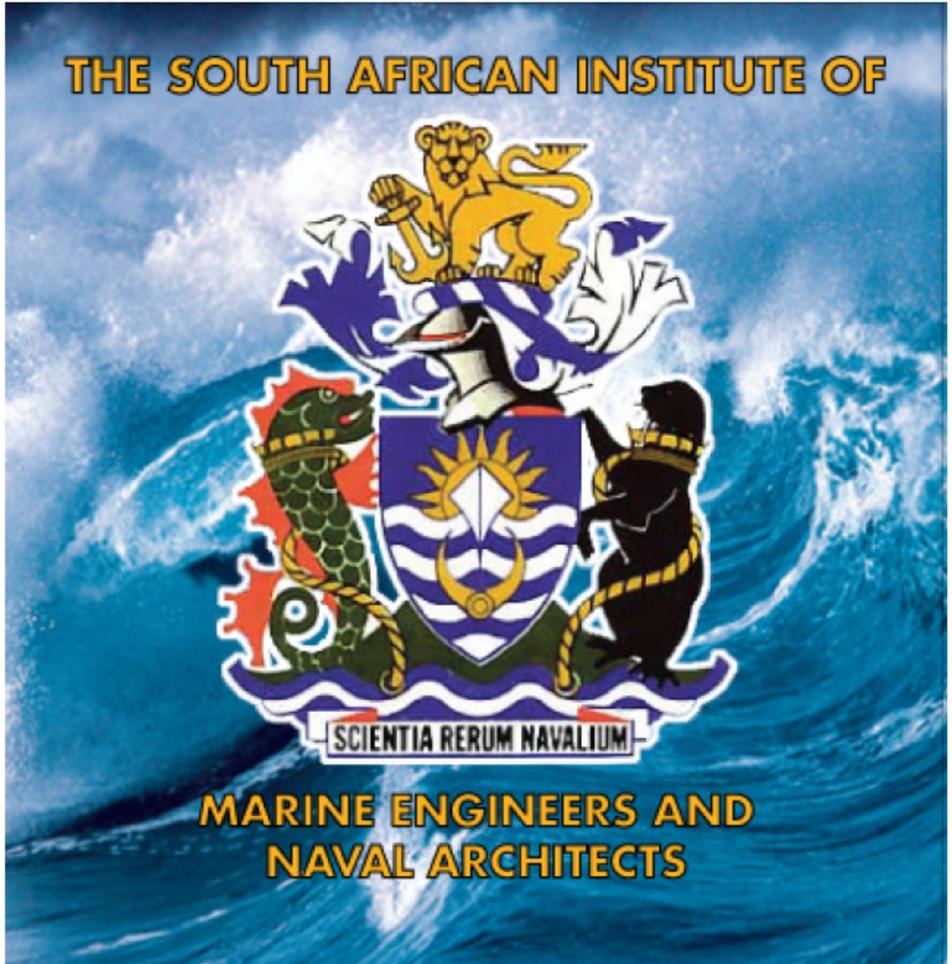


**South African Institute of Marine Engineers and
Naval Architects**



CAREER GUIDANCE AND ADVICE

South African Institute of Marine Engineers and Naval Architects

 <p>SAIMENA</p>	<p>South African Institute of Marine Engineers and Naval Architects</p>	
Website:	SAIMENA House 77 Jacko Jackson Drive Morningside, Durban 4001 www.saimena.co.za	PO Box 7710 Roggebaai Cape Town 8012
Email:	saimena@webafrika.org.za	

South African Institute of Marine Engineers and Naval Architects

Forward

This booklet is intended to assist aspirant Marine Engineers and Naval Architects in choosing an exciting and interesting career in this field. There are always questions, especially when trying to break into or select a new career, this is complicated when you have not yet completed your education or are based far away from the high intensity hubs of the marine community.

