

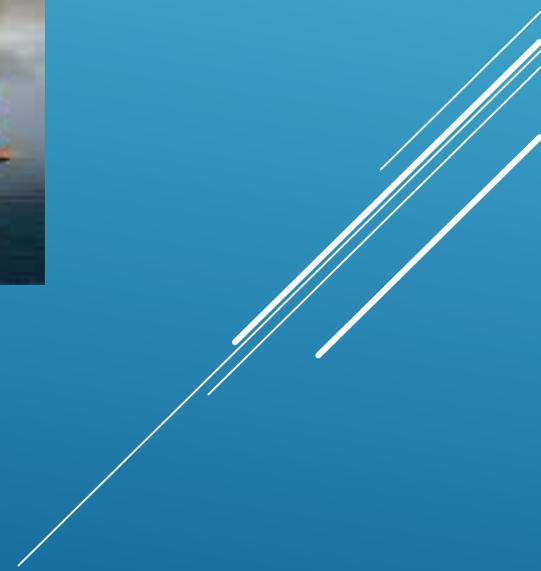
# The Maritime Industry



Naval Architecture, and Naval, Marine and Ocean Engineering are fast growing and dynamic fields with plentiful opportunities that are improving as people turn to the oceans for resources such as food, transportation and energy.



# Careers In The Maritime Industry



The engineers must be creative and visionary to see the potential to use transportation and the oceans effectively. Government, industry and academia are hungry for experts and researchers to develop new processes and systems to explore and travel the ocean with minimal or no danger to its habitat and environment. Marine structures, vessels and ocean systems are unique because only a small number of each design is built, they are very large and complex, and they operate in this environment.

Anything that operates in this environment has special design requirements relevant to sea keeping, capsizing, station keeping, and random motions and loads in a hostile environment. Due to this uniqueness, the manufacturing is often more challenging and expensive. The impact of Naval Architecture, Marine and Ocean Engineering is far-reaching and greatly enhances our quality of life. For example:

- 74% of the world's trade is carried by ship.
- 90% of the Indian international trade is transported by ship.

## ***Naval Engineering***

Naval engineers work on naval vessels. A naval vessel is one of the world's largest and most complex engineered systems. It's much more complicated to design a navy ship than almost any other form of transportation or structure. Not only is the ship critical to national defense but it has to move through the water similar to other boats and amphibious vehicles and enable a crew of hundreds to live aboard it for extended periods of time. Engineers in this field must always balance cost, new technology, hull design, materials and all of the systems aboard such as the weapons management, electronics, HVAC, propulsion, ventilation, sleeping quarters, galley, head, etc. The real trick for the Naval Engineer is to put all these pieces together.



## ***Naval Architecture***



Naval architects are engineers who design all kinds of watercraft or anything that can be used as transportation on water. This may be a ship, boat, submarine, seaplane, icebreaker or offshore drilling platform. The vessels may be used for recreation, transportation, work or by the Navy and can be big or small. They may be powered by sails, nuclear power or some other propulsion system.

Marine environments can be hostile and unpredictable. One minute the seas are calm and the next can be a white knuckle ride as the waves pound the side of your boat or seagoing vessel. This unpredictability provides a challenging frontier for the naval architect.

## ***Marine Engineering***

Naval architects may build the frame or structure of a boat but marine engineers are needed to design all of the internal power and machinery systems of the boat. Without marine engineers, the boat would have no engine, electronics, hydraulics, lighting, refrigeration, or controls. To be a good marine engineer, you must be very versatile, creative and open to learning. Marine engineering is an exciting career because every boat or ship is different and you will be responsible for every system on board. Almost every boat needs an engine, propeller, steering, transmission, pumps, electrical systems, etc. Marine engineers make it happen. They know a lot about many different kinds of vessel systems and controls. They give millions of people the ability to have fun on jetskis, small sailboats, or vacation cruises as well as enabling the military to race across the ocean, clean oil spills or rescue other boaters in distress.



