

# NAVAL WARFARE SYSTEM EXPERT



# PRIMED FOR ACTION

Set sail on a journey unlike any other with the Republic of Singapore Navy. As a Naval Warfare System Expert, you will hone your skills using some of the most sophisticated naval technology and systems in the world, while protecting Singapore's waters and ensuring continued access to our sea lanes. Your domain expertise will ensure our naval assets are primed for action to safeguard Singapore's interest as a maritime nation.



# PREPARED

## FOR ANY CHALLENGE

As a Naval Warfare System Expert, you will apply your skills in electronics, marine systems or electrical and control systems, keeping our arsenal of warships, submarines, unmanned vessels and naval aircraft ready for action at any time.

This journey will also see you visiting ports of call around the world, as you participate in overseas missions and training exercises.

Choose a career that serves a bigger purpose and rewards you with an extraordinary and meaningful experience.

Embark on a purposeful career as a Naval Warfare System Expert.



# OUR PURPOSE

For centuries, maritime trade has been a key component of Singapore's economy and vital to its survival and prosperity. Given Singapore's strategic location, seaborne trade is the lifeblood of our economy and we rely on the sea to import valuable cargo and energy, and to export goods we manufacture. Our port is one of the busiest in the world and our offshore islands along the Singapore Strait host some of the world's largest oil refineries. Threats to Singapore's waters – the borders of a small island state measuring no more than 50km by 27km with no geographic depth – are also threats to the nation and Singaporeans' livelihoods. The sea is Singapore's lifeline, our link to the world and our first line of defence.



## The 4 key roles of our Navy



### Ensuring maritime security

The Singapore Strait is one of the busiest waterways in the world – every day, close to a thousand ships ply it. Given its proximity to the country's city centre and critical industries, it is crucial that the RSN ensures that maritime security is never compromised. The Navy maintains a 24/7 presence in Singapore waters, supported by surveillance and sense-making hubs ashore, and works closely with national and regional maritime agencies and navies to ensure that our seas are safe and secure for all.



### Enhancing diplomacy

The RSN contributes to the expansion of Singapore's policy space by making friends and sustaining strong relationships with fellow navies in the region and beyond. Building relationships with friends and partners improves trust and interoperability and makes it easier to tackle maritime concerns and security challenges together.



### Protecting our Sea Lines of Communication

Singapore sits astride the major sea lines of communication in the world. Cut off its access to them and Singapore will immediately be isolated. The RSN plays an important role in maintaining access to these sea lines of communication and deterring and dealing with threats to their closure.



### Securing our peace

In peace, the RSN has to hone and finesse its warfighting capabilities. It has to be ready at all times to answer the call of duty, and work with friends and partners to protect the seas, which are global commons. Should deterrence and diplomacy fail, the RSN will secure a swift and decisive victory for Singapore against any aggressor at sea.

# OUR ARSENAL OF ASSETS

Submarines, warships and naval aircraft are critical instruments of war, used to accomplish strategic, operational and tactical goals.

Your skills and knowledge as a Naval Warfare System Expert will play an important role in operating a comprehensive suite of state-of-the-art naval platforms and systems; ensuring their readiness to respond to any eventualities that may occur in the complex and challenging maritime domain.

## FLEET



### **ENDURANCE-CLASS LANDING SHIP TANK**

Length: 141 metres  
Speed: In excess of 15 knots  
Displacement: 6,000 tonnes



### **FORMIDABLE-CLASS FRIGATE**

Length: 114 metres  
Speed: In excess of 25 knots  
Displacement: 3,200 tonnes



### **VICTORY-CLASS MISSILE CORVETTE**

Length: 62 metres  
Speed: In excess of 30 knots  
Displacement: 530 tonnes



# MARITIME SECURITY TASK FORCE



## ARCHER-CLASS SUBMARINE

Length: 60.5 metres  
Speed: 8 knots (surfaced),  
>15 knots (submerged)  
Displacement: 1,400 tonnes (surfaced),  
1,500 tonnes (submerged)



## CHALLENGER-CLASS SUBMARINE

Length: 51 metres  
Speed: 10 knots (surfaced),  
16 knots (submerged)  
Displacement: 1,130 tonnes (surfaced),  
1,200 tonnes (submerged)



## TYPE 218SG SUBMARINE

As part of our future development,  
the first Type 218SG Submarine  
will join our Navy in 2020.