The Aims and Objectives of SAIMENA is to advance the science and practice of Marine Engineering, Naval Architecture, Ocean Engineering, Shipbuilding and Ship Repairing; and to promote the interest of its members and the maintenance of high standards in the professions in the Republic of South Africa, particularly by: Enabling marine engineers, naval architects and their associates to meet, correspond and exchange ideas on current and future developments in marine and allied practice and to discuss possible improvements thereto; Publishing and disseminating information on subjects relating to the professions;

The very nature of the work done by Marine Engineers tends to appeal more to the young man and this, coupled with the problem of mixed crews on board ship, is the reason why the vast majority of Marine Engineers are men. However, if a young woman wishes to pursue such a career there are equal opportunities for her to do so.

Although the Naval Architect is presently trained ashore and does not spend any time sailing on board ship, it has been suggested that it would be beneficial to the industry if the Naval Architect spent some time at sea and learnt at first hand the problems experienced by the seafarer.

Dec 2014

.....
Louis Gontier
President

South African Institute of Marine Engineers and Naval Architects

South African Institute of Marine Engineers and Naval Architects

Contents

1.	What is Marine Engineering and Naval Architecture?	1
2.	The Job of the Marine Engineer and Naval Architect	2
3.	Where are Marine Engineers and Naval Architects Employed?	3
4.	The Marine Engineer at Sea	4
a.	The Merchant Navy	4
i.	General	4
ii.	Methods of Entry and Training	5
iii.	Certificates of Competency	5
iv.	Engineer Cadet Training Scheme	5
v.	Basic Entry Requirements	6
vi.	Alternative Entry Schemes	6
vii.	Special Grade Certificate	6
b.	The South African Navy	7
i.	Naval Engineer Officer	7
ii.	Naval Technical Officer	7
iii.	The Naval Architect	7
5.	The Marine Engineer and Naval Architect Ashore	8
a.	Shipbuilding	8
b.	Engineer Surveyor	8
c.	Superintendent Engineer	9
d.	Consultancy	9
e.	Teaching	9
f.	Commercial Management	10
6.	The Marine Engineer and Naval Architect Offshore	10
7.	How to Become a Registered Engineer	11
8.	The South African Institute of Marine Engineers and Naval Architects	11
a.	SAIMENA	11
b.	Branches	11
c.	Meetings	12
d.	Conferences	12
e.	Publications	12
f.	Membership Qualifications	12
g.	Membership Applications	12
9.	Learners Decision in Selecting a Study Direction	13

South African Institute of Marine Engineers and Naval Architects

10.	Sources of Information	14
11.	Classification Societies	14
12.	Where to Study	15

South African Institute of Marine Engineers and Naval Architects

1. What is Marine Engineering and Naval Architecture?

Marine engineering is the combination of art, science and experience in the design, production, management and maintenance of engineering systems and equipment in or on anything that works in a marine environment.

Primarily, this means ships, offshore platforms and undersea vehicles.

With ships this covers the plant and equipment necessary for the propulsion and safety of the hull, the care and handling of cargoes and the care, comfort and safety of passengers and crew.

On offshore platforms the particular interests are the supply of electrical power, the pumping systems and the life support and comfort systems for the crew.

For undersea vehicles they are the provision of a suitable energy source for propulsion and control and, if manned, the safety and life support of the crew.

Naval architecture is the name given to the science, engineering, designing and manufacturing of ships, yachts, powerboats, steamers, tugs, fishing boats, barges, war ships, cruise ships, ice breakers and even submarines. In addition it also deals with the design and manufacture of other off shore structures of all kinds whether civil or military.

The Naval Architect is not only responsible for the development aspect, but also the economic feasibility, values and safety of the marine vessels and other units.

The Naval Architect integrates the various Engineering activities involved in the design and production of a ship or marine structure and takes ultimate responsibility for the overall project or design. In addition to this vital managerial role, the Naval Architect has also a specialist function in ensuring that a safe, economic and seaworthy design is produced.

Naval architecture involves ship structures design, systems integration, vessel level ergonomics, ship dynamics, resistance and sea keeping, safety design, manoeuvring, control surfaces.

Shore based industries are also involved in marine engineering with the design and construction of all the complex machinery required for the above functions in addition to research and surveying which contribute so much improvement of reliability and performance of that machinery.

At a time of fairly high unemployment, young people when considering a career are wise to keep in mind the long term prospects for their own employment. Like most industries, shipping in this country has its good years and its bad years.