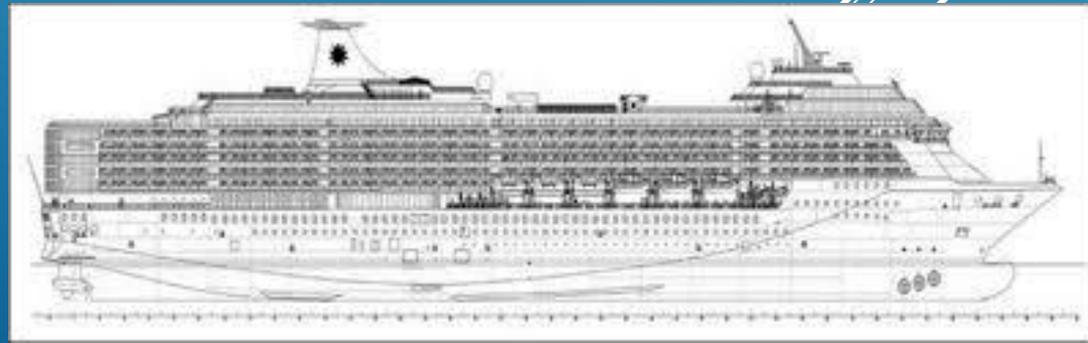


## ***Ocean Engineering***

Every instrument, every device and every process in an ocean environment is the creation and responsibility of ocean engineers. The ocean environment is very corrosive, volatile and often unpredictable. Waves are never-ending and the devices or gear that are used to explore the environment must be able to withstand high winds, waves and salt-water. One of the great things about ocean engineering is that many different types of engineers can be a part of the solutions needed for ocean infrastructure, research and utilization. Ocean engineering integrates disciplines such as materials science and mechanical, civil, computer, software, marine, chemical and electrical and electronics engineering. In addition to creating underwater robots (ROV's), they also develop underwater structures, oil rigs, buoys for data collection, and they are hard at work developing ways to capture the energy of waves and turn it into electricity. They develop transportation systems, plan new uses for waterways, design deep-water ports, and integrate the land and water transportation systems and methods. They are concerned with discovering, producing, and transporting offshore petroleum as well as developing new ways to protect marine wildlife and beaches.



# Colleges in India offering Courses on Naval Architecture



Reputed institutions like IIT Kharagpur, IIT Madras, etc offer Bachelor of Technology course in Naval architecture & Ocean Engineering.

IIT Madras offers dual degree course in Naval architecture & Ocean Engineering.

Academy of Maritime Education and Training offers variety of courses like Bachelor of Engineering in Naval Architecture and Offshore Engineering, Diploma in Naval Architecture and Offshore Engineering, Certificate Course in Shipbuilding Technology, etc.

# Courses on Naval Architecture

- Bachelor of Technology in Naval Architecture & Ocean Engineering
- Bachelor of Engineering in Naval Architecture and Offshore Engineering
- Bachelor of Engineering in Naval Architecture and Marine Engineering
- Bachelor of Technology in Naval Architecture and Ship Building
- Master of Technology in Ocean Engineering and Naval Architecture
- Bachelor of Technology & Master of Technology in Naval architecture & Ocean Engineering (Dual Degree)
- Post Graduate Diploma in Naval Architecture and Ship Building
- Diploma in Naval Architecture and Offshore Engineering
- Certificate Course in Shipbuilding Technology
- Certificate Course in Ship / Offshore Structure Design
- Post Graduate Diploma in Naval Architecture and Offshore Engineering
- Post Graduate Diploma in Ship Building and Conversion Technology
- Post Graduate Diploma in Offshore Structures and Sub Sea Engineering
- Post-Graduate Advanced Diploma in Naval Architecture and Shipbuilding
- Diploma in Shipbuilding Engineering

# Colleges offering Naval Architecture Courses

## **Bachelor of Engineering in Naval Architecture and Marine Engineering**

- Andhra University College of Engineering

## **Bachelor of Engineering in Naval Architecture and Offshore Engineering**

- Academy of Maritime Education and Training (AMET University)

## **Bachelor of Technology in Naval architecture & Ocean Engineering**

- Indian Maritime University
- Indian Institute of Technology, Kharagpur
- Indian Institute of Technology, Madras

## **Diploma in Naval Architecture and Offshore Engineering**

- Academy of Maritime Education and Training (AMET University)

## **Post Graduate Diploma in Naval Architecture and Offshore Engineering**

- Academy of Maritime Education and Training (AMET University)

## **Bachelor of Technology in Naval Architecture and Ship Building**

- International Maritime Academy
- Cochin University of Science and Technology

## **Master of Technology in Ocean Engineering and Naval Architecture**

- Indian Institute of Technology, Kharagpur

## **Bachelor of Technology & Master of Technology in Naval architecture & Ocean Engineering (Dual Degree)**

- Indian Institute of Technology, Madras

## **Certificate Course in Shipbuilding Technology**

- Academy of Maritime Education and Training (AMET University)

## **Certificate Course in Ship / Offshore Structure Design**

- Academy of Maritime Education and Training (AMET University)

## **Post Graduate Diploma in Naval Architecture and Ship Building**

- Aarnav Shipping Technological Research Sanstha

## **Post-graduate Advanced Diploma in Naval Architecture and Shipbuilding**

- Mumbai University

## **Post Graduate Diploma in Ship Building and Conversion Technology**

- Academy of Maritime Education and Training (AMET University)

