT TIME DECK AND ENGINE OFFICERS. HERE AGAIN ALGERIA FACED A LACK OF QUALIFIED NATIONAL TEACHING STAFF. ONCE MORE, WE WERE OBLIGED TO RECRUIT FOREIGN LECTURERS. THIS SCHOOL WHICH WAS TAKEN OVER BY THE MINISTRY OF AGRICULTURE IN 1984 PLAYED AN IMPORTANT ROLE SINCE IT WAS ABLE IN A RATHER SHORTER TIME TO PROVIDE THE NATIONAL SHIPPING COMPANY WITH A CERTAIN NUMBER OF MARINE OFFICERS. THE ALGERIAN FLEET WAS AT THAT TIME COMPOSED OF 6 GENERAL CARGO VESSELS ACQUIRED IN THE SECOND HAND MARKET.

HOWEVER, WHEN THE ALGERIAN FLEET STARTED TO DEVELOP AND INCREASED IN NUMBER FROM 1970 THE SCHOOL WAS NO MORE IN A POSITION TO ACCOMODATE A HUGE NUMBER OF NATIONALS WISHING TO START A SEAFARING CAREER. INDEED, THE MORE THE VESSELS WERE PURCHASED THE MORE THE NEEDS FOR SEAFARERS AROSE. IN 1974, THE ALGERIAN GOVERNMENT IN COLLABORATION WITH CANADA DECIDED TO ESTABLISH A MODERN MERCHANT MARINE ACADEMY WHICH WOULD NOT ONLY BE ABLE TO RESPOND TO THE PERSONNEL NEEDS OF OUR SHIPPING COMPANY BUT TO THE PERSONNEL NEEDS OF THE MARITIME SECTOR AS A WHOLE INCLUDING PORTS, FISHERIES AND ADMINISTRATION.

2. THE ALGERIAN MERCHANT MARINE ACADEMY (INSTITUT SUPERIEUR MARITIME).
1. OBJECTIVES AND ADMINISTRATIVE ORGANIZATION.

THE ACADEMY WAS ESTABLISHED BY ORDINANCE NO.74-86 OF SEPTEMBER 17, 1974. THE ACADEMY IS LOCATED AT BOU-ISEMAIL, A SMALL COASTAL TOWN SITUATED AT ABOUT 45 KILOMETRES WEST OF ALGIERS. THE ACADEMY WAS SET UP WITH THE OBJECTIVE OF:

- EDUCATING AND Training DECK AND ENGINEER OFFICERS OF THE MERCHANT NAVY, FISHERIES AND ANCILLARY SERVICES.
- EDUCATING AND Training THE ADMINISTRATIVE OFFICIALS OF THE MERCHANT NAVY, PORTS AND FISHERIES.
- EDUCATING AND Training NAVIGATING AND ADMINISTRATIVE PERSONNEL OF THE NAVY ON REQUEST OF THE MINISTRY OF DEFENSE.
- ORGANIZING UPDATING AND REFRESHER COURSES AS WELL AS COURSES OF SPECIALIZATION OF THE PERSONNEL OF THE MARITIME SECTOR.

THE ACADEMY IS HEADED BY A DIRECTOR GENERAL DIRECTLY APPOINTED BY THE PRESIDENT OF THE REPUBLIC ON PROPOSITION OF THE MINISTER OF THE MERCHANT NAVY (MINISTRY OF TRANSPORT). THE GENERAL DIRECTOR IS SECONDED IN HIS FUNCTIONS BY:

- A SECRETARY GENERAL IN CHARGE OF ALL ADMINISTRATIVE ACTIVITIES OF THE ACADEMY AS WELL AS THE COORDINATION BETWEEN THE DIFFERENT DEPARTMENTS. HE IS APPOINTED BY THE MINISTER OF TRANSPORT.
- AN ACADEMIC DEAN OR DIRECTOR OF STUDIES DEALING WITH ALL EDUCATIONAL ACTIVITIES. HE IS APPOINTED BY THE MINISTER OF TRANSPORT.
- A DIRECTOR OF TRAINING WHO, IN COLLABORATION WITH THE ACADEMIC DEAN, ORGANIZES FIELD-TRIPS, SHIPBOARD TRAINING, VISITS, SEMINARS AND ALL RELATED
TRAINING ACTIVITIES. HE IS ALSO APPOINTED BY THE MINISTER OF TRANSPORT.

2. THE BOARD OF ADMINISTRATION.

THE BOARD OF ADMINISTRATION IS COMPETENT TO PROPOSE, ACCEPT, IMPLEMENT, REVIEW OR REJECT ANY RULES OR REGULATIONS RELATING TO THE GOOD FUNCTIONING OF THE ACADEMY. THIS BOARD WHICH MEETS AT LEAST TWICE A YEAR DELIBERATES ON THE FOLLOWING TOPICS:

- INTERNAL DISCIPLINARY ORGANIZATION
- BUDGET AND ACCOUNTS
- ACQUISITIONS, RENTS OR SALES
- LOANS TO BE CONTRACTED
- ACCEPTANCE OF GIFTS AND PRESENTS
- ANNUAL REPORT PRESENTED BY THE GENERAL DIRECTOR

THE BOARD IS ALSO COMPETENT TO REPORT TO THE MINISTER OF TRANSPORT ON EDUCATIONAL MATTERS.

IT IS COMPOSED OF:

- ONE REPRESENTATIVE OF THE MINISTRY OF DEFENSE
- ONE REPRESENTATIVE OF THE MINISTRY OF FINANCE
- ONE REPRESENTATIVE OF THE MINISTRY OF HIGHER EDUCATION
- ONE REPRESENTATIVE OF THE MINISTRY OF CIVIL SERVICE
- ONE REPRESENTATIVE OF THE NATIONAL SHIPPING COMPANY
- ONE REPRESENTATIVE OF THE NATIONAL FISHING COMPANY
- ONE REPRESENTATIVE OF THE NATIONAL PORT AUTHORITY
3. THE ACADEMIC BOARD.

This board is competent to take any measures which could be considered necessary for the good functioning of the academy namely:

- The general organization of education
- The pedagogical methods to be used

The board meets at least every trimester. It is composed of:

- The general director of the academy
- The heads of the different pedagogical departments
- Two representatives of the teaching staff of the academy
- Two elected students representing the student council body
- Two officers representing the merchant marine officers corps
- Two officers representing the navy

4. BUILDINGS AND TEACHING EQUIPMENT.

The merchant marine academy covers an area of about 6 acres. It is designed in such a way that it gives students a feeling of living aboard a vessel. When it was established it was fitted with the latest teaching equipment that could be found on the market. However, nowadays most of this equipment is outdated and does not respond any more to the requirements of a modern maritime training.
4. TEACHING STAFF.

THE ACADEMY EMPLOYS 15 PERMANENT LECTURERS OF WHOM 6 ARE EXPATRIATES AND ABOUT 20 PART-TIME LECTURERS. PROFESSIONAL SUBJECTS ARE TAUGHT BY EXPERIENCED FOREIGN-GOING MASTERS AND CHIEF ENGINEERS WHILE SUBJECTS OF GENERAL NATURE ARE DEALT WITH BY UNIVERSITY GRADUATES. IT IS TO BE POINTED OUT THAT MOST OF THESE LECTURERS DID NEITHER HAVE EXPERIENCE IN THE TEACHING PROFESSION NOR DID THEY RECEIVE SPECIAL TRAINING IN THE ART OF TEACHING EXCEPT TWO GRADUATES OF THE WORLD MARITIME UNIVERSITY WHO JOINED THE ACADEMY IN 1985.

II. COURSES LEADING TO CERTIFICATES OF COMPETENCY.

1. MASTER MARINERS 1st CLASS.

The education and training of masters of vessels of unlimited tonnage and trading area is of four (04) years shorebased studies and fifty-two (52) months sea service. As it is the main object of this project paper it will be dealt with separately and more thoroughly later on.

2. MASTER MARINERS 2nd CLASS.

The training of masters 2nd class is of two (02) years shorebased education and twenty-four (24) months sea service. Candidates are required to have completed 10 years general education and passed successfully an entrance examination. They should, however, not be less than 17 years of age. Holders of a master 2nd class certificate of competency can either serve as masters of vessels of up to 4000 GRT and trading au cabotage (1), or mates aboard ocean-going vessels.

3. CHIEF ENGINEERS 1st CLASS.

As for masters 1st class, the same requirements apply for chief engineers. The training is of four (4) years shorebased education and fifty-two (52) months sea service. Candidates are required to hold a leaving secondary school certificate (Baccalaurate) which is granted to students who successfully pass the final secondary school examination after 12 years of general education. They are also required to go through an entrance examination and should be at least 18 years of age.
4. CHIEF ENGINEERS 2nd CLASS.

THE TRAINING OF 2nd CLASS ENGINEERS IS OF ONE YEAR SHOREBASED EDUCATION AND TWENTY-FOUR (24) MONTHS SEA SERVICE. IT IS OPEN TO CANDIDATES WHO HAVE COMPLETED 10 YEARS OF GENERAL EDUCATION, PASSED AN ENTRANCE EXAMINATION AND WHO ARE AT LEAST 17 YEARS OF AGE. UPON GRADUATION AND AFTER 24 MONTHS SEA SERVICE ABOARD MERCHANT VESSELS WITH A PROPULSION POWER EQUAL OR HIGHER TO 2200 KW, CERTIFICATED ENGINEERS CAN SERVE EITHER AS CHIEF ENGINEERS OF VESSELS OF UP TO 2200 KW OR ENGINEER-OFFICERS OF VESSELS OF UP TO 6000 KW.

5. CHIEF ENGINEERS 3rd CLASS.

THE TRAINING OF 3rd CLASS ENGINEERS IS OF ONE YEAR SHOREBASED EDUCATION AND TWELVE (12) MONTHS SEA SERVICE. A MARINE 3rd CLASS ENGINEER CERTIFICATE OF COMPETENCY GIVES ONE THE RIGHT TO SIGN ABOARD MERCHANT VESSELS OF UP TO 2200 KW AS SECOND ENGINEER OR TO SERVE AS WATCH-KEEPING OFFICER IN THE ENGINE ROOM OF VESSELS OF UP TO 6000 KW.

6. RADIO OPERATORS.

THE TRAINING OF RADIO OPERATORS IS OF ONE YEAR EDUCATION AND TWELVE (12) MONTHS SEA SERVICE. CANDIDATES ARE REQUIRED TO HAVE COMPLETED 10 YEARS GENERAL EDUCATION AND SUCCESSFULLY PASSED AN ENTRANCE EXAMINATION.
THEY SHOULD BE AT LEAST 17 YEARS OF AGE.

7. RADIO OFFICERS.

THE EDUCATION AND TRAINING OF RADIO OFFICERS IS THREE YEARS SHOREBASED STUDIES AND TWENTY-FOUR (24) MONTHS SEA SERVICE.
CANDIDATES ARE REQUIRED TO HOLD A LEAVING SECONDARY SCHOOL CERTIFICATE (BACCALAUREATE) AFTER TWELVE YEARS GENERAL EDUCATION. THEY ARE ALSO REQUIRED TO SUCCESSFULLY PASS AN ENTRANCE EXAMINATION AND SHOULD BE AT LEAST 18 YEARS OF AGE.