## FEARLESS-CLASS PATROL VESSEL

Length: 55 metres Speed: In excess of 20 knots  
Displacement: 500 tonnes



## BEDOK-CLASS MINE COUNTER MEASURE VESSEL

Length: 47.5 metres Speed: In excess of 15 knots  
Displacement: 360 tonnes

## UNMANNED SYSTEMS



## PROTECTOR UNMANNED SURFACE VESSEL

Length: 9 metres  
Speed: Up to 30 knots  
Displacement: 5 tonnes



## SCANAGLE UNMANNED AERIAL VEHICLE

Length: 1.2 metres  
Speed: About 53 – 55 knots  
Weight: About 20 kilograms



## INDEPENDENCE-CLASS LITTORAL MISSION VESSEL

Length: 80 metres  
Speed: In excess of 27 knots  
Displacement: 1,250 tonnes  
Eight Littoral Mission Vessels will be replacing our  
*Fearless*-class patrol vessels by 2020.



## SPECIALISED MARINE CRAFT

Length: 22 metres Speed: In excess of 30 knots  
Displacement: 40 tonnes

## AIRCRAFT



## FOKKER 50 MARITIME PATROL AIRCRAFT

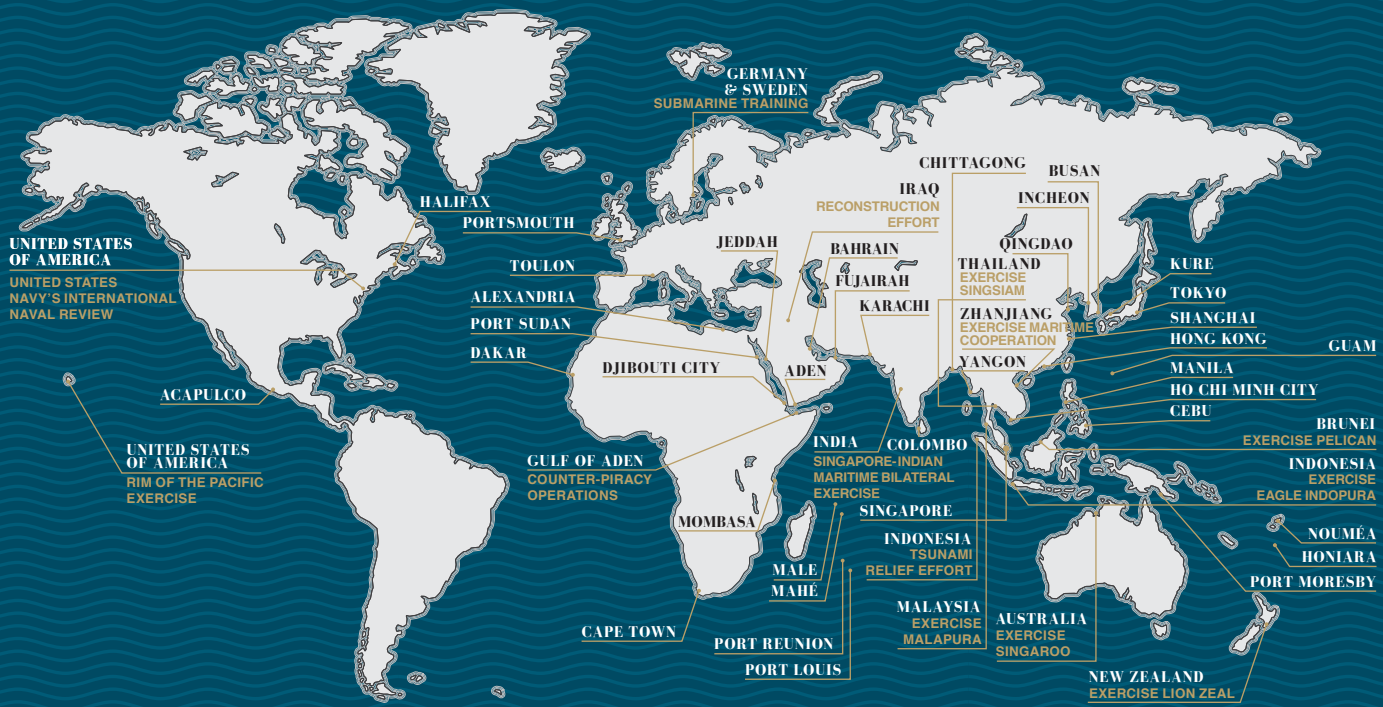
Length: 25 metres  
Speed: 220 knots  
Wingspan: 29 metres



## S-70B SEAHAWK

Length: 19.76 metres  
Speed: About 140 knots  
Weight: 9.6 tonnes

This map depicts our Navy's various ports of call, exercises and missions.