South African Institute of Marine Engineers and Naval Architects

There is, however, one significant difference between shipping and other industries which arises mainly from the fact that this country is not independent in respect of manufactured goods and certain raw materials. There is always the requirement to import raw materials and manufactured goods from overseas and export raw materials and food. Sea transport undertakes this task efficiently.

Marine Engineers and Naval Architects in the context of the International Maritime Industry are graduate Engineers (Pr Eng) so as to have the authority to sign off on designs that contain a high degree of responsibility, and professional liability.

This publication is concerned with careers in the South African Navy, as well as in the Merchant Navy. Here again, the same consideration applies, because one of the purposes of the South African Navy is to protect merchant shipping.

2. The Job of the Marine Engineer and Naval Architect

The ship-owning industry offers a very broad scope for engineering and naval architectural talent, the work of the engineer and naval architect falling into several categories: design, construction, operation, maintenance and survey, and voyage analysis.

It follows that the marine engineer and the naval architect must have a broad knowledge of each other's problems so that they can work together in producing a ship which is capable of being efficiently operated throughout its lifetime, which could be 20 years.

During its lifetime the structure of the ship will be operating in a salt rich environment, be subjected to wide variations in climatic conditions and have to endure the dynamic forces imposed by sea and wind. Thus the engineers and naval architects who design and build the ship must produce a vessel which will operate safely under these extreme conditions, with a power plant which is reliable and economic and possessing sufficient reserve capacity to meet all situations. When in service the engineers who operate the ship must apply continuous maintenance and repair procedures to ensure that the vessel and its machinery will operate safely with optimum performance.

In order to design reliable and economic machinery, the marine engineer must have a sound knowledge and understanding of a wide variety of power plant and control systems, electrical power generation and distribution, metallurgical problems (especially corrosion and fatigue) and, of course, a close and sympathetic understanding of the principles of ship design and

South African Institute of Marine Engineers and Naval Architects

propulsion. The naval architect must conversely have a good understanding of main and auxiliary engines, together with their control systems.

After the plant has been designed and produced comes the task of running and maintaining it, which involves managerial decision about manpower and choosing and operating the best system of maintenance while allowing for fall-back arrangements to cope with unexpected breakdowns which occur despite all precautions.

The modern ship is complex and extremely sophisticated.

Such an advanced technological system requires a well trained and competent team to operate it and the management function will play an important part at all levels. The management role often goes far beyond that of the physical task of operating the ship efficiently and safely and could include control of the ship's annual budget, deciding when and where to dry-dock etc.

Being an engineer officer at sea is not necessarily a job which will go on until retiring age, although it can do so, as shipping companies recognize that many of their engineer officers will decide to come ashore to find other jobs. The value of the education and training which a marine engineer receives then becomes very clear since it equips him for a wide range of employment ashore.

3. Where are Marine Engineers and Naval Architects Employed?

Marine Engineers and Naval Architects are found throughout the coast line of the Republic, wherever ships ply their trade, are built and are repaired, but the greater parts of the marine industries are concentrated in the larger sea ports of Cape Town and Durban

Marine Engineers and Naval Architects do not necessarily have to be employed in the marine industry and can be found in power stations, nuclear and conventional, the mining industry, chemical industry, oil industry and associated industries that are necessary to an industrial nation as is South Africa.

Auxiliary machinery such as electric generating sets, pumps, distilling equipment and refrigeration plants are built in industrial areas completely separate from the major sea ports.

In addition to the above, Marine Engineers and Naval Architects are employed by: The South African Transport Services in various capacities. The Department of Transport (Marine Division) as surveyors responsible for marine safety regulations.

South African Institute of Marine Engineers and Naval Architects

Classification societies, which are concerned with the maintenance of standards of quality in ships, hulls and their machinery:

American Bureau of Shipping, Bureau Veritas, Det Norske Veritas,

Germanischer Lloyd, Lloyds Register of Shipping, Nippon Kaiji Kyokai.

The headquarters of the above societies are in various parts of the world and their surveyors usually have to serve a certain amount of time in different parts of the world.