III. COURSES IN THE MARITIME ADMINISTRATION.

1. MARITIME ADMINISTRATORS.

CANDIDATES WISHING TO BECOME MARITIME ADMINISTRATORS ARE REQUIRED TO HOLD A BACCALAUREATE CERTIFICATE AND TO SUCCESSFULLY PASS AN ENTRANCE EXAMINATION. THEY SHOULD HOWEVER NOT BE LESS THAN 18 YEARS OF AGE. THE EDUCATION PROVIDED IS OF FOUR (04) YEARS DURATION OF WHICH SIX (6) MONTHS ARE SPENT AT SEA FOR A BASIC FAMILIARITY WITH MERCHANT SHIPS AND THEIR DAY-TO-DAY OPERATION. THE CURRICULUM OF STUDY COMPRIZES MAINLY SUBJECTS IN MARITIME LAW, SHIPPING ECONOMICS AND ACCOUNTANCY. HOWEVER, STUDENTS RECEIVE ALSO AN INSTRUCTION IN TECHNICAL SUBJECTS SUCH AS NAVIGATION, NAVAL ARCHITECTURE, METEOROLOGY AND FIRE-FIGHTING. GRADUATES ARE
APPOINTED MAINLY IN THE DIFFERENT DEPARTMENTS OF THE CENTRAL MARITIME ADMINISTRATION.

2. PORT OFFICERS.

THE EDUCATION OF PORT OFFICERS IS SIMILAR TO THE INSTRUCTION PROVIDED FOR MARITIME ADMINISTRATORS BUT WITH A PREDOMINANCE OF TECHNICAL SUBJECTS. THE CURRICULUM OF STUDY INCLUDES MAINLY SUBJECTS RELATED TO SAFETY OF LIFE AT SEA AS WELL AS SAFETY OF PORTS AND THEIR INSTALLATIONS. THE REGULATION OF THE MARITIME TRAFFIC IN PORTS, ROADS, CHANNELS AND ALL SAFETY ASPECTS OF THE MARITIME NAVIGATION ARE GIVEN CONSIDERABLE ATTENTION. SUBJECTS IN PORT ADMINISTRATION AS WELL AS SUBJECTS IN MARITIME LAW AND SHIPPING ECONOMICS ARE INCLUDED. AS PART OF THEIR PROGRAM OF EDUCATION, STUDENTS RECEIVE A SIX (06) MONTHS SHIPBOARD TRAINING ABOARD MERCHANT VESSELS. GRADUATES ARE APPOINTED IN PORT CAPTAINCIES. THE ENTRANCE REQUIREMENTS FOR THIS TYPE OF TRAINING ARE THE SAME AS FOR MARITIME ADMINISTRATORS.
THE EDUCATION AND TRAINING OF FOREIGN-GOING MASTER MARI­NERS IS AS I HAVE ALREADY STATED OF FOUR (04) YEARS SHOREBASED STUDIES AND FIFTY-TWO (52) MONTHS SEA SERVICE. CANDIDATES WISHING TO PURSUE THIS TYPE OF TRAINING ARE REQUIRED TO HAVE COMPLETED TWELVE (12) YEARS OF GENERAL EDUCATION WITH A SPECIALIZATION IN TECHNICAL SUBJECTS SUCH AS MATHEMATICS AND SCIENCES. THEY ARE ALSO REQUIRED TO HOLD A LEAVING SECONDARY SCHOOL CERTIFICATE (BACCALAUREATE) WHICH IS ISSUED ONLY TO STUDENTS WHO SUCCESSFULLY PASS THE FINAL SECONDARY SCHOOL EXAMINATION. THIS CERTIFICATE IS OF PARAMOUNT IMPORTANCE. ONLY THOSE CERTIFICATED CANDIDATES ARE ALLOWED TO SIT FOR THE ENTRANCE EXAMINATION.

BESIDES, CANDIDATES SHOULD BE AT LEAST 18 YEARS OF AGE AND MEDICALLY FIT FOR A SEAFARING CAREER. FOR ACCEPTANCE AND APPROVAL OF HIS APPLICATION EACH STUDENT IS REQUESTED TO SUBMIT WITH HIS APPLICATION FORM A MEDICAL CERTIFICATE EVIDENCING HIS GENERAL CONDITION OF HEALTH. WHEN JOINING THE ACADEMY SUCCESSFUL CANDIDATES ARE ONCE MORE CHECKED BY THE ACADEMY HOSPITAL.

THE ENTRANCE EXAMINATION IS HELD IN THREE (03) DIFFERENT GEOGRAPHICALLY SITUATED TOWNS:
- ORAN, FOR THOSE CANDIDATES LIVING IN THE WESTERN PART OF ALGERIA.
- BOU ISMAIL, FOR CANDIDATES FROM THE CENTRAL REGIONS.
- CONSTANTINE, FOR CANDIDATES FROM THE EASTERN PART OF THE COUNTRY.

THE ENTRANCE EXAMINATION COMPRIS ES THE FOLLOWING SUBJECTS:
THE NUMBER OF NEW STUDENTS TO BE ENROLLED AT THE ACADEMY IN EACH SPECIALITY IS GENERALLY PLANNED ONE YEAR BEFORE THE ENTRANCE EXAMINATION IS HELD. IT DEPENDS ON THE NEEDS OF OUR NATIONAL SHIPPING COMPANIES AS WELL AS THE ACADEMY'S CAPACITY OF ACCOMODATION.

FOR INSTANCE, IN 1985 APPROXIMATELY 1300 CANDIDATES TOOK PART IN THE ENTRANCE EXAMINATION OF WHOM ONLY 120 WERE ADMITTED TO STUDY NAVIGATION AND MARINE ENGINEERING SCIENCES.

I WOULD LIKE TO MENTION THAT EDUCATION IN ALGERIA IS FREE OF CHARGE. STUDENTS OF THE MERCHANT MARINE ACADEMY ARE PROVIDED WITH ACCOMODATION, FOOD, UNIFORM AND 500 ALGERIAN DINARS AS MONTHLY ALLOWANCE.

FOR SUCCESSFUL CANDIDATES, THE FIRST YEAR OF STUDY STARTS WITH INTRODUCTORY COURSES IN SUBJECTS RELATED TO THE MARITIME PROFESSION SUCH AS NAVIGATION, CHARTS, SEAMANSHIP AND MARITIME LAW. SUBJECTS OF GENERAL NATURE SUCH AS MATHEMATICS, PHYSICS, ELECTRICITY AND ELECTRONICS ARE AN ESSENTIAL PART OF THE WHOLE PROGRAM OF STUDY. STUDENTS RECEIVE ALSO A THEORETICAL INSTRUCTION IN FIRE-FIGHTING AND FIRE DETECTION. AT THE END OF THE FIRST YEAR AND DURING THE SUMMER VACATION, ALL STUDENTS ARE REQUIRED TO PARTICIPATE IN A COMPULSORY TWO-MONTHS SHIPBOARD TRAINING PROGRAM ABOARD OPERATING ALGERIAN MERCHANT VESSELS. THEY ARE GIVEN A "WORK BOOK" CONTAINING WRITTEN ASSIGNMENTS THEY ARE REQUIRED TO COMPLETE DURING THEIR SHIPBOARD TRAINING. THESE ASSIGNMENTS SHOULD BE SUBMITTED TO THE ACADEMY AT THE BEGINNING OF THE SECOND YEAR FOR EVALUA-
TION AND GRADING.

THE FIRST YEAR CURRICULUM OF STUDY IS AS FOLLOWS:

1. THEORETICAL COURSES.

- MATHEMATICS 96 HOURS
- MECHANICS 64 "
- ELECTRICITY 96 "
- ELECTRONICS 48 "
- MARITIME GEOGRAPHY 48 "
- MARITIME LAW 48 "
- CIVIL LAW 32 "
- NAVIGATION 64 "
- CHARTS 64 "
- SHIP'S TECHNIQUES 32 "
- NAUTICUL CALCULUS 48 "
- ENGINES 32 "
- LANGUAGES (ENGLISH AND ARABIC) 128 "
- SAFETY & CHEMISTRY 48 "

2. PRACTICAL COURSES.

- ELECTRONICS *
- ELECTRICITY *
- SEAMANSHIP 64 "
- PHYSICAL EDUCATION & ROWING 32 "

* THESE TWO SUBJECTS ARE INTEGRATED IN THE THEORETICAL COURSES.

ALONG THE FIRST YEAR OF STUDY, WRITTEN AND PRACTICAL ASSESSMENTS IN EACH SUBJECT STUDIED ARE CARRIED OUT. THEY DETERMINE AT THE END OF THE YEAR WHETHER THE STUDENT HAS ACQUIRED THE NECESSARY BASIC KNOWLEDGE WHICH WOULD ENABLE
Him to follow the second year program. For the passage to the second year an average of 50% marks is required. During the second year of study, the program focuses on technical professional subjects and gives a deeper knowledge of subjects studied during the first year. In addition, certain courses in the legal field are introduced. As in the first year, students are required to take part in the shipboard training program of two-months duration.

The second year curriculum of study is as follows:

1. Theoretical Courses.

- Electronics 96 Hours
- Electro Technique 48"
- Engines 64"
- Automation 64"
- Commercial Law 32"
- Languages (English and Arabic) 128"
- Cosmographic Navigation 96"
- Nautical Calculus 64"
- Charts & Instruments 96"
- Rules of the Road 32"
- Manoeuvre & Safety 64"
- Technology 32"
- Maritime Law 48"

2. Practical Courses.

- Electronics * 32"
- Fire Fighting 32"
- Seamanship 32"
- Physical Education & Rowing 64"

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THE THIRD YEAR OF STUDY COMPRISSES MOSTLY PROFESSIONAL ORIENTED SUBJECTS. A GREAT DEAL OF SIMULATOR TRAINING IS INCLUDED. THE OVERALL PROGRAM AIMS TO PROVIDE STUDENTS A HIGHER LEVEL OF NAUTICAL AND TECHNICAL KNOWLEDGE. THE PROGRAM OF STUDY DURING THE THIRD YEAR IS SHOWN BELOW.

1. THEORETICAL COURSES.

- NAVIGATION 96 HOURS
- NAUTICAL CALCULUS 64 "
- SHIP' THEORY 96 "
- MANOEUVRE & SAFETY 64 "
- CHARTS 64 "
- RULES OF THE ROAD 64 "
- NAVAL ARCHITECTURE 48 "
- COMPUTERS 48 "
- SHIP'S EXPLOITATION 48 "
- METEOROLOGY 48 "
- AUTOMATION 64 "
- HYGIENE & FIRST AID 32 "
- MARITIME LAW 48 "
- SHIPPING ECONOMICS 48 "
- LANGUAGES (ENGLISH AND ARABIC) 128 "

2. PRACTICAL COURSES.

- SIMULATOR & PLOTTING 64 "
- FIRE FIGHTING 16 "
- PHYSICAL EDUCATION & SURVIVAL 48 "

AT THE END OF THE THIRD YEAR, SUCCESSFUL STUDENTS ARE GRANTED A FOREIGN-GOING MATE DIPLOMA (DIPLOME DE LIEUTENANT AU LONG COURS).
THE END OF THE THIRD YEAR IS ALSO THE START OF THE REAL
SEA TRAINING. INDEED, STUDENTS ARE REQUIRED TO COMPLETE 24
MONTHS' SEA SERVICE BEFORE THEY WOULD BE ALLOWED TO
ATTEND THE FOURTH YEAR OF STUDY.
HOWEVER, IT IS IMPORTANT TO NOTE THAT THE 24 MONTHS SEA-
SERVICE SHOULD BE COMPLETED AS FOLLOWS:

1. TWELVE (12) MONTHS SEA SERVICE AS CADET ABOARD MERCHANT SHIPS OF WHICH 8 MONTHS SHOULD BE SPENT ABOARD SHIPS OPERATING IN FIRST CATEGORY TRADING ZONES
   (1). UPON COMPLETION OF 12 MONTHS SEA SERVICE, A FOREIGN-GOING MATE CERTIFICATE OF COMPETENCY IS ISSUED BY THE COMPETENT MARITIME ADMINISTRATION. THIS CERTIFICATE GIVES THE RIGHT TO SERVE AS MATE (WATCH KEEPING OFFICER) ABOARD ANY VESSEL IN ANY TRADE.