**UNITED STATES OF AMERICA**  
UNITED STATES NAVY'S INTERNATIONAL NAVAL REVIEW

**ACAPULCO**  
**UNITED STATES OF AMERICA**  
RIM OF THE PACIFIC EXERCISE

**HALIFAX**  
**PORTSMOUTH**

**TOULON**  
**ALEXANDRIA**  
**PORT SUDAN**  
**DAKAR**

**DJIBOUTI CITY**  
**ADEN**  
**GULF OF ADEN**  
COUNTER-PIRACY OPERATIONS

**MOMBASA**  
**CAPE TOWN**  
**PORT REUNION**  
**PORT LOUIS**  
**MALE**  
**MAHE**

**GERMANY & SWEDEN**  
SUBMARINE TRAINING

**JEDDAH**  
**BAHRAIN**  
**FUJAIRAH**  
**KARACHI**

**INDIA**  
SINGAPORE-INDIAN MARITIME BILATERAL EXERCISE

**COLOMBO**  
**SINGAPORE**  
**INDONESIA**  
TSUNAMI RELIEF EFFORT

**MALAYSIA**  
EXERCISE MALAPURA

**AUSTRALIA**  
EXERCISE SINGAROO

**NEW ZEALAND**  
EXERCISE LION ZEAL

**CHITTAGONG**  
**IRAQ**  
RECONSTRUCTION EFFORT

**BUSAN**  
**INCHEON**  
**QINGDAO**  
**THAILAND**  
EXERCISE SINGSIAM

**ZHANJIANG**  
EXERCISE MARITIME COOPERATION

**YANGON**

**KURE**  
**TOKYO**  
**SHANGHAI**  
**HONG KONG**  
**GUAM**  
**MANILA**  
**HO CHI MINH CITY**  
**CEBU**

**BRUNEI**  
EXERCISE PELICAN

**INDONESIA**  
EXERCISE EAGLE INDOPURA

**NOUMEA**  
**HONIARA**  
**PORT MORESBY**



# **YOUR MEANINGFUL JOURNEY** >

As a Naval Warfare System Expert, you'll be tasked with the responsibility of protecting our sea lanes, playing an active role in overseas missions and exercises. You will also get the opportunity to work alongside navies from around the world to ensure safe and secure seas for all. These are some of the opportunities where you can play a role in support of the international community.

# CHARTING THE WAY FORWARD

Our Electronics Experts are responsible for ensuring that our ships are combat-ready at all times – ready to be aided by our naval combat, communication and navigation technologies. Depending on your domain expertise, you will be trained to operate navigation, communication, underwater warfare, command and control, or weapon systems.

## ACADEMIC QUALIFICATIONS

Relevant Diploma, Higher NITEC, NITEC or equivalent

### Starting salary

ME1 Trainee:	ME1:
\$2,740 (Diploma)	\$3,630* (Diploma)
\$2,530 (Higher NITEC)	\$3,430* (Higher NITEC)
\$2,170 (NITEC)	\$3,080* (NITEC)

*\*Includes ship board allowance of \$350 and MDES Sea Assignment allowance of \$320*

### Additional allowances

Ship board: \$350 – \$450  
Submarine: \$750 – \$850  
MDES Sea Assignment: \$320

### Basic requirements

- Singapore citizen or Singapore PR intending to take up citizenship
- Medically fit (PES B and above)
- Normal colour perception

*Salary range is subject to change. The actual starting salary will vary based on holistic assessment of the candidates' qualities, educational qualifications, completion of full-time National Service, relevant work experience, and military performance against the requirements of the jobs.*

# NAVAL WARFARE SYSTEM EXPERT (ELECTRONICS)

## Navigation Systems



Using a state-of-the-art radar and a suite of navigation equipment, you will learn to navigate a warship safely in our waters and beyond.

