

World Maritime University

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The World Maritime University

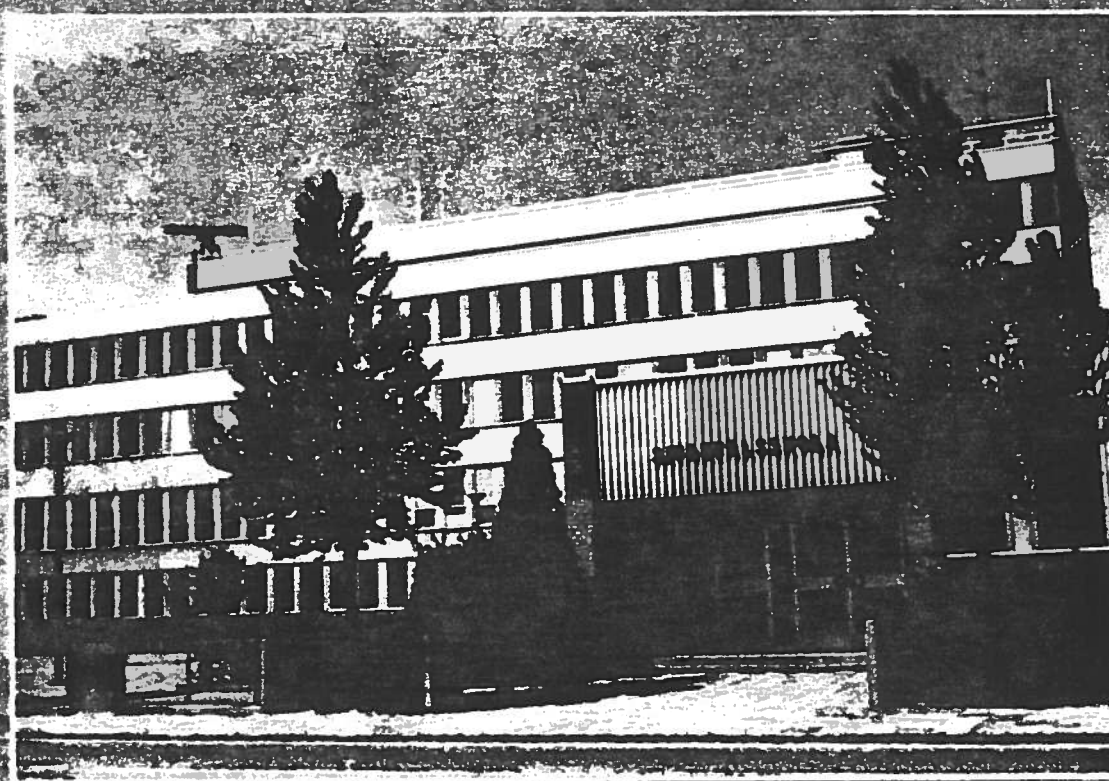
International Maritime Organization

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The World Maritime University



International Maritime Organization

WORLD MARITIME UNIVERSITY

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1. Foreword

The safety of international shipping and the grave dangers of maritime accidents at sea resulting in loss of human life or pollution from shipborne substances (especially oil), or both, are matters of world-wide concern.

The preceding 20 years or so have witnessed a dramatic change in the number, type and tonnage of vessels plying across the oceans. In 1959, for example, there were about 36,000 ships of 100 gross tons and above, aggregating about 125 million gross tons, whereas the number of ships today, plying across the same oceans, has increased to over 70,000 with a tonnage in excess of 420 million. This has resulted in a very heavy increase in the density of sea lanes. Not only that, but even the composition and type of ships has also undergone a significant change. The largest cargo vessel in operation in 1959 was *Universe Apollo* of 104,520 dwt. Today, the largest vessel in operation is *Seawise Giant* (565,000 dwt). In 1959 there was not a single container ship, chemical or gas carrier, whereas today vessels in this category total more than 2,000 aggregating approximately 22 million tons. The cargoes carried in many of these ships are potentially most dangerous.

All these developments call for the adoption of special measures and one such measure is the special attention that should be given to maritime training. And maritime training is not confined to the seafarers alone, who, of course, are the most crucial element in the successful operation of ships at sea; but training is also vital for those involved in maritime safety administration, surveyors and inspectors, technical managers of shipping companies, maritime examiners, lecturers in the training institutions and other personnel connected with the specialized fields of maritime activity.

The interest of developing countries in the establishment or expansion of their merchant marines is increasingly manifest from the fact that they now possess approximately 11 per cent of the world fleet, i.e. about 48 million gross tons of shipping. This tonnage includes, besides the conventional ships, such large and specialized ships as:

- Very Large Crude Carriers
- Liquefied Gas Carriers
- Chemical Tankers
- Bulk/Oil Carriers
- Ore and Bulk Carriers
- Container Ships (fully cellular)
- Passenger/Cargo Ships etc.