2. TWELVE (12) MONTHS SEA SERVICE AS MATE ABOARD MERCHANT VESSELS TRADING IN 1st OR 2nd CATEGORY ZONES.

FOR THE UNDERSTANDING OF THE DIFFERENT TRADING ZONES, THE FOLLOWING DEFINITIONS ARE GIVEN.

(1). "NAVIGATION OF 4th CATEGORY": NAVIGATION WITHIN PORTS, HARBOURS, AND ROADS.

(2). "NAVIGATION OF 3rd CATEGORY": NAVIGATION ALONG THE ALGERIAN COAST AND TERRITORIAL WATERS BUT NOT BEYOND 20 MILES FROM THE COAST.

(3). "NAVIGATION OF 2nd CATEGORY": OR AU CABOTAGE: NAVIGATION IN THE MEDITERRANEAN SEA UP TO THE SUEZ CANAL IN THE EAST, IN THE ATLANTIC OCEAN IN THE NORTH BUT NOT BEYOND PARALLEL 50 N, MERIDIAN 20 WEST AND
STUDENTS WHO HAVE COMPLETED THE REQUIRED 24 MONTHS SEA SERVICE ARE ELIGIBLE TO ATTEND THE FOURTH YEAR OF STUDY WHICH LEADS TO A MASTER FOREIGN-GOING DIPLOMA AND AFTER A REQUIRED SEA TIME TO A MASTER MARINER CERTIFICATE OF COMPETENCY. THE FINAL YEAR OF STUDY AIMS MAINLY AT GIVING STUDENTS A LEADERSHIP TRAINING IN THE ADMINISTRATIVE, ECONOMIC AND LEGAL FIELDS. IT ALSO PROVIDES A DEEPER INSIGHT IN TECHNICAL SUBJECTS. AS PART OF THEIR PROGRAM, STUDENTS SPEND A WHOLE WEEK ATTENDING A PRACTICAL FIRE FIGHTING COURSE. THEY ARE ALSO REQUIRED TO SUBMIT A PROJECT PAPER ON A CHOSEN SUBJECT RELATED TO THEIR FIELD OF ACTIVITY AND TO DEFEND IT SUCCESSFULLY.

THE FOURTH YEAR CURRICULUM OF STUDY IS AS FOLLOWS:

1. THEORETICAL COURSES.

- NAVIGATION 32 HOURS
- SAFETY 64 "
- NAVAL ARCHITECTURE 96 "
- SHIP’S EXPLOITATION 96 "
- RULES OF THE ROAD & CHARTS 96 "
- METEOROLOGY 48 "
- AUTOMATION 64 "
- MANOEUVRE 64 "
- MARITIME LAW 64 "
- PENAL LAW 48 "
- INTERNATIONAL PUBLIC LAW 80 "
- SHIPPING ECONOMICS 64 "
- ACCOUNTANCY 96 "

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2. PRACTICAL COURSES.

- SIMULATOR & PLOTTING 32 "
- FIRE FIGHTING 16 "
- RADIO COMMUNICATIONS 16 "
- PHYSICAL EDUCATION & SURVIVAL 48 "

AT THE END OF THE FOURTH YEAR, A FINAL EXAMINATION IS CARRIED OUT. SUCCESSFUL STUDENTS ARE GRANTED A FOREIGN-GOING MASTER DIPLOMA. STUDENTS REGRETTABLY DO NOT RECEIVE AN ACADEMIC DEGREE. THE PROFESSIONAL CERTIFICATE INTITLES THE Holder TO SERVE AS CHIEF OFFICER ABOARD OCEAN-GOING VESSELS. THE MASTER CERTIFICATE OF COMPETENCY IS DELIVERED BY THE MARITIME ADMINISTRATION UPON COMPLETION OF 24 MONTHS SEA SERVICE OF WHICH 12 MONTHS AT LEAST SHOULD BE SPENT ABOARD VESSELS OPERATING IN A 1st CATEGORY TRADING ZONE. THE MASTER POSITION IS GENERALLY REACHED AFTER 5 TO 6 YEARS SEA SERVICE. FROM THE TIME A MASTER DIPLOMA HAS BEEN GRANTED, THERE IS NO FURTHER EDUCATION. AT PRESENT, THE ACADEMY DOES NOT OFFER ANY UPDATING OR REFRESHER COURSES.
PRESENT STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN ALGERIA

- Completion of 12 years general education.
- Competitive entrance examination.
- 3 years shorebased studies.
- Mate foreign-going diploma.
- 12 months controlled sea service as cadet.
- Mate certificate of competency.
- 12 months sea service as mate.
- 1 year shorebased studies.
- Master diploma.
- 24 months non-controlled sea service.
- Master certificate of competency.
SOME OF THE POLICY CONSIDERATIONS THAT HAVE TO BE TAKEN INTO ACCOUNT BY A DEVELOPING COUNTRY WHEN IT ESTABLISHES A SYSTEM OF MARITIME EDUCATION.
CHAPTER VIII

SOME OF THE POLICY CONSIDERATIONS THAT HAVE TO BE TAKEN INTO ACCOUNT BY A DEVELOPING COUNTRY WHEN IT ESTABLISHES A SYSTEM OF MARITIME EDUCATION.

1. IT IS SAID THAT THE MOST ABUNDANT RESOURCES AVAILABLE IN MOST DEVELOPING COUNTRIES ARE HUMAN RESOURCES. EVEN ECONOMISTS OF LATE HAVE COME TO BELIEVE THAT NATIONAL ECONOMIC DEVELOPMENT IS CLOSELY LINKED TO HUMAN RESOURCE DEVELOPMENT. IT IS TO MY OWN BELIEF THE MOST IMPORTANT PRECONDITION FOR ANY DEVELOPING COUNTRY TO REACH THE REQUIRED LEVEL OF DEVELOPMENT. SINCE ITS INDEPENDENCE IN 1962, ALGERIA HAS ALWAYS GIVEN HUMAN RESOURCE DEVELOPMENT TOP PRIORITY. REGARDING THE MARITIME SECTOR, THE SETTING-UP OF THE MERCHANT MARINE ACADEMY HAS UNDOUBTEDLY ACCELERATED THE "ALGERIA-NIZATION" OF THE NAVIGATING MARINE PERSONNEL ABOARD OUR NATIONAL MERCHANT SHIPS. INDEED, THE ACADEMY WHICH WAS DESCRIBED IN THE PREVIOUS CHAPTER HAS NOT ONLY BEEN ABLE TO SUPPLY THE COUNTRY WITH HIGHLY QUALIFIED MARINE OFFICERS BUT HAS ALSO BEEN PLAYING AN IMPORTANT ROLE ON THE INTERNATIONAL SCENE IN ASSISTING CERTAIN DEVELOPING COUNTRIES MAINLY, FROM AFRICA AND THE ARAB WORLD IN TRAINING A SIGNIFICANT PART OF THEIR MARINE PERSONNEL NEEDS. SINCE 1974, THE ACADEMY HAS TRAINED ABOUT 1400 NATIONAL NAVIGATING OFFICERS OF ALL RANKS AND SPECIALITIES. IN 1987 THE ALGERIAN FLEET, WHICH HAS A TOTAL NUMBER OF 78 VESSELS OF ALL TYPES HAS BEEN 95% MANNED BY NATIONALS. IT IS EXPECTED THAT IN A FEW YEARS' TIME THE NATIONAL FLEET WILL BE COMPLETELY ALGERIANIZED."
2. When the Algerian Merchant Marine Academy was established in 1974, its prime objective was to train the maximum possible number of nationals who could in a rather short time reduce the dependence on foreign expatriates and eliminate it definitively in the long term. At that time, the choice of a proper system of maritime education did not raise. As most of the developing countries, Algeria inherited its present system from one of the major advanced nations because of colonial and historical reasons. The appropriateness of such a system to our local conditions and to the international standards of maritime training is in my personal view still open to question. Indeed, when choosing a system of maritime education one should always bear in mind the implications it might create. Maritime education does not only concern people but also involves the general education system of the country. Maritime education should be an integrated part of the whole system of education. The advantages of such an integrated system and the inter-relationship between maritime and general education will be dealt with in part one of the next chapter. The present Algerian system of maritime education differs from those of developed countries. These same countries because of availability of capital and experts in maritime training have been reviewing and changing their own system in order to keep it abreast, updated and adapted to the technological changes that have occurred to the world shipping industry. Developing countries in their majority have for different reasons still maintained the colonial system they inherited.
3. Another important factor that should be considered when formulating a maritime training system is a sound organization of the maritime administration which should in turn provide for a proper maritime legislation. Maritime education should not be looked at separately. Maritime education, examination, certification administration and legislation are interrelated elements that have to be dealt with integrally. This global approach needs, of course, a sound organization. An emerging country should start its maritime education activities by focusing on organization. The process of organization should include the formulation of an adequate training policy in conformity with the maritime legislation of the country which should itself conform to the international agreements and conventions. Maritime training cannot be effective if the programs of training do not conform to the latest standards and if they are not fixed in a national law. In the case of my country, the maritime administration has achieved a substantial growth of organization and performance. It provided the country in 1976 with a proper maritime legislation known under the term of "Maritime Code", which regulates all the country's maritime activities. Algeria, which is an active member of the International Maritime Organization (IMO) has ratified and implemented most of IMO conventions. The Algerian Maritime Code contains all the regulatory instruments relating to seafarers including training and certification. The certification structure does not however conform in my personal point of view to the international standards. It will be discussed in the next chapter. The International Convention on Standards of Training, Certification and Watch-keeping for Seafarers (STCW-1978) which represents the first set
OF INTERNATIONALLY AGREED TECHNICAL STANDARDS FOR THE TRAINING AND LICENSING OF SEAFARERS HAS NOT YET BEEN RATIFIED BY ALGERIA FOR THE SIMPLE REASON THAT WE DO BELIEVE THAT THE EXISTING ALGERIAN LEVEL OF MARITIME EDUCATION IS ABOVE THE STATUTORY MINIMUM REQUIREMENTS PRESCRIBED BY THE 1978 STCW CONVENTION. HOWEVER, I WOULD LIKE TO POINT OUT THAT ALGERIA HAS DEVELOPED THE TRAINING PROGRAMS IN SUCH A WAY THAT THE STCW CONVENTION MINIMUM REQUIREMENTS ARE COMPLIED WITH.