## Communication Systems



You are instrumental in establishing and maintaining communications by managing an array of sophisticated equipment to send and receive information for your ship at sea.

## Underwater Warfare Systems



Using modern sonar and mine-hunting equipment, you will gain mastery of the underwater domain to detect and eliminate any underwater threat.

## Command and Control Systems



With your keen sense and situational awareness, you will be trained to observe and make sense of the dynamic three-dimensional battlespace, using the command and control systems on board to identify and deal with air, surface and underwater threats.

## Weapon Systems



From guns to long-range missiles, you will be able to operate a vast range of weaponry to neutralise any possible threat to the ship.

# NAVAL WARFARE SYSTEM EXPERT (ELECTRICAL & CONTROL SYSTEMS)

Every ship is powered by an electrical system that enables the ship and its systems to function effectively and efficiently. In this role, your skills and knowledge will put you in charge of this system. You also ensure that power to crucial combat systems such as communications, radar, sonar, navigation equipment, combat data control and the weapons suite remain uninterrupted.

## ACADEMIC QUALIFICATIONS

Diploma, Higher NITEC or NITEC in Electrical Engineering, or other relevant engineering qualifications

## Starting salary

ME1 Trainee:	ME1:
\$2,740 (Diploma)	\$3,630* (Diploma)
\$2,530 (Higher NITEC)	\$3,430* (Higher NITEC)
\$2,170 (NITEC)	\$3,080* (NITEC)

*\*Includes ship board allowance of \$350 and MDES Sea Assignment allowance of \$320*

## Additional allowances

Ship board: \$350 – \$450  
Submarine: \$750 – \$850  
MDES Sea Assignment: \$320

## Basic requirements

- Singapore citizen or Singapore PR intending to take up citizenship
- Medically fit (PES B and above)
- Normal colour perception

*Salary range is subject to change. The actual starting salary will vary based on holistic assessment of the candidates' qualities, educational qualifications, completion of full-time National Service, relevant work experience, and military performance against the requirements of the jobs.*



# NAVAL WARFARE SYSTEM EXPERT (MARINE SYSTEMS)

As a Marine Systems Expert, you're responsible for a wide range of equipment that keeps the ship running. These are critical to the ship's survivability and encompasses the propulsion systems, air conditioning and ventilation systems, fresh water plants and pollution control systems.

## ACADEMIC QUALIFICATIONS

Diploma, Higher NITEC or NITEC in Marine and Mechanical Engineering, or other relevant engineering qualifications

## Starting salary

ME1 Trainee:	ME1:
\$2,740 (Diploma)	\$3,630* (Diploma)
\$2,530 (Higher NITEC)	\$3,430* (Higher NITEC)
\$2,170 (NITEC)	\$3,080* (NITEC)

*\*Includes ship board allowance of \$350 and MDES Sea Assignment allowance of \$320*

## Additional allowances

Ship board: \$350 – \$450  
Submarine: \$750 – \$850  
MDES Sea Assignment: \$320

## Basic requirements

- Singapore citizen or Singapore PR intending to take up citizenship
- Medically fit (PES B and above)
- Normal colour perception

*Salary range is subject to change. The actual starting salary will vary based on holistic assessment of the candidates' qualities, educational qualifications, completion of full-time National Service, relevant work experience, and military performance against the requirements of the jobs.*





# MILITARY MEDICAL EXPERT (UNDERWATER)

With your life-saving skills, you are indispensable in every mission. Take your knowledge to the next level by learning to administer both preventive and curative medicine, and be trained in the domain of hyperbaric medicine.