This is indeed very substantial in terms of tonnage and makes great demands on specialized skills to be met by developing countries. It calls for the application of administrative, managerial and technical skills of the highest quality to ensure that the ships which the developing countries operate are not only viable economic units.

country to impart training in these important specialized fields. Such training must necessarily be of the highest possible level. The choice of location was made especially in order to benefit from the rich maritime technology available in the developed countries. The Government of Sweden responded generously by offering facilities for the establishment of such a University in Malmö and also substantial financial support to meet part of the recurring costs. The balance of these costs are expected to be met by the United Nations Development Programme and other donors.

The next few pages of this brochure describe the importance and levels of maritime training, the historical background to the establishment of the World Maritime University, its objectives and purposes, its physical facilities and the equipment available. It is hoped that the University will meet the most important needs of developing countries in the field of maritime training leading to the attainment of the highest practicable standards in maritime safety.

*Until 22 May 1982 the International Maritime Organization was called the Inter-Governmental Maritime Consultative Organization (IMCO).



C. P. SRIVASTAVA
Secretary General
International Maritime Organization

2. The importance of maritime training

Maritime safety is of primary concern in respect of all of the 70,000 ships which ply the oceans and the seas carrying world maritime trade, and in doing so provide the necessary link between nations for fruitful co-operation in international trade and commerce.

Marine pollution is equally important for ecological purposes, for the preservation of marine life and for the fisheries and tourism industries of many countries in the world.

The International Maritime Organization, which is the Specialized Agency of the United Nations exclusively concerned with the technical and specialized aspects of shipping, has two primary objectives—the promotion of the highest practicable standards of maritime safety and the prevention of marine pollution from ships.

Through co-operation among all its Member States the Organization has developed a full range of internationally agreed standards of safety and prevention and control of marine pollution from ships. These standards are defined in international conventions and other treaty instruments. IMO has evolved no fewer than 27 such international treaties. In addition, the Organization has developed a host of non-treaty instruments such as resolutions, recommendations, codes and guidelines, relating to such matters as ship design and equipment, sub-division, stability and load-lines, fire protection, the safety of navigation, radio-communication, life saving appliances, carriage and handling of various types of cargo, the safety of fishing vessels, the facilitation of international maritime traffic, and marine pollution.

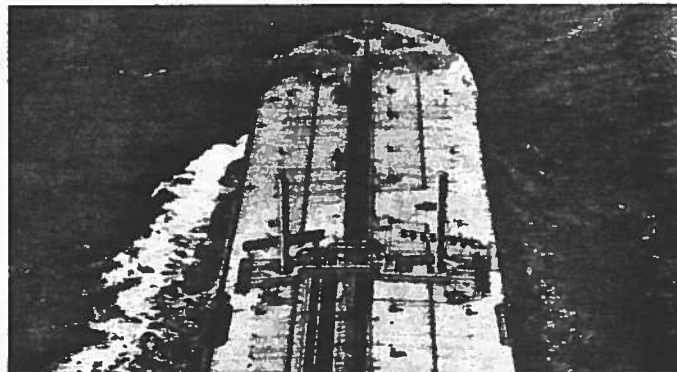
However, once all these instruments and agreements have been adopted and entered into force, they have to be implemented by the officials of each maritime administration who must be qualified to deal with them. To this effect national regulations have to be drawn up and published. Furthermore, most of these regulations are finally to be complied with by the crew on board the ships who must fully understand their role and be professionally capable of carrying out their duties efficiently. Hence the exceptional importance of maritime training of seafarers, to which IMO has, during recent years, given the highest priority in its technical co-operation programme for developing countries.

Maritime training is now all the more important because over the last 25 years shipping has become more and more complex. During this period the size of tankers has drastically increased and the equipment on board ship has become more and more sophisticated with a wide use of electronics and automation. Besides, the operation of many varieties of specialized ships now in use demands much higher skills and deeper knowledge for efficient and safe navigation. Indeed, with the continuing technological progress in shipping, the human factor has become of paramount importance. In the final analysis safety and efficiency of shipping operations must be

its Sub-Committee on Standards of Training and Watchkeeping, has prepared a number of Assembly Resolutions dealing with maritime training matters, of which the most important refer to:

- training of crews in fire-fighting (Resolution A.437 (XI));
- training and qualification of persons in charge of medical care aboard ship (Resolution A.438 (XI));
- principles of safe manning (Resolution A.481 (XII));
- training in the use of automatic radar plotting aids (ARPA) (Resolution A.482 (XII));
- training in radar observation and plotting (Resolution A.483 (XII));
- basic principles to be observed in keeping a navigational watch on board fishing vessels (Resolution A.484 (XII));
- training, qualifications and operational procedures for maritime pilots other than deep-sea pilots (Resolution A.485 (XII)).