4. ONE OF THE MAJOR AND SERIOUS FACTORS THAT HAS TO BE TAKEN INTO ACCOUNT BY DEVELOPING COUNTRIES WHEN DESIGNING THEIR TRAINING PROGRAMS IS THE HIGHLY COMPETITIVE NATURE OF THE INTERNATIONAL SHIPPING INDUSTRY, WHICH HAS RESULTED IN THE DEVELOPMENT OF HIGHLY SOPHISTICATED SHIPBOARD TECHNOLOGY. IT MUST ALWAYS BE BORNE IN MIND THAT THE ESTABLISHMENT OF ANY TRAINING PROGRAM WHETHER IN DEVELOPED OR IN DEVELOPING COUNTRIES SHOULD FORESEE THE TECHNOLOGICAL DEVELOPMENTS THAT HAVE ALREADY BEEN ACHIEVED AND THOSE EXPECTED TO BE ACHIEVED IN THE FUTURE, WHETHER THESE DEVELOPMENTS HAVE BEEN INTRODUCED OR NOT IN THE NATIONAL FLEET. IT IS OF PARAMOUNT IMPORTANCE FOR TRAINING ESTABLISHMENTS TO TAKE INTO ACCOUNT THESE TECHNOLOGICAL CHANGES IN SHIPPING AND TO ATTEMPT TO ANTICIPATE THE FUTURE TRENDS. FOR DEVELOPING COUNTRIES SUCH AS MY COUNTRY WHICH POSSESSES AN IMPORTANT MERCHANT FLEET, THE INTRODUCTION OF INCREASED AUTOMATION, THE RATIONALIZATION OF CREW ORGANIZATION AND OPERATIONAL PRACTICES AND THE FUTURE MARINE DISTRESS AND SAFETY SYSTEM FROM 1990 ARE MATTERS OF ECONOMIC CONSIDERATIONS WHICH HAVE TO BE FACED URGENTLY. THIS CERTAINLY NEEDS A DRASTIC
CHANGE IN EDUCATIONAL METHODS AND PROGRAMS. DEVELOPING COUNTRIES WILL NOW OR LATER HAVE TO ADAPT THEIR TRAINING PROGRAMS TO THIS DEVELOPING SHIPPING TECHNOLOGY. FACING THE EVER-DEVELOPING SHIPPING TECHNOLOGY IS HOWEVER MORE DIFFICULT IN DEVELOPING COUNTRIES THAN IN INDUSTRIALIZED ONES. DEVELOPING COUNTRIES DO NOT BUILD FOR THEMSELVES THE VESSELS NEEDED FOR THEIR Fleets. THEY ALL DEPEND ON FOREIGN SHIPYARDS. THE MAJORITY OF DEVELOPING COUNTRIES PURCHASE MODERN SHIPS BUILT ACCORDING TO THE LATEST DEVELOPMENTS IN SHIPPING TECHNOLOGY WITHOUT PARTICIPATING IN ANY RESEARCH WORK WHICH PRECEDES ANY DEVELOPMENT FOR THE SIMPLE REASON THAT THEY DO NOT POSSESS THE PROPER SCIENTIFIC INSTITUTIONS WHICH COULD FOLLOW UP THE PROGRESS IN SHIPPING TECHNOLOGY AND KEEP THE COUNTRY ABREAST OF ALL NEW DEVELOPMENTS. IN IMITATING INDUSTRIALIZED COUNTRIES, DEVELOPING COUNTRIES HAVE CREATED FOR THEMSELVES THE PROBLEMS THEY ARE FACING NOWADAYS.

BECAUSE OF THE LONG LEAD-TIMES INVOLVED IN MARITIME TRAINING, WHICH SOMETIMES REPRESENT UP TO 12 YEARS INCLUDING SHOREBASED EDUCATION AND SHIPBOARD TRAINING, IT IS A MUST FOR TRAINING ESTABLISHMENTS OF DEVELOPING COUNTRIES TO DESIGN THEIR TRAINING PROGRAMS ACCORDING TO THE FUTURE DEVELOPMENTS IN SHIPPING TECHNOLOGY. TO DO SO, THE FOLLOWING MEASURES MAY HELP DEVELOPING COUNTRIES TO DEVELOP THEIR TRAINING PROGRAMS IN THE SAME MANNER FOLLOWED BY THE ADVANCED MARITIME NATIONS:

1). ESTABLISHMENT OF CULTURAL AND PROFESSIONAL RELATIONS WITH RELEVANT INSTITUTIONS OF DEVELOPED COUNTRIES.
2). REGULAR ATTENDENCE TO IMO MEETINGS.
3). PARTICIPATION IN SEMINARS AND INTERNATIONAL
CONFERENCES.
4) ENCOURAGING MEMBERS OF THE STAFF TO UNDERTAKE RESEARCH WORK.
5) ENCOURAGING MEMBERS OF THE STAFF TO UNDERTAKE HIGHER MARINE STUDIES.
6) SUBSCRIPTION IN TECHNICAL AND NAUTICAL PERIODICALS
7) ESTABLISHMENT OF CLOSE RELATIONS WITH INTERNATIONAL ORGANIZATIONS.
8) ESTABLISHMENT OF CONTINUOUS RELATIONS WITH PORTS, SHIPOWNERS AND OPERATORS.
9) PARTICIPATION IN RESEARCH ACTIVITIES AT NATIONAL AND INTERNATIONAL LEVELS.

5. IN CONCLUSION, IT CAN BE SAID THAT ONE OF THE MAJOR PROBLEMS OF MARITIME TRAINING INSTITUTIONS IN DEVELOPING COUNTRIES IS THEIR FAILURE TO FACE THE EVER DEVELOPING TECHNOLOGY IN THE SHIPPING INDUSTRY. IN MY COUNTRY, THE MERCHANT MARINE ACADEMY IS FACING THE SAME PROBLEMS AS DESCRIBED ABOVE. AS IN MOST DEVELOPING COUNTRIES, MARITIME TRAINING AND RESEARCH ARE NOT GIVEN THE NECESSARY ATTENTION WHICH SHOULD BE EXPECTED. THE ALGERIAN MERCHANT MARINE ACADEMY DOES EVEN FACE A TREMENDOUS DIFFICULTY IN RAISING THE MINIMUM REQUIRED BUDGET. BECAUSE OF LACK OF FUNDS, NEITHER RESEARCH HAS BEEN UNDERTAKEN NOR HAS THE ACADEMY ESTABLISHED CULTURAL AND PROFESSIONAL RELATIONS WITH SIMILAR FOREIGN ACADEMIES. IT IS VERY RARE THAT MEMBERS OF THE STAFF DO PARTICIPATE IN INTERNATIONAL MEETINGS. THE TRAINING EQUIPMENT IS ALMOST OUTDATED AND DOES NOT RESPOND ANYMORE TO THE REQUIREMENTS OF A MODERN MARITIME TRAINING. MANY ATTEMPTS HAVE BEEN MADE TO DRAW THE ATTENTION OF THE AUTHORITIES CONCERNED TO THE NECESSITY TO ACQUIRE MODERN TRAINING EQUIPMENT SUCH AS SIMULATORS WHICH AT PRESENT REPRESENT THE MOST ADEQUATE
AND DESIRABLE TRAINING TOOLS. UNFORTUNATELY, ALL THESE
ATTEMPTS FAILED NOT ONLY BECAUSE OF LACK OF CAPITAL
BUT ALSO BECAUSE OF THE NON-INVOlVEMENT OF THE DECISION
MAKERS IN MARITIME TRAINING AND THEIR MISUNDERSTANDING
OF THE REAL IMPORTANCE OF MARITIME TRAINING.
THE EXISTING RELATION BETWEEN THE ACADEMY AND OUR
NATIONAL SHIPPING COMPANIES IS SOLELY LIMITED TO THE
TRAINING OF THESE COMPANIES’ PERSONNEL NEEDS. THERE DOES
NOT EXIST ANY FURTHER CONSULTATION IN RESEARCH WORK OR
EDUCATIONAL MATTERS.
IN CONCLUDING THIS SECTION, IT IS PERHAPS APPROPRIATE
TO EMPHASIZE THAT TRAINING OF SEAFARERS IS NOT THE ONLY
RESPONSIBILITY OF THE TRAINING INSTITUTION BUT THE
INVoLVEMENT OF ALL PARTIES CONCERNED IS I BELIEVE A
WISE ATTEMPT TOWARDS THE OVERALL ECONOMIC DEVELOPMENT
OF THE NATION.
CHAPTER IX

THE NEW PROPOSED SYSTEM OF TRAINING OF MASTER MARINERS
FOR ALGERIA.
THE NEW PROPOSED SYSTEM OF TRAINING OF MASTER MARINERS.

IN THIS CHAPTER I WOULD LIKE TO ATTEMPT TO PROPOSE A NEW SYSTEM OF TRAINING OF FOREIGN-GOING MASTER MARINERS FOR ALGERIA. I AM AWARE OF THE FACT THAT I AM NOT AN EXPERT IN MARITIME EDUCATION AND TRAINING. HOWEVER, AFTER TWO YEARS OF STUDIES AT THE WORLD MARITIME UNIVERSITY WHERE I HAVE HAD THE OPPORTUNITY TO STUDY, UNDERSTAND AND ANALYSE DIFFERENT SYSTEMS OF MARITIME EDUCATION AND TRAINING OF CERTAIN DEVELOPED COUNTRIES MAINLY THOSE WHICH ARE CONSIDERED TRADITIONAL MARITIME NATIONS, I THEREFORE FEEL AND BELIEVE THAT I AM IN A POSITION TO MAKE SOME PROPOSALS WHICH IN MY PERSONAL POINT OF VIEW COULD BEST SUIT MY COUNTRY.

IN CHAPTER VII, I HAVE ATTEMPTED TO COMPARE DIFFERENT SYSTEMS OF MARITIME EDUCATION OF EIGHT DEVELOPED COUNTRIES. THE AIM OF THAT STUDY WAS TO DISTIL AND SORT OUT THE COMMON ELEMENTS AND THE DIFFERENCES THAT COULD EXIST AMONG THOSE SYSTEMS AND TO COMPARATIVELY SITUATE THE ALGERIAN SYSTEM. I WOULD LIKE, HOWEVER, TO STRESS THAT IT IS NOT MY INTENTION TO COPY ANY SYSTEM BUT TO PROPOSE CERTAIN ELEMENTS THAT ARE INTERNATIONALLY AGREED UPON AND FINALLY A SYSTEM THAT COULD BE EASILY IMPLEMENTED IN ALGERIA, FROM WHICH BOTH THE COUNTRY AND THE SEAFARERS COMMUNITY COULD GAIN.

I HAVE DIVIDED THIS CHAPTER INTO TWO PARTS. IN THE FIRST PART, I WOULD LIKE TO REVIEW THE WHOLE STRUCTURE OF THE HIGHER VOCATIONAL EDUCATION AND TO PROPOSE A NEW ORGANIZATION WHICH COULD LEAD THE COUNTRY TO THE REQUIRED LEVEL OF DEVELOPMENT. THE NEW SYSTEM OF TRAINING OF MASTER MARINERS WILL BE DEALT WITH IN THE SECOND PART.
PART I

A PROPOSED ORGANIZATION FOR HIGHER EDUCATION.
A NEED FOR A REORGANIZATION OF HIGHER VOCATIONAL EDUCATION.

In Algeria each ministry has its own academy, school or institute providing the required personnel needs for a specific sector of activity. Some ministers have even more than one school. For instance, the Ministry of Transport besides the Merchant Marine Academy also has an Aviation School, a Railway School, a Road Transport School and a Higher Meteorology School. Some of these schools are pedagogically under the control of the Ministry of Higher Education while others, the majority, are not.

The higher vocational education system has been a success in Algeria since it provided the country in a short period of time with highly qualified manpower for all the sectors of the economy. However, this system besides the advantages it procures also has certain disadvantages which have started, in my view, to burden the economic development of the country.