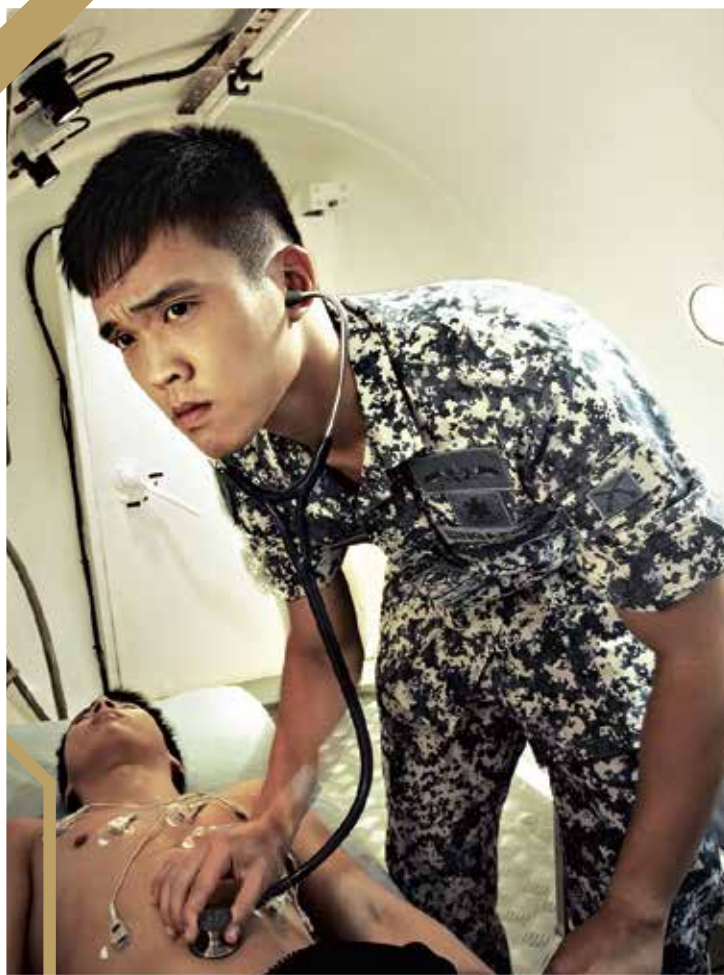
<b>ACADEMIC QUALIFICATIONS</b>	Diploma in Nursing	
<b>Starting salary</b>	ME1 Trainee: \$3,010 (Diploma)	ME1: \$3,260 (Diploma)
<b>Additional allowances</b>	Shipboard: \$350 – \$450 Submarine: \$750 – \$850	

# NAVAL CHEF

At sea, your culinary expertise will play a key role in supporting and boosting the morale of the men and women of our Navy, while providing them with the necessary nutrition and energy to achieve mission success.

<b>ACADEMIC QUALIFICATIONS</b>	Diploma, Higher NITEC, NITEC or minimum 1 GCE 'N'-Level pass	
<b>Starting salary</b>	ME1 Trainee: \$3,010 (Diploma) \$2,780 (Higher NITEC) \$2,390 (NITEC) \$2,170 ('O'-Level and below)	ME1: \$3,610* (Diploma) \$3,390* (Higher NITEC) \$2,970* (NITEC) \$2,750* ('O'-Level and below)
<b>Additional allowances</b>	Shipboard: \$350 – \$450 Submarine: \$750 – \$850	

*Salary range is subject to change. The actual starting salary will vary based on holistic assessment of the candidates' qualities, educational qualifications, completion of full-time National Service, relevant work experience, and military performance against the requirements of the jobs.*



# DARE TO GO FURTHER

## NAVAL WARFARE SYSTEM EXPERTS

### RANK

### APPOINTMENTS

#### ME1 – ME3



ME1



ME2



ME3

- Coxswain of Ship
- Expert Staff in various warfare and engineering domains
- Cluster Chief of Squadron / Ship / Domain / Base
- Cluster Chief in various warfare and engineering domains
- System Supervisor in various warfare and engineering systems
- System Operator / Maintainer in various warfare and engineering systems

#### ME4 – ME6



ME4



ME5



ME6

- Lead Engineer, Marine Systems / Combat Systems (ship-based or shore-based appointment)
- Staff Officer / Section Head (e.g. Engineering, Systems Engineering, Military Logistics, Plans & Operations)
- Squadron Commander
- Senior Branch Head (e.g. Engineering, Systems Engineering, Military Logistics, Plans & Operations)
- Commanding Officer of an Engineering Centre or Naval Engineering School
- Branch Head at Engineering Centre
- Senior Staff Officer (e.g. Engineering, Systems Engineering, Military Logistics, Plans & Operations)
- Senior Engineer, Marine Systems / Combat Systems (ship-based or shore-based appointment)
- Squadron Principal Engineer

#### ME7 – ME8



ME7



ME8

- Head Naval Logistics
- Commander Naval Logistics Command
- Group Head (e.g. Engineering, Systems Engineering, Military Logistics, Plans & Operations)
- Senior Principal Engineer (Domain & Systems)

# VOCATIONAL BADGES

As you work with some of the world's most sophisticated naval technology, you may deepen your expertise by earning specialised vocational badges. The various badges from silver to gold, to gold-with-star will recognise the milestones in your growth.