Thus, in developing the STCW Convention and the various related resolutions, IMO tried to secure effective implementation of uniform standards in this vital field all over the world through minimum training requirements. This regulatory effort is complemented by technical advice and assistance to many developing countries in their efforts to train qualified officers. IMO has concurrently introduced a technical co-operation programme in the field of maritime training which consists of various types of assistance, depending on the level of training envisaged by a country individually or by a group of countries in the region. Assistance to Indonesia, Malaysia, Brazil and Nigeria are a few examples of individual assistance, while the Academy of Maritime Sciences and Techniques of the Sea, Abidjan, Ivory Coast and the Regional Maritime Academy, Accra, Ghana are regional institutions.



3. The levels of maritime training

The *first level* of training is in the form of pre-sea cadet courses for nautical and engineering cadets who undergo training courses from two to four years depending on the level of knowledge required to be imparted in accordance with the professional standards prescribed in the STCW 1978 Convention (or Training Convention as it is commonly referred to). Service at sea for a prescribed period sometimes forms part of the training programme particularly when the pre-sea courses are in excess of two years.

The *second level* of training of seafarers is for those officers of the nautical and engineering branch who have succeeded in obtaining their basic professional certificates and then wish to prepare and sit for their Higher Certificate of Competency Examinations. Thus a qualified Second Mate may prepare for his Mates examination, a Second Engineer for a Chief Engineer's Certificate, etc. These courses and examinations may be considered of a basic nature in the sense that without successfully completing them the career advancement ladder cannot be climbed.

The *third level* concerns the specialized courses which have become necessary in view of the rapid technological changes in the shipping industry and the increasing variety of ships now in operation. In order to operate them successfully it is not enough to be in possession of a Master's or Chief Engineer's Certificate. Specialized knowledge based on the special features and characteristics of such ships and their highly sophisticated equipment is necessary.

The *fourth level* of training in the rather complex field of shipping concerns the highly specialized experts such as maritime lecturers,

maritime administrators, nautical and ship surveyors and inspectors, technical managers of shipping companies, technical managers of ports, etc. This category of maritime professionals should have passed through all other levels and on their shoulders rests the onerous task of guiding the maritime development of the country in one form or another. The maritime lecturers must impart knowledge to the prospective seafarers in the best possible manner to make them proficient at sea; technical managers of shipping companies must ensure that the repair and maintenance of their vessels are of the highest standard so as to secure the economic viability and profitability of these units.

The training of such important personnel at such a high level can only be undertaken in the most scientifically and technologically advanced maritime university. The staffing of such a university must logically be of the highest level from among the most qualified experts available in the world. The equipment naturally must also be the most modern and up-to-date in the world. In addition, the location of such an advanced institution must be such that the students can be fully exposed to the maritime environment of technologically advanced maritime countries. The proposed location of the World Maritime University at Malmö, Sweden will thus ensure that the maritime technology of not only Sweden, a leading maritime country, is available, but also that of other nearby developed countries. It would thus be possible for students to travel to nearby countries to see port terminals and installations, special types of ships and training institutions etc.



4. Background to the World Maritime University

The Swedish proposal

In November 1980, with the generous financial support of the Swedish International Development Authority (SIDA), IMO organized a Seminar on "the implementation of global maritime training standards for the enhancement of maritime safety and prevention of marine pollution". This Seminar was held in Malmö and was attended by representatives from 45 developing countries and by selected invitees from seven developed countries. In connection with the preparation of this Seminar, informal exchanges of views and discussions were held between the representatives of the Swedish government and the Secretary-General of IMO about possible developments of Swedish support to the IMO technical assistance programme through further co-operation in the field of maritime training.

As a result of these discussions, His Excellency the Minister of Transport of Sweden made, at the beginning of the Seminar, an important statement relating to the establishment of an International University of Maritime Sciences and Technology in Sweden in the context of the importance of modern and up-to-date training of highly specialized experts in maritime activities for many developing countries.

The establishment of such a high level maritime training institution was warmly welcomed by the participants to the Seminar who unanimously adopted at the conclusion of their meeting a resolution supporting the proposal which was considered to be of the greatest benefit to the development of maritime activities in the Third

World. This proposal was also unanimously endorsed by the Maritime Safety Committee and the Marine Environment Protection Committee and then by the Council and the IMO Assembly.

The endorsement by IMO's Governing Bodies

One month after the Seminar referred to above, the Maritime Safety Committee, which is the most senior technical body of the Organization, held its 43rd Session at IMO Headquarters. During this session, the MSC "welcomed and endorsed the proposal to establish an international university of maritime sciences and technology in Malmö, Sweden for the training of lecturers, surveyors and inspectors, and high-level maritime experts from developing countries."

The Marine Environment Protection Committee also considered the matter during its 14th Session in November 1981 and welcomed the proposal. The reports of both the MSC and the MEPC which contained *inter alia* their unanimous support for the establishment of this institution were also approved by the Council and remitted to the Assembly.