As I have already mentioned, the majority of higher vocational schools are outside the university system. Such system is somewhat punishing those students who for mainly social reasons have chosen a vocational stream. Indeed, at the end of their professional education these students do not receive any academic degree which could allow them to pursue post-graduate studies at a university level. Their professional degree is not even recognized by the university system. They feel rejected, completely neglected and not given any possibility to develop their knowledge and skills at a higher level.

The Algerian concept of vocational training has been introduced after the independence when the country faced
A complete shortage of skilled human resources. Its objective was to train the maximum possible number of nationals in a minimum period of time as compared to the university system which requires generally longer periods. Currently this concept is no longer valid. The country has reached a certain degree of development which requires quality more than quantity.

In most of the developed countries that I have described higher vocational education including maritime education is an integrated part of the whole general education system. There is no distinction between general education and vocational training. They both form a single system intended to give one greater opportunities to develop his/her inventive capabilities on a scientific basis.

In my country they are completely separated and generate a lot of problems some of which were mentioned above.

To highlight the present Algerian system, the following example may be given. For a fresh secondary-school graduate wishing to pursue university graduate studies leading to a bachelor of science degree in the teaching profession for instance, he/she is only required to hold a leaving secondary-school certificate (baccalaureate) and to attend a four (4) years course. While for a student wishing to be enrolled at the merchant marine academy, he is not only required to hold a baccalaureate certificate but also to successfully pass an entrance examination. The length of study is four (4) years shorebased education and four (4) years shipboard training for a master certificate. At the end of their respective education the first student will be holding an academic degree (bachelor of science) which will give him access to post-graduate studies and will therefore upgrade both his position and knowledge while the second student will only be awarded a professional certificate without any
POSSIBILITY TO FURTHER HIS EDUCATION AT A HIGHER UNIVERSITY LEVEL DESPITE THE HEAVY BURDEN OF RESPONSIBILITY HE CARRIES IN TAKING CONTROL OF A MULTI-BILLION INVESTMENT PLANT (VESSEL) AND PROUDLY REPRESENTING THE COUNTRY ABROAD AS COMPARED TO THE FIRST STUDENT.

THE PROBLEM OF EQUIVALENCE OF DEGREES HAS BEEN DISCUSSED MANY TIMES WITHOUT REACHING NEITHER A COMPROMISE NOR AN EQUITABLE AND DEFINITIVE SOLUTION. EVERYONE IS I BELIEVE AWARE OF ITS IMPORTANCE TO ATTRACT YOUNG PEOPLE FOR A SEAFARING CAREER AS IT IS DONE IN ALL DEVELOPED COUNTRIES MOST OF THE MINISTERS HAVE SEPARATELY ATTEMPTED TO CALL THE MINISTRY OF HIGHER EDUCATION FOR A COMPREHENSIVE SOLUTION, BUT VERY FEW SUCCEEDED BECAUSE OF THEIR SPECIFIC FIELD OF ACTIVITY. IN THIS CONTEXT AND AS A GENERAL ATTEMPT I WOULD LIKE TO PROPOSE THE FOLLOWING:

ALL SCHOOLS PROVIDING HIGHER VOCATIONAL EDUCATION SHOULD BE TAKEN OVER BY THE MINISTRY FOR HIGHER EDUCATION AND INTEGRATED INTO THE GENERAL EDUCATION SYSTEM. THE MINISTRY FOR HIGHER EDUCATION SHOULD BE RECOGNIZED AS THE ONLY OFFICIAL AUTHORITY IN CHARGE OF ALL KINDS OF HIGHER EDUCATION. IN ORDER TO ADEQUATELY RUN THE VOCATIONAL TRAINING SCHOOLS, THE MINISTRY FOR HIGHER EDUCATION SHOULD BE PROVIDED WITH THE NECESSARY FINANCIAL RESOURCES. THEREFORE EACH BUDGET WHICH IS ALLOCATED TO EACH MINISTER FOR EDUCATIONAL PURPOSES SHOULD BE TRANSFERRED TO THE MINISTRY FOR HIGHER EDUCATION AS BEING A CONTRIBUTIVE PART OF EACH MINISTER TO HIGHER EDUCATION.

A CONSTANT AND COOPERATIVE RELATIONSHIP SHOULD EXIST BETWEEN THE MINISTRY FOR HIGHER EDUCATION AND ALL MINISTERS.

THE MINISTRY FOR HIGHER EDUCATION SHOULD TAKE ALL NECESSARY STEPS SO THAT THE PERSONNEL NEEDS OF EACH MINISTER ARE PROVIDED QUALITATIVELY AND QUANTITATIVELY.
AS FAR AS VOCATIONAL TRAINING IS CONCERNED, EACH SCHOOL SHOULD ISSUE TO EACH STUDENT AT THE END OF HIS-HER VOCATIONAL TRAINING AN ACADEMIC CERTIFICATE OR DEGREE SHOWING THE STUDENT LEVEL WITHIN THE GENERAL EDUCATION SYSTEM AND A PROFESSIONAL CERTIFICATE. FOR CERTAIN SPECIFIC AREAS OF ACTIVITY SUCH AS THE MARITIME FIELD, THE MINISTRY CONCERNED FOR INSTANCE THE MINISTRY OF TRANSPORT SHOULD BE ASSOCIATED IN ISSUING CERTIFICATES OF COMPETENCY. EXAMINATION OF CERTIFICATED SEAFARERS SHOULD BE CARRIED OUT BY A BOARD OF EXAMINORS OF THE MINISTRY OF TRANSPORT. TRAINING, EXAMINATION AND CERTIFICATION OF SEAFARERS WILL BE DEALT WITH IN PART TWO OF THIS CHAPTER. THE ADVANTAGES OF SUCH AN INTEGRATED SYSTEM OF EDUCATION CAN BE SUMMARIZED AS FOLLOWS:

1) THERE WILL BE ONLY ONE AUTHORITY DEALING WITH HIGHER EDUCATION AND HIGHER VOCATIONAL TRAINING.

2) THERE WILL BE A SINGLE INTEGRATED SYSTEM OF HIGHER EDUCATION.

3) THERE WILL BE NO DISCRIMINATION BETWEEN HIGHER EDUCATION AND HIGHER VOCATIONAL TRAINING. STUDENTS WILL FEEL THAT THEY BELONG TO ONLY ONE SYSTEM OF EDUCATION.

4) MATTERS PERTAINING TO EDUCATION SUCH AS CONCEPT AND POLICY OF DEVELOPMENT WILL BE DEALT WITH INTEGRALLY BY A SINGLE AUTHORITY AND EASILY IMPLEMENTED IF THERE ARE SEVERAL AUTHORITIES.

5) GRADUATES OF HIGHER VOCATIONAL SCHOOLS WILL HAVE GREATER OPPORTUNITIES TO FURTHER THEIR EDUCATION AT A HIGHER UNIVERSITY LEVEL FOR THE BENEFIT OF THE
6). Under a unique authority in charge of higher education there will be a common policy of development of all kinds of higher education. At present, because of their weight in the economic development of the country certain sectors are given priority over others.

7). The term of "vocational training" will be given its real significance. Presently, people define it as being a lower level education providing a specialized training for those who have been rejected by the general school system.

8). The new proposed organization will introduce a great change in the so-called "traditional university studies". Certain fields of study which are nowadays completely neglected could be introduced and developed at the university system. The Algerian university will be no longer confined in the sole teaching of "traditional subjects". As far as maritime education is concerned, postgraduate studies in marine fields will be introduced at the university system because of the new demand which will be coming from graduates of maritime schools. In doing so the country will be less dependent on foreign countries for the training of maritime experts. The same procedure applies to other fields of activity.

9). Centers for scientific research will be developed. At present the country does not possess any maritime research institution. The ministry for
HIGHER EDUCATION WHICH GENERALLY UNDERTAKES
RESEARCH WORK MAY ARGUE THAT MARITIME ACTIVITIES
ARE NOT INCLUDED IN ITS DOMAIN OF COMPETENCY, WHILE
FOR THE MINISTRY OF TRANSPORT MARITIME RESEARCH
IS NOT THE TOP PRIORITY. THE INTRODUCTION OF POST
GRADUATE STUDIES WITHIN THE UNIVERSITY SYSTEM WILL
CERTAINLY LEAD IN THE LONG TERM TO THE DEVELOPMENT
AND ESTABLISHMENT OF MARITIME RESEARCH ACTIVITIES.

THESE ARE SOME OF THE ADVANTAGES THE COUNTRY WILL BENEFIT
FROM IF THE NEW PROPOSED ORGANIZATION FOR HIGHER
EDUCATION IS TO BE IMPLEMENTED IN MY COUNTRY. I AM AWARE
OF THE FACT THAT THIS PROPOSED ORGANIZATION IS NOT A
PERFECT ONE. HOWEVER IT IS HOPED THAT IT CAN SERVE AS A
GUIDANCE FOR ESTABLISHING A PROPER ORGANIZATION. I WOULD
LIKE TO POINT OUT THAT FROM THE COMPARATIVE STUDY IT CAN
BE SEEN THAT MOST OF THE COUNTRIES DESCRIBED HAVE CHOSEN
A SIMILAR APPROACH IN OVERCOMING THEIR EDUCATIONAL
PROBLEMS IN TERMS OF ORGANIZATION. IT IS NOT MY INTENTION
AS I HAVE ALREADY STATED TO COPY ANY SYSTEM BUT OTHERS' EXPERTISE WHEN ADAPTED TO NATIONAL CONDITIONS CAN
APPROPRIATELY LEAD THE COUNTRY TO IMPROVE ITSELF TO THE
REQUIRED LEVEL OF DEVELOPMENT.

FINALLY, I WOULD LIKE TO MENTION THAT THIS PROPOSAL IS A
MOST SINCERE ATTEMPT TO ASSIST MY COUNTRY IN ESTABLISHING
A PROPER INTEGRATED SYSTEM OF EDUCATION.
PART II

HE NEW PROPOSED SYSTEM OF TRAINING FOR MASTER MARINERS.
PART II.

THE NEW PROPOSED SYSTEM OF TRAINING OF MASTER MARINERS.

1. AUTHORITY IN CHARGE OF MARITIME EDUCATION.

In part one of this chapter, I have proposed that maritime education should be integrated in the general education system. Therefore the Ministry for Higher Education will be in charge of maritime education and training as it is the case in most developed countries. The advantages of having an integrated system of education have already been discussed.

2. BOARD OF MARITIME EDUCATION AND TRAINING.

Since maritime activities are dealt with by the Ministry of Transport and educational matters by the Ministry for Higher Education, a joint board of maritime education and training should be set up to consider and supervise all matters pertaining to the training of merchant navy officers, ratings and other sea-going personnel. The board should be composed of representatives of the Ministry of Transport representing all interests connected to the training of merchant navy personnel, representatives of the Ministry of Defense (Navy) and representatives of the Ministry for Higher Education. The secretariat of the board should be provided by the Ministry for Higher
EDUCATION IN ALGIERS. THE BOARD SHOULD BE AN ADVISORY
BODY AND ITS FUNCTION IS TO CONSIDER ALL QUESTIONS
RELATING TO THE EDUCATION AND TRAINING OF SEAGOING
PERSONNEL, PORTS AND ADMINISTRATION.
THE BOARD IS REQUIRED IN PARTICULAR:

(i) TO ADOPT AND REVIEW FROM TIME TO TIME THE
SYLLABUS FOR THE TRAINING OF MERCHANT NAVY
PERSONNEL, PORTS AND ADMINISTRATION,

(ii) TO TAKE ANY MEASURES AS MAY BE NECESSARY FOR
THE BUILDING UP OF AN ADEQUATE, EFFICIENT AND
DEVOTED MERCHANT NAVY PERSONNEL,

(iii) TO RECOMMEND THE NUMBER OF TRAINEES TO BE
RECRUITED EACH YEAR AND FOR EACH TYPE OF
TRAINING,

(iv) TO CONSIDER AND RECOMMEND THE INTRODUCTION
OF NEW COURSES OF STUDY,

(v) TO MAINTAIN CLOSE CONTACTS WITH COMPARABLE
TRAINING INSTITUTIONS ABROAD WITH A VIEW TO
KEEPING ABREAST OF THE NEW DEVELOPMENTS AND
IMPROVEMENTS IN MARITIME EDUCATION AND
TRAINING,

(vi) TO CONSIDER AND RECOMMEND THE ACQUISITION OF
MODERN TRAINING EQUIPMENT,

(vii) TO FORM A SMALL COMMITTEE TO DEAL WITH THE
PROBLEMS OF SIMULATORS AND TRAINING VESSEL,
(viii) To consider and recommend the examination and certification structure for navigating officers,

(ix) To constitute pedagogic inspection teams for periodical inspections of the academy,

The board should meet at least twice a year and more often if required. It should be chaired by the head of the Maritime Academy.