## COMMAND AND CONTROL (C2)

As the brains of the ship, C2 operators are always on a quest for increasing knowledge and higher expertise, symbolised by the compass rose around the radar screen.



## COMMUNICATION SYSTEMS (CS)

As the vital link between ship and shore, the CS specialist's professional competency is important in maintaining smooth communication and coordination, symbolised by the signal flags.



## ELECTRONIC WARFARE (EW)

Featuring a shield with an atom and a raven with an electric bolt, this badge perfectly signifies the art of attacking all enemies without firing a single shot.



## MECHANICAL SYSTEMS (MS) / ELECTRICAL CONTROL SYSTEMS (ECS) / NAVAL ARCHITECTS (NARC)

Honouring those involved in the upkeep of the ship, the gear and electric bolts are used to reflect the crucial responsibilities of maintaining machinery such as the engine and generators.



## NAVAL SUPPLY EXPERTS / NAVAL CHEFS

The globe with the three arrows pointing outwards represents the vital logistical support of chefs and supply experts, who deliver and prepare meals that aid in the crew in going beyond horizons.



## NAVIGATION SYSTEMS (NVS)

Direction finding and navigation, both essential skill sets in guiding the ship through obstacles, are represented by the North Star and navigation radar.



## UNDERWATER WARFARE

The role of sound and sonar readings in countering undersea threats is depicted through the sonar wave symbol, while the victory sign represents growing knowledge in underwater warfare.



## WEAPON SYSTEMS (WS) / WEAPON CONTROL SYSTEMS OPERATOR (WS-C)

In-depth expertise is required in operating and maintaining the complex weapons on board, represented by the outward-pointing naval guns and missiles.

A career with the Navy ensures that your needs will be well taken care of under the Military Domain Experts Scheme (MDES) and the Flexible Benefits Scheme.

### MDES BENEFITS

Career until age 60 on full CPF terms  
Expert Continuous Engagement & Learning (EXCEL) Bonus 28 months of MDES bonus in total, paid at 4 points in your career:

- Age 28 – up to 4 months' bonus
- Age 32 – up to 8 months' bonus
- Age 40 – up to 8 months' bonus
- Age 50 – up to 8 months' bonus

### FLEXIBLE BENEFITS SCHEME

An annual lump sum allowance will be disbursed to you so that you have the flexibility in using the money as and when you need it.

Up to 10 years of service - \$800 per year

More than 10 years of service - \$1,000 per year

# SPONSORSHIPS

Our Navy is a learning organisation. When you join us as a Naval Warfare System Expert, we are prepared to offer sponsorships to see you through your studies. During your career in the Navy, you will also be given opportunities for professional development and to further your studies.

## SPONSORSHIPS

### SAF Polytechnic Sponsorship (MDES)

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### SAF ITE Sponsorship (MDES)

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### Recruitment Bonus

## BENEFITS

- Full sponsorship of tuition fees and other approved charges
  - Monthly allowance of \$1,300
  - Study bonus of \$1,200 for each successfully completed semester without any failed module
- 

- Full sponsorship of tuition fees and other approved charges
  - Monthly allowance of \$600 (Higher NITEC) and \$550 (NITEC)
- 

- Receive a lump sum bonus of \$36,000 (Diploma) or \$26,000 (non-Diploma) upon joining as Naval Warfare System Expert and Military Medical Expert (Underwater)\*
- Receive a lump sum bonus of \$25,000 (Diploma) or \$15,000 (non-Diploma) upon joining as Naval Chef\*

\*Additional terms and conditions apply. Please contact Navy Recruitment Centre for more details.