Companies acting for marine underwriters and ship owners Protection and Indemnity Clubs.

Private Consultancy. Universities and University of Technologys. The South African Navy.

Although the above activities are performed in the Republic, it should be remembered that Marine Engineering and Naval Architecture is a world wide operation centred in particular at the major sea ports of the world.

4. The Marine Engineer at Sea

a. The Merchant Navy

i. General

The basic requirements for success as a seagoing engineer officer in the Merchant Navy are the qualities of integrity, initiative and resourcefulness together with a capacity for hard work. The sea is a stern taskmaster and only those with these qualities can, with the necessary training, become successful Marine Engineers.

The engine room is the domain of the engineer officer who is the power behind the power that moves the ship. The main engine is often the size of an average school hall and everything in the engine room is the responsibility of the engineer officer who must, therefore, be a manager. The job does not end there. The ship in fact resembles a small town and the engineer officer is responsible for all the services which support life on board ship. Such services include heating, lighting, drinking water, air conditioning, refrigeration, sewage disposal and all the other necessities which are usually taken for granted in modern life.

All systems must be maintained in efficient working order without assistance from outside. In modern ships the automatic control of many systems demands a sound knowledge of complex operations and the engineer officer must be able to cope with any situation which might arise.

South African Institute of Marine Engineers and Naval Architects

ii. Methods of Entry and Training

The qualifications for entry into the Merchant Navy as a sea going engineer officer are at the discretion of each ship owner. The two main streams of entry into the Merchant Navy as an engineer officer are by the Engineer Cadet Training Scheme whereby cadets are recruited direct from full time secondary education and an "alternative" entry from suitably qualified students or apprentices.

In either stream the ship owner will require that a cadet progresses towards qualifying for entry of the examinations for certificates of competency.

iii. Certificates of Competency

The Marine Division of the Department of Transport is responsible for the regulations governing the safety of life and safe operation of machinery at sea and to this end stipulate the number of engineer officers to be carried on board ship and the number of "certificates" required.

There are four classes of certification, class 4, class 3, class 2 and class 1 the highest, which is that of a Chief Engineer Officer.

iv. Engineer Cadet Training Scheme

Under this scheme the education and training of cadets is sponsored and financed by a shipping Company. A candidate for entry into the scheme is generally 17 1/2 to 20 years of age. The cadetship is of four years duration and includes the following:

1. An initial period at sea, usually not less than 6 months.
2. A period of full-time training at a University of Technology consisting of 2 semesters (S1 and S2).
3. A period of practical Workshop training of about 15 months duration.
4. A further period of full-time training at University of Technology consisting of 1 semester (S3).

The practical Workshop training may be interspersed with University of Technology. semesters and the semesters may be re-arranged at the discretion of the University of Technology if full-time study is considered advantageous to the Cadets.

The completion of the above training, will result in the award of a National Diploma in Marine Engineering provided that .the requisite standard has been attained. This Diploma will qualify the cadet for exemption in the writing of some papers for the subsequent Marine Engineer Officers Certificate of Competency.

South African Institute of Marine Engineers and Naval Architects

The successful completion of the training course but at a standard below that for which the National Diploma in Marine Engineering may be awarded will permit the cadet to write the subjects General Engineering Science and Heat Engines for the Marine Engineer Class.4 or Class 3 Certificate of Competency for which, if successful in both subjects, a remission of 3 months sea service will be allowed.

v. Basic Entry Requirements

The basic requirements for entry to the South African Merchant Navy as a Marine Engineer Cadet are a Senior Certificate with good passes in Mathematics and Physical Science (not lower than "D" in Standard Grade), a sound physique and a desire to attain professional qualifications. All applicants are finally selected by interview.

vi. Alternative Entry Schemes

The alternative entry is basically that of a student or technical apprentice who has spent not less than 4 years on an approved organised course of study, has obtained the appropriate technical qualification and has spent not less than one year on workshop service of specific type as laid down by Department of Transport Regulations or a time-served apprentice or journeyman from an engineering works, or those who have satisfactorily completed a full-time or sandwich course of study of at least 3 years at an approved technical college, University of Technology or. University and have spent not less than 24 months on suitable work in workshops in specific skills as laid down by the Department of Transport.