In November 1981, the IMO Assembly at its 12th Session, "emphasizing that the proposed high-level training institution is intended to be complementary to existing and planned national and regional academies in developing countries and, in particular, to help produce the vitally needed personnel to staff and run such academies" unanimously adopted Resolution A.501 (XII) which states, *inter alia*, the following:



THE ASSEMBLY

BEING AWARE that the rapid technological developments in shipping have produced increased needs for better education and training of maritime personnel,

BEING CONCERNED about the acute shortage of qualified instructors for staffing many existing maritime academies and new institutions being established in developing countries, and the non-availability of the needed numbers of maritime administrators, examiners, surveyors and inspectors,

CONVINCED of the vital necessity of such trained personnel in the running of safe and efficient merchant marines, the operation of efficient ports and sound maritime administrators in general,

NOTING with appreciation that facilities for a high-level maritime training institution for the benefit of developing countries will be made available in Malmö, Sweden,

NOTING WITH SATISFACTION the warm welcome and strong support expressed by the representatives of developing countries for the establishment of such an institution in Sweden,

1. **EXPRESSES** its sincere gratitude to the Secretary-General for his wise and timely initiative in identifying the critical need for a global high-level maritime training institution;

2. **REQUESTS** the Secretary-General to take all further necessary action for the establishment of the World Maritime University;

3. **AUTHORIZES AND REQUESTS** the Secretary-General to take all appropriate and necessary steps for securing the requisite financial support, especially from the United Nations Development Programme;

4. **APPEALS** to the Administrator of the United Nations Development Programme to give the highest priority to his consideration of this extremely important project with a view to providing necessary financial support.

Financial support from the Swedish authorities

As a follow-up to the above-mentioned decision of the IMO supreme body, the Secretary-General has had further discussions with the Minister of Transport of Sweden and his colleagues and with representatives of the city of Malmö.

In the light of the positive and overwhelming support which this proposal received from the representatives of developing and developed countries alike both the central government of Sweden and the city of Malmö decided to increase their support and contribu-

tions.

In addition to its initial commitments, the Swedish government pledged a substantial annual financial contribution to the budget of the World Maritime University of about \$1 million in parallel with a contribution from the United Nations Development Programme (UNDP) in support of this global project.

The city of Malmö confirmed in full the strong support expressed by its Mayor for the project at its inception, in 1980. During a formal ceremony at IMO Headquarters on 19 February 1982, the Chairman of the Financial Board of the City Government of Malmö presented to the Secretary-General a document stating the undertaking of the city of Malmö in the realization of the project. This document confirms the earlier undertaking that the Malmö authorities will place the present Malmö Merchant Marine Academy with all its equipment and its facilities at the disposal of IMO.

In addition, the city authorities will provide housing for students in modern buildings within easy reach of the University. The city is also willing to reserve necessary time at the sports and leisure centre adjacent to the Academy for the students of the World Maritime University. Finally, the city of Malmö formally stated its readiness to help in every respect and its willingness to meet all wishes which may arise in the realization of the project.

Additional financial support

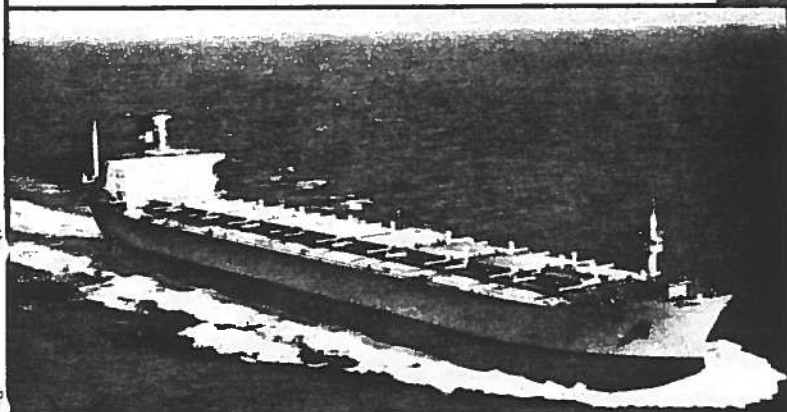
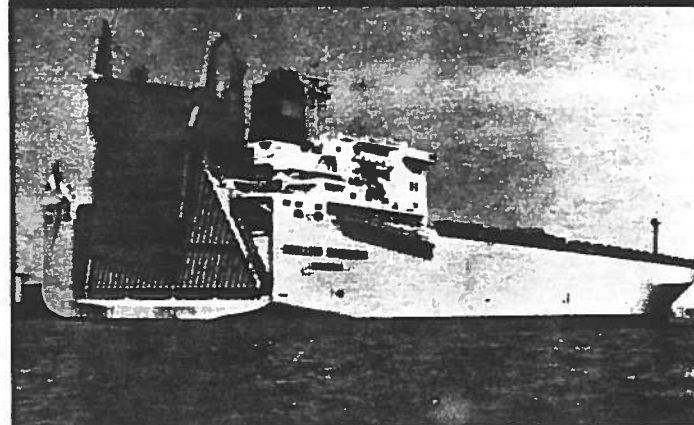
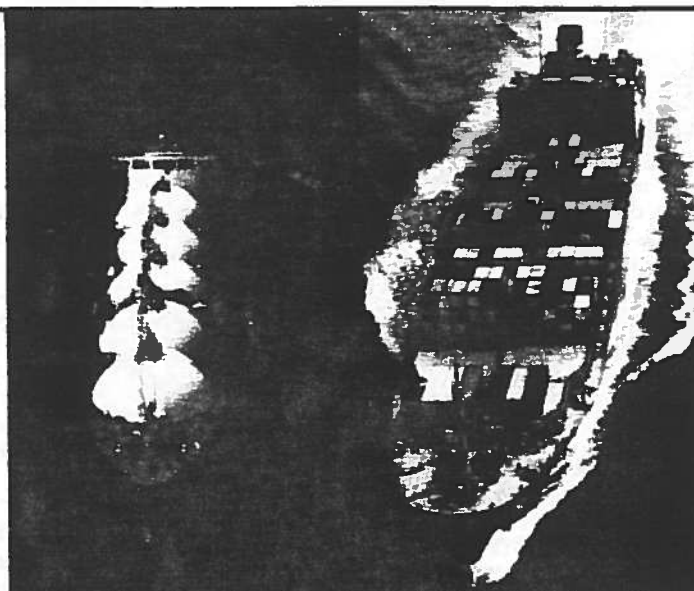
While the Swedish and UNDP contributions will be the primary sources of financing, IMO would also welcome support from other agencies and institutions concerned about raising global standards in the field of maritime training—leading in turn to the adoption of the highest practicable standards of maritime safety, efficiency of navigation and the prevention of marine pollution from ships. These matters do not concern developing countries alone because they are truly international in character.