3. Examination of Merchant Navy Officers.

While the Ministry for Higher Education is providing the education and training of merchant navy officers, students of the Merchant Marine Academy should however be assessed by an external board of examiners of the Ministry of Transport. The standards of examination of seafarers for various grades of competency are intended to establish and provide proof of the competence of seafarers for the levels at which they have to perform their duties on board. Examination of seafarers is the first element which determines the standards of safety and efficiency at which the ships of the country are operated. Examination of seafarers should therefore be carried out by a board of examiners directly appointed by the Minister of Transport. Members of the board should be completely independent of the school. This is from my own point of view the best way to establish whether certificated seafarers have acquired the necessary
SKILLS AND COMPETENCE REQUIRED TO SAFELY AND EFFICIENTLY OPERATE OUR NATIONAL FLEET.

4. CERTIFICATION OF MERCHANT NAVY PERSONNEL.

THE ISSUANCE OF VARIOUS CERTIFICATES OF COMPETENCY SHOULD BE THE RESPONSIBILITY OF THE MINISTRY OF TRANSPORT AS WELL. AS IT CAN BE SEEN FROM THE COMPARATIVE STUDY, THE MARITIME ADMINISTRATION (MINISTRY OF TRANSPORT) IS IN ALL THE COUNTRIES DESCRIBED THE ONLY AUTHORITY IN CHARGE OF CERTIFICATION OF SEAFARERS. UPON COMPLETION OF HIS EDUCATION AND AFTER HAVING SUCCESSFULLY PASSED THE REQUIRED ASSESSMENTS AND SEA-SERVICE, EACH STUDENT SHOULD BE AWARDED THE REQUIRED CERTIFICATE OF COMPETENCY WHICH WOULD ENABLE HIM TO PERFORM HIS DUTIES ON BOARD. THE MERCHANT MARINE ACADEMY (MINISTRY FOR HIGHER EDUCATION) SHOULD DELIVER TO THOSE STUDENTS WHO HAVE COMPLETED THEIR EDUCATION AN ACADEMIC DEGREE IN EVIDENCE OF THE STUDENT’S LEVEL WITHIN THE GENERAL EDUCATION SYSTEM.

5. STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF DEEP-SEA MASTERS.

1. ENTRY REQUIREMENTS.

THE ENTRY REQUIREMENTS FOR THE EDUCATION AND TRAINING OF DEEP-SEA MASTERS SHOULD BE KEPT AS THEY ARE AT PRESENT. EACH CANDIDATE SHOULD HAVE COMPLETED 12 YEARS GENERAL EDUCATION AND SUCCESSFULLY PASSED THE FINAL
SECONDARY-SCHOOL EXAMINATION. EACH CANDIDATE SHOULD SUBMIT WITH HIS APPLICATION FORM HIS LEAVING SECONDARY SCHOOL CERTIFICATE (BACCALAUREATE) WITH A SPECIALIZATION IN TECHNICAL SUBJECTS SUCH AS MATHEMATICS AND SCIENCE. CANDIDATES FOR A SEAFARING CAREER SHOULD BE MEDICALLY FIT WITH PARTICULAR REGARD TO HEARING AND EYESIGHT. THEY SHOULD BE OF A GOOD MORAL CHARACTER AND MOTIVATED FOR A SEAFARING LIFE. CANDIDATES SHOULD BE AT LEAST 18 YEARS OF AGE BUT NO MORE THAN 23 AT THE TIME OF THEIR ENROLLMENT. FOR ENTERING, CANDIDATES ARE REQUIRED TO GO THROUGH AN ENTRANCE EXAMINATION WHICH SHOULD COMPRISE SUBJECTS OF THE THIRD YEAR SECONDARY SCHOOL PROGRAM. THE FOLLOWING SUBJECTS ARE PROPOSED:

- MATHEMATICS 02 HOURS
- PHYSICS 02 "
- ELECTRICITY 02 "
- ENGLISH 02 "
- ARABIC 02 "
- SUBJECT OF GENERAL NATURE 01 "
- PHYSICAL EDUCATION 01 "

THE ENTRANCE EXAMINATION SHOULD LAST TWO DAYS AND SHOULD BE HELD IN ORAN, BOU-ISMAIL AND CONSTANTINE FOR THE CONVENIENCE OF CANDIDATES. FOR ADMITTANCE, AN AVERAGE OF 50% MARKS IS REQUIRED. HOWEVER, CANDIDATES SHOULD BE CLASSED IN A PREFERENTIAL ORDER SO THAT THE BEST CANDIDATES ARE RECRUITED. FINALLY, SUCCESSFUL CANDIDATES SHOULD AT THE TIME OF THEIR ENROLLMENT AT THE ACADEMY GIVE AN UNDERTAKING THAT THEY WILL, AFTER COMPLETION OF THE COURSE, SERVE ON BOARD ALGERIAN VESSELS FOR AT LEAST 5 YEARS. IN
ORDER TO EQUALLY DISTRIBUTE THE FUTURE MERCHANT MARINE OFFICERS AMONG OUR NATIONAL SHIPPING COMPANIES, SCHOLARSHIP GRANTS COULD BE INTRODUCED SO THAT AFTER COMPLETION OF THE COURSE EACH SHIPPING COMPANY WOULD RECEIVE A CERTAIN NUMBER OF OFFICERS IT HAS SPONSORED.

2. FIRST YEAR OF STUDY.

THE EDUCATION AND TRAINING OF FOREIGN-GOING MASTER MARINERS SHOULD BE OF FOUR (4) YEARS SHOREBASED EDUCATION AND SIXTY (60) MONTHS SEA-SERVICE. FOR SUCCESSFUL CANDIDATES, THE FIRST YEAR OF STUDY SHOULD START WITH INTRODUCTORY COURSES IN SUBJECTS RELATED TO THE MARITIME PROFESSION AS WELL AS SUBJECTS OF GENERAL NATURE. HOWEVER, SAFETY OF NAVIGATION AND PROTECTION OF THE MARINE ENVIRONMENT SHOULD BE EMPHASIZED. STUDENTS SHOULD ATTEND DURING THEIR FIRST YEAR OF STUDY A PRACTICAL FIRE-FIGHTING COURSE OF THREE DAYS DURATION. THE FIRST YEAR CURRICULUM OF STUDY COULD BE AS FOLLOWS:

1. THEORETICAL COURSES.

- MATHEMATICS
- PHYSICS
- CHEMISTRY
- ELECTRICITY
- ELECTRONICS
- MECHANICS
- SEAMANSHIP
- NAVIGATION
- RULES OF THE ROAD

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2. PRACTICAL COURSES.

- ELECTRONICS
- ELECTRICITY
- SEAMANSHIP
- FIRE FIGHTING AND SURVIVAL
- ROWING
- PHYSICAL EDUCATION

THE ALLOCATION OF TEACHING PERIODS FOR EACH SUBJECT COULD BE DECIDED UPON THE IMPORTANCE OF EACH SUBJECT WITHIN THE OVERALL PROGRAM OF STUDY. HOWEVER, STUDENTS SHOULD ATTEND AT LEAST AN AVERAGE OF 35 LECTURES PER WEEK. EACH LECTURE SHOULD LAST 50 MINUTES.

AT THE END OF THE FIRST YEAR AND DURING THE SUMMER VACATION, ALL STUDENTS SHOULD PARTICIPATE IN A SHIPBOARD TRAINING PROGRAM OF AT LEAST ONE MONTH DURATION AS ORDINARY RATINGS FOR A BASIC FAMILIARITY WITH MERCHANT SHIPS AND THEIR DAY-TO-DAY OPERATION.

2. SECOND YEAR OF STUDY.

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THOSE STUDENTS WHO SUCCESSFULLY PASSED ALL THE ASSESSMENTS REQUIRED DURING THE FIRST YEAR OF STUDY AND PARTICIPATED IN THE SHIPBOARD TRAINING PROGRAM ARE ALLOWED TO ATTEND THE SECOND YEAR OF STUDY. THE SECOND YEAR SHOULD GIVE A DEEPER INSIGHT OF SUBJECTS STUDIED DURING THE FIRST YEAR. IN ADDITION CERTAIN PROFESSIONAL AND LEGAL SUBJECTS COULD BE INTRODUCED SO AS TO GRADUALLY DEEPEN THE PROGRAM PROVIDED. AS IN THE FIRST YEAR, STUDENTS SHOULD TAKE PART IN A SHIPBOARD TRAINING PROGRAM OF ONE MONTH DURATION.

THE SECOND YEAR CURRICULUM OF STUDY COULD BE AS FOLLOWS:

1. THEORETICAL COURSES.

- MATHEMATICS
- PHYSICS
- ELECTRICITY/CHEMISTRY
- ELECTRONICS
- MARINE ENGINEERING
- ELECTRICAL ENGINEERING
- AUTOMATION & SHIP’S MAINTENANCE
- SHIP’S CONSTRUCTION & STABILITY
- NAVIGATION
- RULES OF THE ROAD
- CHARTS
- NAUTICAL INSTRUMENTS
- NAUTICAL CALCULUS
- SEAMANSHIP & MARINE SAFETY
- INTRODUCTION TO COMPUTER SCIENCE
- RADIO COMMUNICATIONS
- MARITIME LAW

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2. PRACTICAL COURSES.

- ELECTRICITY
- ELECTRONICS
- SEAMANSHIP
- RADAR SIMULATOR
- FIRE FIGHTING & FIRST AID
- ROWING AND SURVIVAL
- PHYSICAL EDUCATION

4. THIRD YEAR OF STUDY.

THE THIRD YEAR PROGRAM OF STUDY SHOULD AIM AT PROVIDING STUDENTS WITH A HIGH LEVEL OF NAUTICAL AND TECHNICAL KNOWLEDGE. IT SHOULD THEREFORE COMPRISE MOSTLY TECHNICAL AND PROFESSIONALLY ORIENTED SUBJECTS. HOWEVER LEGAL SUBJECTS HAVE TO BE INCLUDED SO AS TO PROVIDE STUDENTS WITH A BROADER KNOWLEDGE OF COMMERCIAL PRACTICES OF SHIPPING.

THE THIRD YEAR PROGRAM OF STUDY COULD BE AS IT IS SHOWN BELOW:

1. THEORETICAL COURSES.

- NAVIGATION
- NAUTICAL CALCULUS
- RULES OF THE ROAD
2. PRACTICAL COURSES.