Generally, the sea service required on completion of the training phases, is 6 to 8 months for a Certificate of Competency Class 4 or 21 months for a Certificate of Competency Class 3 and Class 2. There are written qualifications which may qualify for some remission of sea service in certain cases.

Before completion of engineering training, direct application to a shipping company should be made for a position as a junior engineer officer.

vii. Special Grade Certificate

This examination is intended for officers who wish to prove their higher qualities and to possess the highest class of certificate granted by the Department of Transport.

South African Institute of Marine Engineers and Naval Architects

b. The South African Navy

i. Naval Engineer Officer

The Navy has a requirement for engineers to serve at sea, in the Naval Dockyards, as Staff Officers at Naval headquarters and in the Naval Engineering Section.

These are generally recruited from matriculants with passes in Mathematics and Science at Higher Grade. Students are attached to the S.A. Naval College at Gordon's Bay as midshipmen and follow the four-year B. Eng degree in Mechanical Engineering (or Electrical, or Electronic Engineering) at the University of Stellenbosch or the University of Cape Town. During University vacations the students are attached to Naval Units for practical training.

Following graduation the Naval Engineer Officer is exposed to engineering work of a wide variety. Care is taken to maintain a balance between design and practical experience to qualify him for registration as a Professional Engineer.

ii. Naval Technical Officer

Naval Technical Officers in training follow a practical course at SAS WINGFIELD in parallel with the National Diploma Course at the Cape Peninsula University of Technology (CPUT) or the Durban University of Technology (DUT).

Naval Technical Officers serve at sea to gain watchkeeping and charge Certificates. When qualified they may be appointed in charge of the machinery department of a Naval vessel.

Sea appointments alternate with service as Base or Command Technical Officers ..

All Naval Officers undergo formative training during their careers. Naval Engineer, Constructor and Technical Officers are required to attend the Junior Staff Course. Officers destined for senior positions also attend the Senior Naval Staff Course and eventually the Joint Staff Course.

Naval Engineer Officers may be appointed to Staff positions at Naval Headquarters or to Logistic positions on the staff of the Chief of the S.A. Defence Force.

iii. The Naval Architect

The Naval Engineer who has graduated from University as a B. Eng may be given the opportunity to study for a MSc degree in Naval Architecture. Attachment to a ship building yard enables the young engineer to gain experience in all aspects of Naval Construction.

South African Institute of Marine Engineers and Naval Architects

Naval Constructor Officers generally gravitate to the designs section after gaining practical experience in Naval Units and becoming registered as Professional Engineers.

Unfortunately there is, at the moment, no formal training scheme in South Africa for either ship design draughtsmen or Naval Architects. The qualifications for Naval Architecture can only be obtained through the South African Navy in the Republic (post graduate studies overseas) or from other sponsors (such as SAMSA) for post graduate studies overseas.

5. The Marine Engineer and Naval Architect Ashore

a. Shipbuilding

The ship building industry will provide many opportunities of employment for the marine engineer and naval architect at all levels of competence and experience. In general, marine engineers will have come from one of two sources, those who have trained and qualified within the shipyard, and those who have gained their expertise outside (eg. sea-going, engine builder etc). The naval architect will in all probability have been trained and qualified within a shipyard. The experienced and qualified marine engineer and naval architect will find a responsible position in:

- i. ,The design team, considering and developing new generations of ships (an extremely important activity now and in the future with the world's resources becoming ,scarce and energy supply critical).
- ii. The construction of the vessel and its machinery
- iii. The installation of machinery and eventual commissioning of the vessel.
- iv. The repair and maintenance of existing vessels.

b. Engineer Surveyor

Employment as an engineer surveyor offers an interesting and rewarding career ashore to those suitably qualified and experienced. Surveyors are employed to ensure that the rules and regulations are complied with during the construction of ships and their machinery and that, in service, they are maintained to the same standards.