It is in the interest of the entire maritime community throughout the world to ensure that all seafarers, no matter whether they are serving ashore or afloat, in a developed country or developing country, possess the same professional standards. The Organization will endeavour to secure "units of scholarships" on a permanent basis from all those with an interest in top-level maritime training. It is envisaged that each "unit of scholarship" would amount to \$10,000 annually and could be contributed by shipping companies, classification societies, international and national maritime organizations, federations and chambers of commerce and trade, shipping federations and even individuals.

5 Objectives, purposes and organization of the World Maritime University

During the last 25 years, shipping has changed more than in any other period in history. The ships that sail the world's oceans today are larger, faster, more complex and more varied than many experts would have predicted in the 1950s. This dramatic revolution in maritime transport has brought many benefits but it undoubtedly poses many problems and demands greater levels of management and expertise than ever before.

The photographs on this page show some of the ship-types which have made their appearance during this period. They are, going clockwise round the page from the top left, a liquefied gas carrier; a container ship; a roll-on/roll-off ship; a very large crude oil carrier (VLCC); a vehicle/passenger ferry; a barge/container carrier; and a bulk cargo carrier.



ship inspectors/surveyors (25-30 candidates to be selected);

(ii) a one-year course for maritime accident investigators and senior maritime administrators (25-30 candidates to be selected);

(iii) various short-term courses of about four weeks' duration in specialized subjects chosen in consideration of the needs of developing countries. These short-term courses will include such subjects as tanker safety, safety of chemical and gas carriers, handling of dangerous goods, marine pollution and others (50 candidates to be selected). A comprehensive list of the short-term courses will be established at a later stage in full consultation with the governments concerned.

In total, therefore, the University in the initial stages will cater for about 100 students.

Curricula for the various courses:

The language of instruction in all cases will be English.

1. Maritime teachers and lecturers:

- nautical teachers/lecturers;
- marine engineering teachers/lecturers;
- electronics/radar/computer teachers/lecturers.

The objective is to specialize above the extra-master degree in nautical sciences—or its equivalent in engineering and electronics fields—bearing in mind the requirements as defined in the STCW Convention, as well as training in pedagogical aspects and the need for continuous up-dating through personal researches;

There will also be a course for examiners which will be basically similar to the one for maritime teachers/lecturers, with special emphasis on the STCW Convention requirements and specific courses related to maritime safety and marine pollution prevention.

2. Maritime surveyors:

- nautical and radio surveyors;
- engine/ship surveyors.

The objective is to provide deep knowledge and skill to the student in order that he can perform all necessary surveys in full compliance of international requirements and procedures. The requirements of SOLAS 74 and its Protocol of 1978, of MARPOL 73/78 and other international treaties must be fully understood and mastered.



3. Maritime accident investigators:

Similar courses to these for maritime surveyors, with specialization in nautical, engine, ship design and radio and specific additional short-term courses on legal matters concerning international law and maritime legislation.

4. Senior maritime administrators:

The objective is to train senior maritime administrators through a comprehensive programme comprising high-level legal and administrative aspects of international shipping, technical and navigational aspects, shipbuilding, marine biology and marine pollution, hydrography, international maritime co-operation etc. The trainees will have a wide and in-depth knowledge of the various technical and related facets of the shipping industry in order to be able to properly advise their governments in this complex field for the definition and the implementation of its policy at national and international levels.