- RADAR SIMULATOR
- NAVIGATION SIMULATOR
- FIRE FIGHTING
- ROWING AND SURVIVAL AT SEA
- PHYSICAL EDUCATION

At the end of the third year, all students should participate in a sea-training program of 10 months duration. It should be provided aboard commercially operated merchant ships so as to give students an opportunity to become more familiar with the performance and operating characteristics of merchant ships. Besides performing their shipboard
DUTIES, STUDENTS SHOULD BE GIVEN A "STUDY GUIDE" OR "WORK BOOK" CONTAINING WRITTEN ASSIGNMENTS THEY SHOULD COMPLETE DURING THEIR SHIPBOARD TRAINING. THESE ASSIGNMENTS SHOULD BEFORWARDED TO THE BOARD OF EXAMINORS OF THE MINISTRY OF TRANSPORT VIA THE ACADEMY FOR EVALUATION AND GRADING. THE CONTENTS OF THE WRITTEN ASSIGNMENTS SHOULD BE DECIDED BY THE BOARD OF MARITIME EDUCATION. THEY SHOULD BE DESIGNED TO ENSURE THAT CADETS WHILE PERFORMING THEIR SHIPBOARD TRAINING APPLY THE KNOWLEDGE AND SKILLS LEARNED AT THE ACADEMY. THE SHIPBOARD TRAINING SHOULD ALSO BE AN OPPORTUNITY FOR THE ACADEMY TO ASSIGN A SUBJECT OF SPECIAL INTEREST TO EACH STUDENT ON WHICH THE STUDENT IS REQUIRED TO SUBMIT A PROJECT PAPER AT THE END OF THE FOURTH YEAR AS PART OF HIS ACADEMIC WORK.

DURING THEIR SEA-TRAINING, CADETS SHOULD SPEND AT LEAST 6 MONTHS ON THE DECK DEPARTMENT OF OCEAN GOING VESSELS OF 200 GRT OR MORE.
UPON COMPLETION OF THE SHIPBOARD TRAINING PROGRAM ALL STUDENTS RETURN TO THE ACADEMY TO COMPLETE THEIR ACADEMIC WORK.

THE FOURTH YEAR OF STUDY SHOULD EXCLUSIVELY PROVIDE A LEADERSHIP TRAINING FOR THOSE OFFICERS WHO WILL BE CHARGED WITH FUTURE MANAGEMENT OF SHIPS AND SHIPPING COMPANIES. THE FINAL YEAR SHOULD AIM ALSO AT PROVIDING STUDENTS WITH A LEGAL, COMMERCIAL AND ADMINISTRATIVE TRAINING SO AS TO ENSURE THAT EFFECTIVE AND EFFICIENT FUTURE MANAGEMENT OF SHIPS AND SHIPPING COMPANIES IS BEST PERFORMED.

AS IT HAS BEEN MENTIONED ALREADY, EACH STUDENT SHOULD SUBMIT AND DEFEND SUCCESSFULLY A PROJECT PAPER ON A CHOSEN SUBJECT RELATED TO THE MARITIME INDUSTRY. THE FINAL YEAR PROGRAM OF STUDY COULD BE AS FOLLOWS:

1. THEORETICAL COURSES.

- NAVIGATION
- SAFETY OF LIFE AT SEA
- RULES OF THE ROAD
- METEOROLOGY
- AUTOMATION AND SHIP'S MAINTENANCE
- MANOEUVRE / SAFETY
- MARITIME LAW
- SHIPPING ECONOMICS
- MARITIME INSURANCE
- MARITIME ADMINISTRATION
- COMMERCIAL EXPLOITATION OF SHIPS
- SHIPPING DOCUMENTS
5. FOURTH YEAR OF STUDY.

UPON COMPLETION OF THE SHIPBOARD TRAINING PROGRAM ALL STUDENTS RETURN TO THE ACADEMY TO COMPLETE THEIR ACADEMIC WORK. THE FOURTH YEAR OF STUDY SHOULD EXCLUSIVELY PROVIDE A LEADERSHIP TRAINING FOR THOSE OFFICERS WHO WILL BE CHARGED WITH FUTURE MANAGEMENT OF SHIPS AND SHIPPING COMPANIES. THE FINAL YEAR SHOULD AIM ALSO AT PROVIDING STUDENTS WITH A LEGAL, COMMERCIAL AND ADMINISTRATIVE TRAINING SO AS TO ENSURE THAT EFFECTIVE AND EFFICIENT FUTURE MANAGEMENT OF SHIPS AND SHIPPING COMPANIES IS BEST PERFORMED.

AS IT HAS BEEN MENTIONED ALREADY, EACH STUDENT SHOULD SUBMIT AND DEFEND SUCCESSFULLY A PROJECT PAPER ON A CHOSEN SUBJECT RELATED TO THE MARITIME INDUSTRY. THE FINAL YEAR PROGRAM OF STUDY COULD BE AS FOLLOWS:

1. THEORETICAL COURSES.

- NAVIGATION
- SAFETY OF LIFE AT SEA
- RULES OF THE ROAD
- METEOROLOGY
- AUTOMATION AND SHIP’S MAINTENANCE
- MANOEUVRE / SAFETY
- MARITIME LAW
- SHIPPING ECONOMICS
- MARITIME INSURANCE
- MARITIME ADMINISTRATION
- COMMERCIAL EXPLOITATION OF SHIPS
- SHIPPING DOCUMENTS
2. PRACTICAL COURSES.

- RADAR SIMULATOR
- NAVIGATION SIMULATOR
- FIRE FIGHTING
- ROWING AND SURVIVAL AT SEA
- PHYSICAL EDUCATION

At the end of the fourth year, a final examination should be carried out by the board of examiners of the ministry of transport. Successful students should be granted a third mate certificate of competency by the maritime administration and bachelor of science degree in nautical science by the academy. The professional certificate should give one the right to serve as watch-keeping officer (mate) on board ocean-going vessels of unlimited trading area.

6. FROM THIRD MATE TO MASTER CERTIFICATE.

Candidates for higher grades of competency such as second mate, first mate and master should sit for an examination in order to demonstrate their proficiency and experience. Prior to sit for any examination, each candidate must meet a minimum
QUALIFYING SEA-EXPERIENCE FOR EACH CERTIFICATE OF COMPETENCY REQUESTED AS FOLLOWS:

1). ONE YEAR SEA-SERVICE AS THIRD MATE TO QUALIFY AS SECOND MATE.

2). ONE YEAR SEA-SERVICE AS SECOND MATE TO QUALIFY AS FIRST MATE.

3). TWO YEARS SEA-SERVICE AS FIRST MATE AND A TWO MONTHS SHOREBASED REFRESHING COURSE TO QUALIFY AS MASTER.

7. REFRESHER COURSE.

IN ORDER TO QUALIFY AS MASTER MARINER, EACH CANDIDATE SHOULD COMPLETE THE REQUIRED SEA SERVICE AND ATTEND A REFRESHER COURSE OF TWO MONTHS DURATION. THE REFRESHER COURSE MAY COM普RISE SOME OF THE FOLLOWING SUBJECTS:

- ARPA SIMULATOR COURSE
- SHIP HANDLING SIMULATOR
- BRIDGE PROCEDURES
- TRANSPORT OF DANGEROUS GOODS
- FIRE FIGHTING
- OIL TANKER OPERATION
- LIQUIFIED GAS TANKER OPERATION
- CHEMICAL TANKER OPERATION
- STABILITY AND CARGO SECURING
- SAFETY OF NAVIGATION
- MODERN COMMUNICATION EQUIPMENT
- USE OF COMPUTERS IN SHIPPING
- SHIPPING MANAGEMENT
- MARITIME LAW
- MARITIME INSURANCE
- SHIPPING ECONOMICS
- SHIPPING DOCUMENTS
- SHIP'S ELECTRONICS
- MARITIME ENGLISH
- COMMERCIAL EXPLOITATION OF SHIPS
THE NEW PROPOSED STRUCTURE OF NAUTICAL EDUCATION AND TRAINING OF MASTER MARINERS IN ALGERIA

- Completion of 12 years general education.
- Competitive entrance examination.
- 03 years shorebased studies.
- 10 months sea-service as cadet.
- 01 year shorebased studies.
- Including 02 months shipboard training.
- Examination by M.O.T.
- 3rd mate certificate.
- 01 year non-controlled sea-service.
- Examination by M.O.T.
- 2nd mate certificate.
01 year non-controlled sea-service.

examination by M.O.T.

first mate certificate.

02 years non-controlled sea-service.

02 months shorebased refresher course.

master mariner certificate.
CHAPTER X

CONCLUSIONS AND RECOMMENDATIONS
CHAPTER X.

CONCLUSIONS AND RECOMMENDATIONS.

IT IS PERHAPS APPROPRIATE TO EMPHASIZE THAT THE IDEA BEHIND THIS PAPER IS NOT INTENDED TO SUGGEST AN IDEAL MODEL OF TRAINING FOR MASTER MARINER OR TO COPY ANY SYSTEM BUT TO PROPOSE WHAT IN MY PERSONNEL POINT OF VIEW COULD BEST SUIT MY COUNTRY SO AS MARITIME EDUCATION IN ALGERIA COULD REACH THE REQUIRED LEVEL OF DEVELOPMENT OF THOSE DEVELOPED COUNTRIES. IT IS ALSO TO BE POINTED OUT THAT I AM NEITHER AN EXPERT IN MARITIME EDUCATION AND TRAINING NOR DO I PRETEND TO BE SO. HOWEVER, IT IS HOPED THAT THE PROPOSALS CONTAINED IN THIS PAPER COULD PROVE TO BE OF SOME HELP AND ASSISTANCE TO MY COUNTRY IN ESTABLISHING AND DEVELOPING A PROPER SYSTEM OF MARITIME EDUCATION.

1. IN PART ONE OF CHAPTER IX, I HAVE PROPOSED THAT MARITIME EDUCATION AND TRAINING SHOULD BE INTEGRATED IN THE GENERAL EDUCATION SYSTEM. SOME OF THE ADVANTAGES OF HAVING AN INTEGRATED SYSTEM OF EDUCATION HAVE BEEN DEALT WITH. INDEED WHEN DEVELOPING A SYSTEM OF MARITIME EDUCATION ONE SHOULD FIRST OF ALL BE AWARE OF THE FACT WHETHER COMPETENCY OF SEAFARERS REFERS TO SAFETY AND REGULATORY MATTERS ONLY OR WHETHER IT ENCOMPASSES THE FULL RANGE OF SHIPBOARD DUTIES INCLUDING THE COMMERCIAL AND MANAGERIAL WORK ON THE ONE HAND AND FUTURE SHOREBASED FUNCTIONS ON THE OTHER.