With the need to improve efficiency, the machinery and equipment of a modern ocean-going ship is of a complex nature whilst the cargoes carried may present a variety of hazards. This has resulted in a considerable increase of safety requirements imposed by various authorities and, therefore, some surveyors become specialists. This is often the case when they are engaged in examining plans and arrangements before the

South African Institute of Marine Engineers and Naval Architects

construction of a ship and its machinery commences. Those applying for a position as surveyor may find it an advantage if they can demonstrate experience or knowledge of some particular specialist aspect of marine engineering.

In general, one would be expected to hold a degree in engineering or naval architecture, a special grade certificate or a combined steam and motor class 1 certificate.

Employment for surveyors can be found in two main groups, Government Authorities and Classification Societies.

c. Superintendent Engineer

A superintendent engineer is usually an experienced marine engineer with a sea-going background and able to draw on experience at sea when acting in the capacity of operational manager and general trouble-shooter. The main function of a superintendent engineer is to ensure that vessels are properly and adequately staffed, that they are fully prepared and serviced before commencing a voyage, and that all parts of the structure and machinery units are surveyed and maintained in good order.

d. Consultancy

Consultancy work encompasses a wide range of activities concerned with the marine industry. The experienced and qualified marine engineer, particularly one with sea-going experience, will find many opportunities to progress to a responsible position through consultancy work. Among the many activities catered for are:

- i. Acting as agents for owners in all aspects of ship operation.
- ii. Undertaking investigations and providing reports (technical and non-technical).
- iii. The survey and repair of machinery and hull.
- iv. Insurance, cargo survey.

e. Teaching

Opportunities are available to teach in Universities and Universities of Technology and of particular importance are the UoT which provide courses for marine engineer officers who wish to enter the statutory Certificate of competency examinations.

The majority of staff involved in these courses are recruited directly from sea-going engineers because they are uniquely qualified to lecture on all

South African Institute of Marine Engineers and Naval Architects

major aspects involving the safe operation of the ship and the efficient and economic performance of its machinery.

f. Commercial Management

Experience has shown that a significant number of qualified marine engineers and naval architects move into a business environment as their careers develop, become increasingly involved in management and acquire considerable expertise in this activity. To further prepare them to work in such an environment many seek formal confirmation of their ability by acquiring certificates and diplomas. Ultimately, they find responsible positions ashore in commercial management.

6. The Marine Engineer and Naval Architect Offshore

The skills needed in offshore engineering are those of the engineer, naval architect, scientist or technician trained in his own discipline. The underwater environment presents severe problems and difficulties especially in the North Sea. The experience needed to deal with these structures has to be built upon a sound professional base; for instance in diving there is a development towards recruiting for training as divers those who are already qualified as engineers or naval architects.

It is thus important that those entering this industrial scene should seek qualifications in one or the other of the basic disciplines be it marine engineering, naval architecture, mechanical engineering, chemical engineering, or physics. Any specialisation is best left to options towards the final year of an undergraduate course or to a postgraduate course. Many of the organisations provide specialist training "in house."

Although it is obvious that the largest group of individual employers are the oil companies and their associates closely concerned with the exploration and exploitation of our offshore there is a whole range of industries and organisations involved in manufacturing equipment and providing services survey work, sonar and electronic equipment, metallurgy and navigation diving, pipelines, offshore structures. This and the exploitation of the sea itself and the prevention of pollution brings in research organisations and government departments.

South African Institute of Marine Engineers and Naval Architects

7. How to Become a Registered Engineer

Upon obtaining your Marine Certificates of Competency, you can apply to become registered with the Board of Control for Certificated Engineers which is a Government body for the protection of the interests of certificated engineers.

If you wish to advance your education at a University of Technology or University and obtain the necessary qualifications such as a degree in engineering it is then possible to become a Registered Professional Engineer.

8. The South African Institute of Marine Engineers and Naval Architects

In this increasingly competitive world it is evident that our future depends not only on the efficient use of established methods but also upon the development of new designs and new methods. If training for, or engaged in a profession, this factor cannot be neglected - awareness of the newest developments is vital.