5. Technical managers of shipping companies:

The objective is to train technical managers in all aspects of ship surveys and maintenance with particular emphasis on planned maintenance programmes, familiarity with the international maritime conventions and the provisions, recommended practices and codes as developed by IMO, human relations and personnel management, maritime legislation as applicable to international shipping, prevention of pollution from ships etc.

6. Port Managers:

The course will deal with maritime traffic and its facilitation in ports, navigation aids, hydrographic surveying in ports, capital and maintenance dredging. Training of pilots and pilotage, port laws and regulations, prevention and combating of marine pollution, fire fighting etc will be provided.

International staff of the World Maritime University

The staffing of the University is perhaps the most important factor. While ten or twelve specially selected staff members would form the core of the instructional and administrative staff of the University, a great degree of reliance will of necessity have to be placed on renowned international figures in the maritime world. They will be the visiting professors and lecturers who will lecture from time to time in their respective field of specialization. Only in this way can the transfer of technology at a level and standard befitting a World Maritime University be assured.

Minimum requirements for enrolment

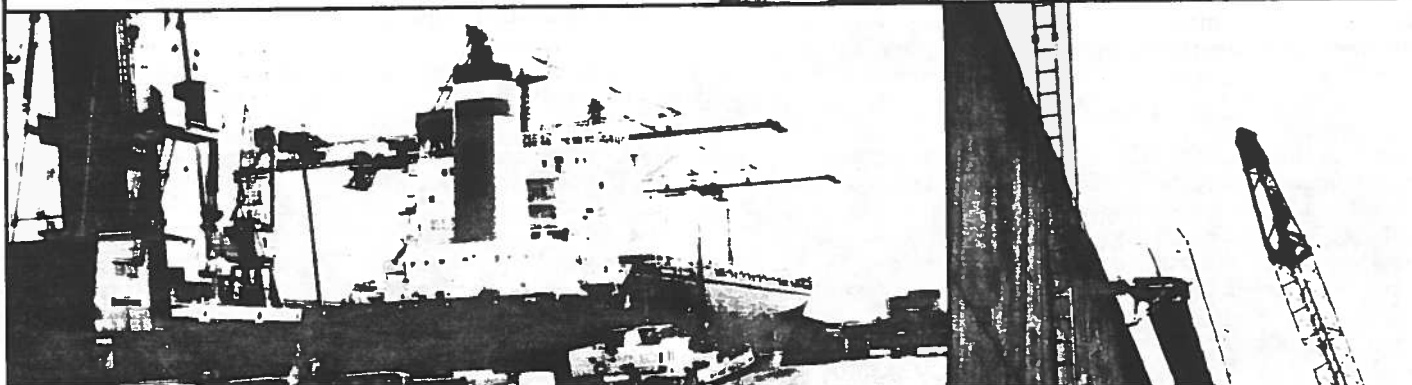
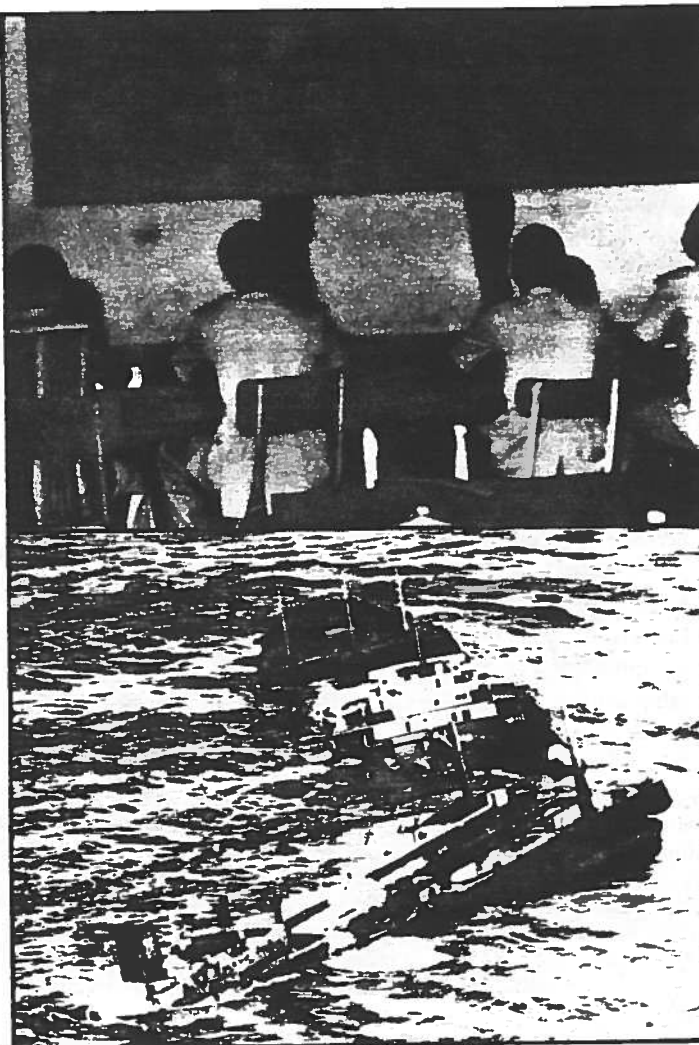
The selection of the candidates for the two-year and the one-year courses in the World Maritime University will be made by a Board whose members are to be nominated by the Secretary-General of IMO.

