

MARINE SYSTEMS ENGINEERING



WHAT THEY DO • Marine Systems Engineers are responsible for the readiness, operation and maintenance of propulsion and ancillary systems, power generation and distribution, auxiliary systems, ship's service systems, ship and machinery control systems, hull structure, ship's stability, damage control, and the integration of these systems. They analyze the state of their systems, equipment and personnel, predict their requirement for Naval operations and advise Command accordingly. Marine Systems Engineering (MS ENG) Officers are members of the Navy.

The role of an MS ENG officer is to provide engineering expertise for:

- > The support of day-to-day Naval operations and maintenance of marine systems in ships and submarines
- > The continuous renewal of the Fleet through modernization and replacement, including design, development, acquisition, construction and disposal of Naval marine systems and equipment
- > The peacetime sustainment of infrastructure needed to support Naval operations and missions in times of emergency, mobilization and war
- Provide leadership, development and personnel management of the officer and technician occupations that support Marine Systems Engineering activities

TRAINING

The length and content of officer training depend on the entry plan you use to join the CF.

A. Initial Assessment and Basic Officer Training

Initial Assessment and Basic Officer Training are conducted at the Canadian Forces Leadership and Recruit School in Saint-Jean-sur-Richelieu, Quebec. During the Basic Officer Training, you will learn the principles of

leadership, regulations and customs of the service, basic weapons-handling, and first aid. Throughout this phase of the training, you will participate in a rigorous program of fitness training and sports.

Second language training will be provided to officers who are not already fluent in both official languages. The length of training is based upon an individual's second language proficiency.

B. Naval Officer Training

Consists of the 9-week Naval Environmental Training Program – Officers course held at the Naval Officer Training Centre in Victoria, B.C. This course introduces the Naval environment and includes 4 weeks on board a minor war vessel for officers to experience life at sea.

C. Marine Systems Engineering Training

Consists of several courses held at the Canadian Forces Naval Engineering School (CFNES) in Halifax, N.S. The first course, Naval Engineering Indoctrination, lasts 11 weeks and introduces the systems, equipment and personnel of the 2 engineering departments of the ships in the Fleet. This course includes 7 weeks on board a major warship.



The next course, Marine Systems Engineering Applications, lasts 22 weeks and provides detailed instruction in the theory, application, operation, maintenance, personnel and management of Marine Systems Engineering in the Navy. On completion, officers join the ships of the Fleet for one year in order to consolidate their skills and knowledge of Marine Systems Engineering.

Throughout the above-noted training, officers will develop the general and personnel management skills required to successfully fill engineering positions.

CAREER DEVELOPMENT

You will be enrolled at the rank of Naval Cadet (NCdt). On completion of a degree and Basic Officer Training, you will be commissioned as an Acting Sub-Lieutenant (ASLt). On completion of the Naval Engineering Indoctrination course and one year of commissioned service, you will be promoted to the rank of Sub-Lieutenant (SLt). Upon attaining your qualification as a Marine Systems Engineer and after three years of commissioned service, you will be promoted to the rank of Lieutenant Navy (Lt(N)). Further promotions are based upon performance, potential and merit.

POST-GRADUATE AND SPECIALIZED TRAINING OPPORTUNITIES

Marine Systems Engineering offers opportunities to further enhance engineering specialization through fully funded post-graduate education in Canada or abroad. For example, there is an ongoing need for Marine Systems Engineers with a Master's degree in:

- Naval Architecture
- Marine Engineering
- Heavy Electrical Engineering
- Control and Instrumentation Engineering

There is also a need for Marine Systems Engineers with several specialized skills amongst which:

- Marine Propulsion Control System Analysis
- Cargo Management
- Vibration Analysis
- Gas Turbine Engineering
- Reliability Centered Maintenance
- Advanced Ship Production

WORKING ENVIRONMENT

Marine Systems Engineers are employed in the ships and submarines of the Fleet and at shore-based establishments that support the Fleet. In the Fleet, they serve as the Head of the Marine Systems Engineering Department. In this position, they are frequently required to work extended hours and are on-call 'around-the-clock'. They deal with the mental stress of working with and leading a large number of personnel of varied training levels and backgrounds in a cramped, noisy, self-contained environment for extended periods and in all weather conditions.

In shore-based establishments, they are employed throughout Canada (primarily in Halifax, N.S., Victoria, B.C. and the National Capital Region) and abroad. The range of employment is wide and involves present and future technological challenges in the Navy. For example, a Junior Project Engineer may be part of a new equipment acquisition project or a technical project within a Fleet Maintenance Facility. In addition, Marine Systems Engineers are employed in staff, training and administrative positions requiring engineering expertise.

Appropriate training, environmental clothing and equipment are provided.