Professional and learned societies fill this requirement by enabling their members to meet, learn and discuss the new ideas which lead to increased efficiency. The professional society for marine engineers and naval architects is the South African Institute of Marine Engineers and Naval Architects (SAIMENA) which is associated with the Institute of Marine Engineers (UK).

a. SAIMENA

The Institute was founded in 1974 and the principles then established have made our Institute a respected authority on maritime matters in the Republic and overseas. Service to members includes facilities for discussion on technological and other developments, publications of technical and general information and the operation of a knowledge bank amongst members.

b. Branches

There are branches in Cape Town and Durban which enables members to participate in the affairs of the Institute and keep up to date with the presentation of technical papers and social events.

South African Institute of Marine Engineers and Naval Architects

c. Meetings

Monthly meetings are held in Cape Town and Durban which provide a platform for the presentation of papers and discussions on widely ranging subjects from marine technology to business management.

d. Conferences

Conferences on topics of importance in maritime affairs are provided regularly and the subjects presented, with discussions and authors' replies are published as transactions which then form unique and valuable works of reference.

e. Publications

Conference transactions, technical journals and newsletters are published on a regular basis.

f. Membership Qualifications

Membership is open to all persons who are occupied in, or with maritime affairs. There are classes for fully qualified marine engineers and naval architects who may become fellows or members.

For those who do not have technical qualifications but whose occupations cover such activities as company director, executive, administration, sales management, brokerage insurance, publishing and so on, there is an Associate Grade; Associates must, of course, be involved in the marine industry.

All classes of membership are entitled to the Institutes facilities and services.

g. Membership Applications

All applications must be made on the prescribed form and must comply with the Institute by-laws. Election to membership is subject to final approval by the Membership committee.

South African Institute of Marine Engineers and Naval Architects

9. Learners Decision in Selecting a Study Direction

Learners are advised to study Maths and Science up to Grade 12 and achieve a 60% pass. Minimum entrance requirements into higher education will vary and will depend on the institution that the learner is applying to. School leavers with a Grade 12 National Senior Certificate with a 60% pass in Maths and Science are generally eligible for any field of maritime studies. Scholars with a Grade 12 National Senior Certificate without Maths and Science can do a six-month bridging course with some institution offering Maritime Studies.

There are also opportunities for Grade 9 school leavers to study maritime subjects at the FET level, but unless they have passed Grade 9 Maths and Science, these opportunities are limited.

The ability to communicate effectively in English is a minimum requirement. Please note: Mathematics and Physical Science is a pre-requisite for all engineering disciplines (and related services). Learners are advised to contact the institute of their choice to determine the minimum entrance requirements. This should be done before the learner chooses subjects at the end of Grade 9.

South African Institute of Marine Engineers and Naval Architects

10. Sources of Information

- (i) Marine Department
University of Technology
Natal
P.O. Box 953
DURBAN
4000
- (ii) Marine Department
Cape University of
Technology
P.O. Box 652
CAPE TOWN
8000
- (iii) Safmarine
P.O. Box 1426
DURBAN
4000
- (iv) Unicorn Lines
P.O. Box 3483
DURBAN
4000
- (v) South African Transport
Services
P.O. Box 177
DURBAN
4000
- (vi) The Salvage Association
P.O. Box 55
DURBAN
4000

11. Classification Societies

- (i) American Bureau of Shipping
P.O. Box 4059
DURBAN
4000
- (ii) Bureau Veritas
P.O. Box 29080
MAYDON WHARF
4057
- (iii) Germanischer Lloyd
P.O. Box 4711
DURBAN
4000
- (iv) Lloyds Register of Shipping
P.O. Box 170
DURBAN
4000
- (v) Det Norske Veritas
P.O. Box 17063
CONGELLA
4013
- (vi) Nippon Kaiji Kyokai
P.O. Box 7343
CAPE TGWN
8000