This Board will comprise the Rector of the University, a representative of the Secretary-General of IMO and three other per-

The courses planned for the World Maritime University have been carefully selected to meet the needs of developing countries. They take into account the views expressed by developing countries as well as IMO's long experience in providing technical assistance.

Some of the courses will last for one or two years. Others will be short-term lasting for about four weeks.

The photographs on this page illustrate some of the subjects which will be covered (clockwise, from the top of the page). There will be courses for teachers and lecturers and examiners in nautical sciences, engineering and electronics; maritime accident investigators; surveyors, including engine, ship and radio surveyors—the emphasis will be on international conventions such as SOLAS and MARPOL; technical managers of shipping companies; senior maritime administrators; and port managers.



6. The facilities available for the University

The building, its equipment and other facilities

In Malmö the WMU will have its administrative buildings as well as the lecture rooms and workshops of the former Malmö Merchant Marine Academy. These comprise:

- a) classrooms and working tutorial rooms (two rooms accommodating 35 people and three rooms accommodating 24 people each);
- b) working group rooms;
- c) lecture theatre, to seat 60 students at a time;
- d) library;
- e) administrative buildings;
- f) accommodation for staff;
- g) tutors' preparatory rooms;
- h) engine room demonstration block;
- i) equipment room for audio visual aids, films and projectors.
- j) equipment repair and maintenance room;
- k) laboratories dealing with oil, chemical, and gas transportation;
- l) coffee room;
- m) lounge/ante-room.

The roof is provided with an open area for celestial observations and a moving circular platform with binnacle for magnetic compass adjustments.

The fifth floor comprises a moving circular platform with a bridge mock-up installed with radio direction finders to ascertain radio deviation, Decca receiver, Omega receiver, and a radar covering the Baltic Sound. A room is also available for repairing equipment, laboratories for dismantling radars, and rooms for tutors' preparatory work.

The fourth floor is equipped with radar telephone stations, ship's model for studies in compass work; ship design; static water tank; rigging model; ship's behaviour and wire tensions; cargo handling and loading computers; puncher keyboard for making morse programmes; sextants and transport laboratory experimental utensils are also available.

In an annex to the main building, ship's engines and auxiliary engines are located for engine tests and educational purposes. The engine hall has evaporators, separators, oil content meters, crude oil washing demonstration model, model inert gas generator, reefer chamber, gas measuring instruments etc. Laboratories for various tests and research work are available, as well as an infraviolet photometer, gas chromatographs etc.

A second annex to the main building contains testrooms for demonstrating the Administration's obligation to control and certify navigational lights, colour of light-glasses, compasses and

engineering, mechanical engineering, civil engineering and other engineering sectors. Its standard of education in mathematics, physics, chemistry and similar subjects is internationally accepted.

In the section of electrical engineering all research projects are centred around light-current technology. There are basic courses in theoretical electrotechnology and applied courses in telecommunication theory, telecommunication systems and applied electronics and electrometrical technology. In all these fields applied computer technology has come to play an increasingly dominant role.

In the section of mechanical engineering, work is concentrated into three main areas; design and production, energy and transport and economy.

There is also research and education in civil engineering such as traffic engineering, water resource engineering, geotechnology and geology.

The chemical centre is the largest institution for research and education in chemistry in northern Europe.

The Planetarium of the Lund Observatory specializes in space travel. It contains unique equipment for demonstration and education.

The Environmental Studies Programme engages in futurological and strategic studies in the field of energy, notably questions concerning energy and environment. Interdisciplinary courses at graduate level include e.g. tracer analyses and environmental measurement techniques.