IF A COUNTRY'S STRUCTURE OF CERTIFICATES OF COMPETENCY IS INTENDED PRIMARILY TO COVER MARINE SAFETY ASPECTS ONLY THEN IT IS LIKELY TO HAVE A SYSTEM IN WHICH THE TRAINING PROGRAMS COVER ONLY THE 1978 STCW CONVENTION REQUIREMENTS AND OTHER IMO RECOMMENDATIONS. IN THIS
SYSTEM, CANDIDATES ARE TRAINED FOR A PARTICULAR GRADE
OR LEVEL OF CERTIFICATE REQUIRED. THE TRAINING PROGRAM
COMPRISSES MOSTLY MARINE SAFETY SUBJECTS AND CANDIDATES
DO NOT NEED TO HAVE A HIGHER EDUCATIONAL BACKGROUND.
THE SYSTEM INTENDS TO PROVIDE FOR A SORT OF
PROGRESSION THROUGH FOR INSTANCE THIRD MATE UP TO
MASTER. CANDIDATES FOR HIGHER GRADES OF COMPETENCY SUCH
AS MASTERS ARE ONLY PREPARED FOR SPECIFICALLY SAFETY
SHIPBOARD DUTIES. THE TRAINING PROGRAM DOES NOT COVER
THE OTHER ASPECTS OF SHIPBOARD ACTIVITIES SUCH AS THE
MANAGERIAL AND COMMERCIAL WORK.
MOST DEVELOPING COUNTRIES HAVE OR WILL HAVE A SIMILAR
SYSTEM BECAUSE THEIR IMMEDIATE OBJECTIVE IS A
LEVEL OF TRAINING WHICH COULD MEET THE REQUIREMENTS OF
THE STCW CONVENTION AND OTHER IMO RECOMMENDATIONS.
HOWEVER IT IS PERHAPS WISE TO ATTEMPT TO LOOK AHEAD
AND TRY TO CONSIDER HOW TRAINING OF SEAFARERS COULD BE
BEST ACHIEVED.
IF, ON THE OTHER HAND, A COUNTRY'S MARITIME TRAINING
SYSTEM IS ORIENTED MORE TO "EDUCATION" THAN TO SAFETY
EXAMINATION THEN IT IS LIKELY TO HAVE LONGER COURSES
COMPRISING THE FULL RANGE OF SHIPBOARD DUTIES AND
FUTURE SHOREBASED FUNCTIONS. IN THIS SYSTEM, NOT ONLY
SAFETY MATTERS ARE DEALT WITH BUT ALSO SHIPBOARD
MANAGERIAL ACTIVITIES. INDEED, MANY SHIPPING COMPANIES
HAVE TRANSFERRED MUCH OF THEIR MANAGEMENT FUNCTIONS
FROM SHORE TO SHIP. OTHERS HAVE INTRODUCED NEW REGIMES
THAT DIFFER FROM THOSE TRADITIONALLY USED. CONSEQUENTLY
BOTH COURSES OF ACTIONS HAVE REQUIRED MARINE OFFICERS
TO SEEK ADDITIONAL SKILLS OR REVISE THEIR
TRADITIONAL ATTITUDES. MARINE OFFICERS ARE NOWADAYS
REGARDED AS BEING SKILLED MANAGERS CAPABLE OF MANAGING
AT THEIR RESPECTIVE LEVELS OF RESPONSIBILITY WHILE
STILL RETAINING THEIR BASIC AND FUNDAMENTAL TECHNICAL
DUTIES WITH REGARD TO SAFETY ASPECTS.

THE SYSTEM PROVIDES ALSO AN EDUCATION DIRECTED TOWARDS THE FUTURE SHOREBASED POSITIONS. IN THIS RESPECT, MARITIME EDUCATION AND TRAINING COMES CLOSER TO GENERAL SHORE EDUCATION. THE NEW GENERATION OF SEAFARERS, THOSE WHO MAKE UP THEIR MINDS FOR A SEAFARING CAREER, HAVE NORMALLY FORMED FIRST OPINIONS ABOUT THEIR FUTURE PROFESSIONAL LIFE BEFORE ATTENDING A MARITIME TRAINING. PART OF THEIR CONSIDERATIONS IS A LIMITATION IN TIME OF THEIR SHIPBOARD CAREER. THEY GENERALLY PLAN TO LEAVE THE SEA AFTER A CERTAIN PERIOD OF SEA-SERVICE. OBTAINING AN ACADEMIC DEGREE THAT IS RECOGNIZED ASHORE DURING THEIR MARITIME TRAINING IS FOR THEM SOMETHING WORTHWHILE TO STRIVE FOR AS WELL AS SOMETHING THAT HAS TO BE OFFERED FOR KEEPING THE SEAFARING CAREER ATTRACTIVE. THE INTEGRATION OF MARITIME EDUCATION WITHIN THE GENERAL EDUCATION SYSTEM HAS BECOME TO A GREATER EXTENT A Necessity That Has Been Recognized in Most of the Developed Countries. Many Of the Traditional Maritime Nations Have Long Before Established Maritime Training Programs Along With Other Technical Disciplines Within Their Education System. Others Are Moving to Fully Integrate the Fundamental Knowledge Required for Certificates of Competency Within Courses Leading to Education Awards. The Covering of Traditional Subjects in the Syllabi for Master Mariners Is in Most Cases Not Sufficient for the Award of an Academic Degree. Therefore, Syllabi for Maritime Education Have Been Enriched and the Entrance Qualification Has in Many Countries Been Increased.

In the Case of My Country, the Integration of Maritime Education and Training Within the General Education System and the Award of an Academic Degree Will Not
2. The shipping industry has seen a technological revolution. Shipping is no more seen as it was 40 years ago. Modern, advanced and highly sophisticated ships are designed to carry containers and vehicles, gas and chemicals and all kinds of cargoes to be shifted from one country to another. The use of modern technology has announced a new era of shipboard equipment. Computerized steering control, integrated navigation systems as well as watch-free engine rooms have become an integral part of today’s life. Modern technology aboard has reduced the amount of tasks the seafarer has had to perform and has facilitated his work. In this respect, maritime education has to adapt to these changes through the constant revision of training syllabuses and the introduction of modern training equipment such as audiovisual aids, computers and simulators. The word "simulator" has become an accepted term in maritime training circles and ship simulators have become an established fact in most of the developed countries. Simulators bring maritime training closer to reality than class-room training. In countries where this development has not yet taken place, maritime education and training will still have to adapt to this ever-developing shipping technology. In the case of my country, it is particularly recommended:

1) To revise yearly the curricula of study for
MERCHANT NAVY OFFICERS AND ADAPT IT TO THE TECHNOLOGICAL CHANGES AFFECTING THE SHIPPING INDUSTRY.

2). THE JOINT BOARD OF MARITIME EDUCATION AND TRAINING AS IT HAS BEEN PROPOSED SHOULD CONSTITUTE RESEARCH TEAMS TO INVESTIGATE ON MARITIME EDUCATION AND EXAMINE OTHER COUNTRIES' SYSTEMS SO AS TO BE WELL INFORMED OF THE LATEST DEVELOPMENTS.

3). REPLACEMENT OF THE PRESENT OUTDATED TRAINING EQUIPMENT BY MODERN AND UPDATED ONES.

4). ACQUISITION OF RADAR AND NAVIGATION SIMULATORS SO AS TO PROVIDE A MORE EFFICIENT AND EFFECTIVE TRAINING OF FUTURE MERCHANT MARINE OFFICERS BY THE USE OF MODERN TRAINING TOOLS. THE ACQUISITION OF SUCH EXPENSIVE TRAINING TOOLS CAN BE SHARED WITH THE ARAB AND AFRICAN COUNTRIES UTILIZING THE ALGERIAN MERCHANT MARINE ACADEMY FACILITIES.

3. THE TEACHING STAFF OF MARITIME TRAINING INSTITUTIONS SHOULD BE CONSIDERED THE MOST IMPORTANT ELEMENT IN THE EDUCATIONAL PROCESS. MARITIME PROFESSORS/LECTURERS ARE NOT ONLY RESPONSIBLE FOR DELIVERING LECTURES, BUT THEY ARE ALSO RESPONSIBLE FOR UPDATING THE TRAINING PROGRAMS, EVALUATING THE STUDENTS AND BRINGING THEM UP TO THE STANDARDS REQUIRED. IN DEVELOPED COUNTRIES, THE TEACHING STAFF BECAUSE OF ITS EXPERTISE AND HIGHER QUALIFICATIONS IN MARITIME TRAINING TAKE GENERALLY A MORE ACTIVE ROLE IN THE SPECIFICATION AND IMPLEMENTATION OF TRAINING PROGRAMS. IN THE DEVELOPING COUNTRIES, HOWEVER, A LACK OF A SUFFICIENT NUMBER OF 174
MARITIME LECTURERS WITH HIGHER QUALIFICATIONS IS ONE OF THE DEFICIENCIES OF THE EDUCATIONAL SYSTEM. AS FAR AS DEVELOPING COUNTRIES ARE CONCERNED, THERE SHOULD BE MORE AWARENESS OF THE TEACHING STAFF PROBLEM. IN THIS CONTEXT, IT IS APPROPRIATE TO RECOMMEND TO THE ALGERIAN MERCHANT MARINE ACADEMY TO TAKE THE FOLLOWING STEPS:

1). A COMPLETE "ALGERIANIZATION" OF THE TEACHING STAFF.

2). ADOPTION OF GOOD CONDITIONS OF EMPLOYMENT TO ATTRACT QUALIFIED NATIONAL CANDIDATES FOR A TEACHING PROFESSION.

3). POTENTIAL CANDIDATES SHOULD BE SENT AFTER RECRUITMENT TO A MARITIME TEACHER'S TRAINING INSTITUTION SUCH AS THE WORLD MARITIME UNIVERSITY TO QUALIFY AS MARITIME LECTURERS.

4). THE PRESENT TEACHING STAFF SHOULD BE GIVEN ALL OPPORTUNITIES TO ATTEND HIGHER MARINE STUDIES AT A NATIONAL UNIVERSITY IF AVAILABLE OR AT A FOREIGN INSTITUTION.

5). PARTICIPATION OF THE TEACHING STAFF IN UPDATING AND REFRESHER COURSES ORGANIZED BY A NATIONAL OR A FOREIGN ACADEMY.

6). PARTICIPATION OF THE TEACHING STAFF IN MEETINGS OF THE INTERNATIONAL MARITIME LECTURERS' ASSOCIATION (IMLA) AND OTHER SIMILAR INTERNATIONAL ORGANIZATIONS.

7). PARTICIPATION OF THE TEACHING STAFF IN MARITIME
RESEARCH ACTIVITIES.

8). ESTABLISHMENT OF CONTINUOUS RELATIONS WITH SIMILAR FOREIGN ACADEMIES SO THAT LECTURERS CAN BE EXCHANGED FOR SHORTER PERIODS.

9). ESTABLISHMENT OF CLOSE CONTACTS WITH NATIONAL AND INTERNATIONAL TECHNICAL COOPERATION AGENCIES SO THAT TRAINING OF MARITIME LECTURERS COULD BE FULLY OR PARTLY FINANCED BY SUCH AGENCIES.

10). WHENEVER A PROJECT IS CONCLUDED WITH A NATIONAL OR INTERNATIONAL ORGANIZATION, TRAINING OF THE TEACHING STAFF SHOULD BE THE FIRST ITEM TO BE INCLUDED.

THESE ARE SOME OF THE RECOMMENDATIONS I WISHED TO FORMULATE IN THIS PAPER. IT IS HOPED THAT THEY CAN PROVE TO BE OF SOME CONTRIBUTION TO MY COUNTRY IN PARTICULAR AND TO DEVELOPING COUNTRIES IN GENERAL SO THAT MARITIME EDUCATION AND TRAINING COULD REACH THE REQUIRED LEVEL OF DEVELOPMENT OF THOSE INDUSTRIALIZED COUNTRIES.

IN CONCLUSION, I WISH TO QUOTE THE WISDOM OF THAT ANCIENT CHINESE PROVERB WHICH SAYS:

"I WAS TOLD AND I FORGOT"

"I SAW AND I REMEMBERED"

"I DID AND I UNDERSTOOD"
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