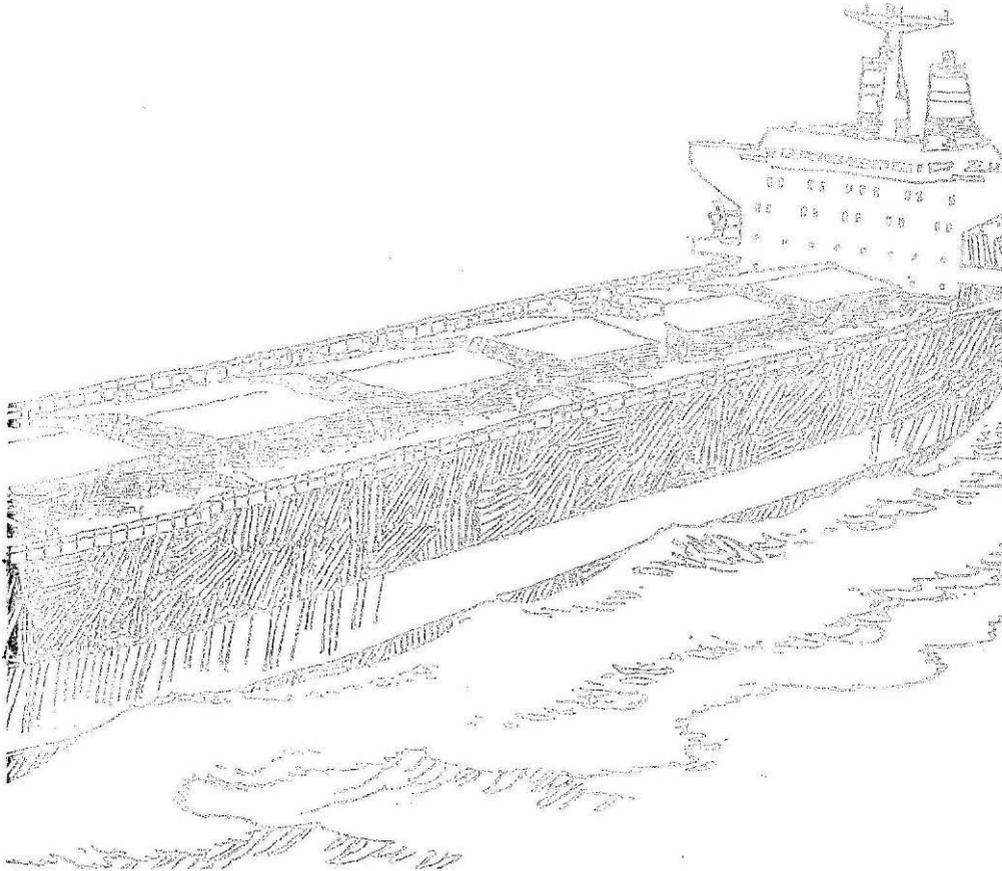
South African Institute of Marine Engineers and Naval Architects

12. Where to Study

- (i) Cape Peninsula University of Technology (CPUT), Western Cape (021 959 6767)
- (ii) Durban University of Technology KwaZulu Natal (031 373 2144)
- (iii) False Bay FET, Western Cape (021 003 0600)
- (iv) Leading Light Academy, Eastern Cape
- (v) Maritime & Skills College, KwaZulu Natal (031 301 0649)
- (vi) Nelson Mandela Metropolitan University, Eastern Cape (041 504 1111)
- (vii) SA Maritime School, KwaZulu Natal (031 337 7889)
- (viii) SA Coast Guard Training Institute, Western Cape (SAMSA) (021 425 4381)
- (ix) The South African Maritime School and Transport College, Durban, KwaZulu Natal (031 337 7889)
- (x) Tshwane University of Technology (TUT), Gauteng (086 110 2421)
- (xi) Unicorn Shipping and Unicorn Training School, KwaZulu Natal (031 302 1800)
- (xii) University of Cape Town, Western Cape (021 650 9111)
- (xiii) University of KwaZulu-Natal, KwaZulu Natal (031 260 1111)
- (xiv) University of Johannesburg, Gauteng (011 559 4555)
- (xv) University of Stellenbosch, Western Cape (021 808 9111)
- (xvi) University of South Africa (012 429 3111)

Further information and membership application forms may be obtained from the National Honorary Secretary.

South African Institute of Marine Engineers and Naval Architects



Website:
Email:

SAIMENA House
77 Jacko Jackson Drive
Morningside, Durban
4001
www.saimena.co.za
saimena.cape@webafrica.org.za

PO Box 7710
Roggebaai
Cape Town
8012