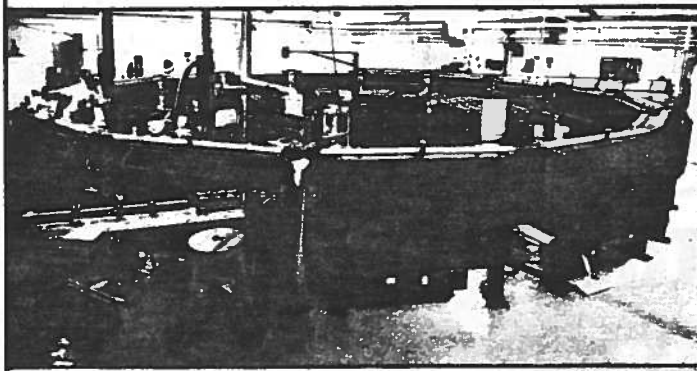
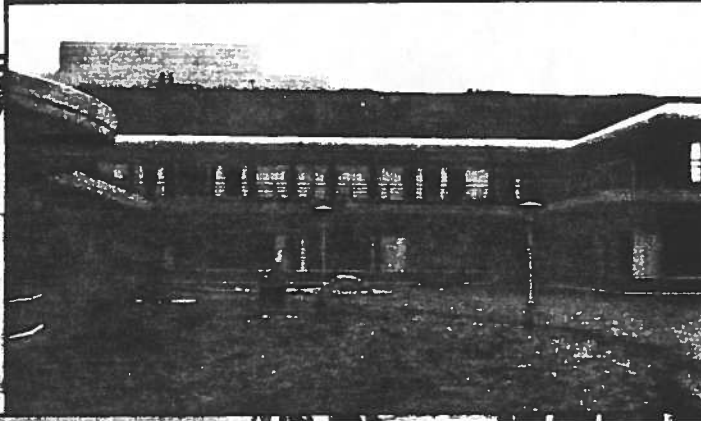
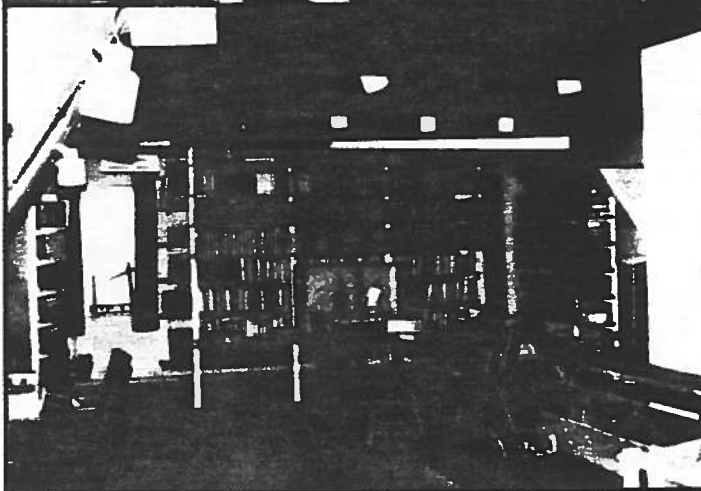
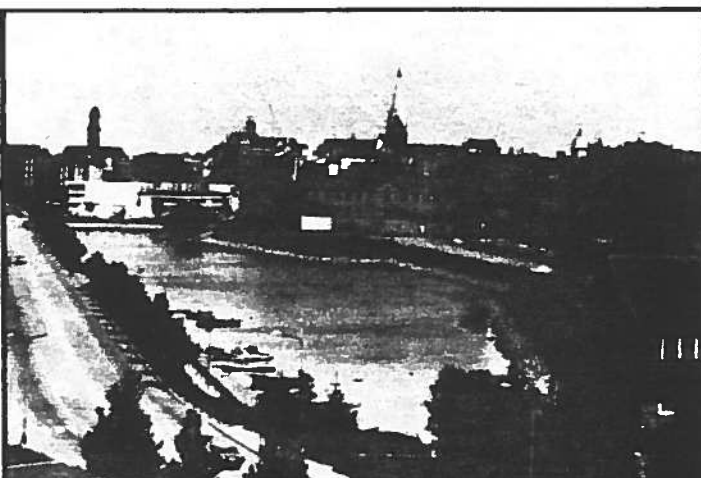
At the Kockums Shipyard, which is adjacent to the WMU, a number of sophisticated laboratories constitute the base upon which the progress of the shipbuilding industry is founded.

The understanding of shipbuilding technique is fundamental for all those who are involved in shipping industry. In Malmö the Kockums Shipyard has developed a productive way of building such highly sophisticated ships as gas tankers, chemical tankers, ro-ro ferries and combination ships. The laboratory of mechanics of materials which occupies an important place in a shipyard provides an ideal opportunity for the accurate calculations of structural strength of materials.

7. Conclusions

The Malmö Merchant Marine Academy has been offered as the site of the World Maritime University. It not only possesses excellent facilities itself, but is ideally placed to make use of the sophisticated equipment and techniques available within the area.

The photographs show (clockwise, from top right); Malmö as viewed from the Merchant Marine Academy; the sports and leisure centre at the Academy; the library; a remote-controlled turning lathe at the Kockums shipyard, one of the most modern in the world; a general view of the Kockums yard—the large gantry crane is capable of lifting 1,500 tons; the MAX accelerator at the University of Lund which is used in synchrotron light research.



Application for Enrolment

Additional information on short-term courses, details of syllabi, possible fellowships etc., can be requested from one of the two following addresses:

The Secretary-General
IMO
101-104 Piccadilly
London W1V 0AE
United Kingdom

The Rector
World Maritime University
Malmö
Sweden