## ELIGIBILITY CRITERIA

- Qualify for a place or currently studying in a local polytechnic
  - Have not repeated any semester
  - Must be a Singapore citizen or permanent resident intending to take up citizenship
- 

- Qualify for a place or currently studying in a local Institute of Technical Education
  - Have not repeated any semester
  - Must be a Singapore citizen or permanent resident intending to take up citizenship
- 

- A local polytechnic diploma or Higher NITEC / NITEC qualification
- Singapore citizens or permanent residents intending to take up citizenship

# OUR EXPERTS IN THEIR WORDS



## MILITARY EXPERT 3 (ME3) JOE YEO TEE HWA

Coxswain, RSS *Formidable*  
(*Formidable*-class Frigate)

Growing up, I have always aspired to be in the Navy because of my fascination with warships. I was also drawn to the Navy because it offers a meaningful career that allows me to contribute to the defence of my country. For me, nothing is more important than ensuring that my loved ones continue to live in the peace and security that Singapore enjoys.

In my career with the Navy, I have participated in many overseas missions. These missions are important for our Navy to build up a strong network of partnerships with navies from around the world, to ensure safe and secure seas for all. One of the most recent missions I participated in was Operation Blue Sapphire (Command) in 2016. I was deployed to the Gulf of Aden for counter-piracy operations and was part of the international fight against piracy. It was an eye opening experience working alongside navies from around the world and learning about different cultures. The mission highlighted the greater purpose of what I do and showed how meaningful it is to contribute to a safer and more secure passage for international shipping.

Today, as the Coxswain of RSS *Formidable*, a *Formidable*-class frigate, my primary role is to maintain the general discipline and ensure the well-being of the men and women on board. Out at sea and away from home, I understand the importance of my role as a good role model and mentor to them. Like a family, we tide through good and tough times together.

Indeed, a career with the Navy is not a deskbound job. It is an adventure that will enable you to reach your fullest potential, allowing you to make a positive difference to the lives of many. If you think you have what it takes, we welcome you on board.



## MILITARY EXPERT 2 (ME2) TAN SUAN LING

Navigation Supervisor, RSS *Daring*  
(Fearless-class Patrol Vessel)



Having served two tours on board the patrol vessels, previously as an operator and as a supervisor now, it has made me realise the importance of the sea to Singapore. We are a country surrounded by waters, and the things that Singaporeans need for survival come via the sea. Therefore, Singapore is inextricably linked to the sea, and the Navy ensures that this lifeline is never threatened.

My passion for the Navy has deepened with time because being at the frontline of Singapore's maritime defence constantly reminds me of the importance of the Navy to Singapore's survival as a small country. It is a profession that allows me to contribute to the defence of our maritime nation, a place that holds all of whom I love.

As a Navigation Supervisor, my role is to lead a team of navigation experts to ensure the navigational safety of the warship. This is a responsibility that I take seriously, and I do so by training my team well.

## MILITARY EXPERT 2 (ME2) MOHAN ALIAS VINOD

Marine Systems Chief, RSS *Persistence*  
(Endurance-class Landing Ship Tank)



My interest in the Navy was sparked during a career talk I attended, where the officer shared about the array of sophisticated warships and weaponry of the Republic of Singapore Navy (RSN). Being an engineering student, the opportunity to work on these systems proved to be too exciting to miss, and I signed on upon the completion of my diploma education.

Today, I am living my dream. I am serving on board a Landing Ship Tank, the largest ship in the RSN, and get to work intimately with the engineering intricacies of this warship.

Beyond my engineering role, being in the Navy also provides me with the opportunity to serve the greater good of humanity. In December 2014, I was involved in the search and rescue operation of AirAsia Flight QZ8501 which crashed into the Java Sea. This meant that many of us had to scrap year-end plans such as countdown parties with families or birthdays. However, we knew that this was an important mission, one that would help to bring closure to the families of the victims. It impressed upon me the value that the Navy can bring during uncertainty.

Such deployments, while unfortunate, proved to be a test for the ship and crew. As a family on board, everyone put in their best effort to ensure that we complete our mission together. This is what we pride ourselves for -- the Navy family. The Navy is a place where I found friends whom I can count on during difficult times, and I believe it will be so for those who choose to join us.

# WE ARE THE NAVY FAMILY

Beyond the various operations and exercises that the RSN undertakes, what makes the RSN so special is its closely-knit Navy Family spirit. Working and living together on board a unique environment like our ships forges a sense of camaraderie and allows for lasting ties of kinship to be built amongst the crew, across the ranks.

Set sail on a journey with us and be part of our Navy Family.





[www.navycareers.gov.sg](http://www.navycareers.gov.sg)

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[navycareers@defence.gov.sg](mailto:navycareers@defence.gov.sg)