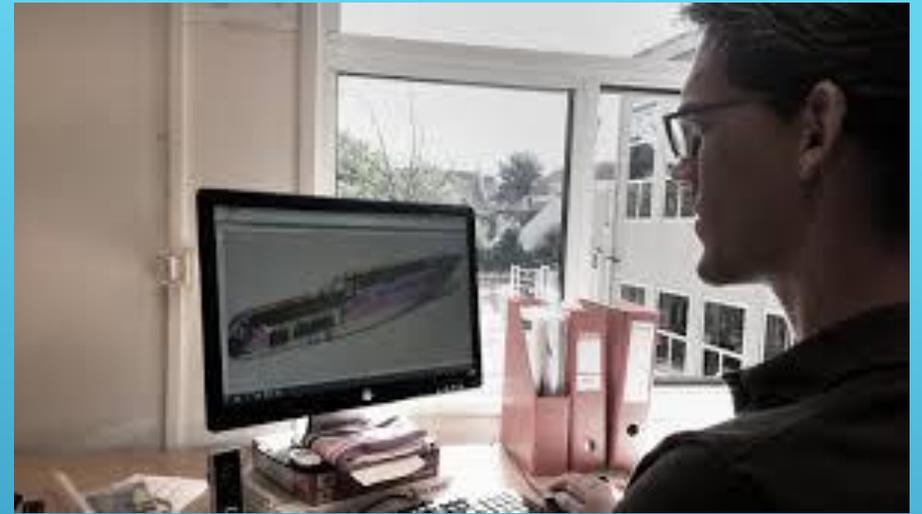
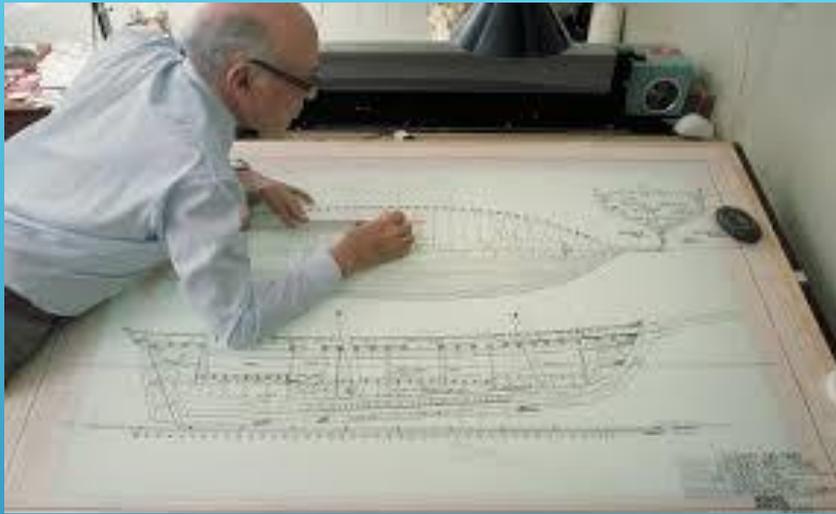
## **Post Graduate Diploma in Offshore Structures and Sub Sea Engineering**

- Academy of Maritime Education and Training (AMET University)

## **Diploma in Shipbuilding Engineering**

- Institute of Shipbuilding Technology, Goa (ISBT)

Courses in Naval Architecture offered by different institutes differ in course structure and duration. Duration of bachelor level courses (mentioned above) is 4 years where as that of PG diploma/Certificate courses ranges from 6 months to 1 year. All the colleges mentioned above offer adequate infrastructure to meet the needs of each course.



# JOBS



The marine world holds a myriad of employment opportunities within itself. This is one exciting field which offers marine employment along with great remuneration, adventure, and fun. If you are the kind of person who loves exploring unique yet lucrative opportunities, then jobs in marine industry is the right thing for you.

Here, we have enumerated all the unique marine careers and jobs which offer an exciting and satisfying professional life. Kindly note that this is not an exhaustive list; and we will keep on adding more interesting and rewarding career options to this huge marine jobs list.

If you are looking for jobs in marine, this is your ultimate guide.

1. Marine Engineer – The career of marine engineers deals with maintenance and repair of ship's machinery. This is an exciting career branch for those interested in the technical aspect of the ships.
2. Naval Architect – The profession of naval architecture involves planning and designing of ships and sea going vessels. The Career Option in Naval Architecture has several rewarding opportunities.
3. Shipping Broker – The profession of a ship broker deals with buying and selling of ships and shipping cargo. More than theoretical knowledge, this field is more about being in the market and learning different the ropes of the game. This is one highly competitive yet rewarding field. As a Ship Broker the person would act as a link between the ship owners and charterers.
4. Bosun – The job of bosun falls under the deck department of careers on ships. Bosun helps in carrying out various operations of the ship and also leads the crew department of the ship.
5. Oil Driller – As an oil driller the person is involved with drilling activities on oil rigs or offshore vessels. This job asks for great mental and physical strength, but also provides good returns.
6. Ordinary Seaman (OS) – This job involves performing work in the deck department of the ships. Career as an ordinary seaman is the stepping stone for a promising career at the sea.
7. Ship Fitter – The job of the ship fitter involves repairing and maintenance of the ship under the guidance of the ship officer. Find out more about ship fitter inside the article.
8. Tool Pusher – A tool pusher is a person who is in-charge of maintaining a continuous supply of necessary equipment on an oil rig.
9. Tugboat Jobs – Jobs on tugboats are for those people who love sea but want to stay connected with the shore as well. Surprisingly, there are various jobs available tugboats. If you want to find out more about them, then this is the perfect place.
10. Shipbuilding Engineer – Shipbuilding engineer deals with the engineering aspect of design and construction of ships and marine vessels. Just like any conventional engineering field, a shipbuilding engineer has to go through four years of training to be eligible to work in a shipbuilding yard.

11. Shipping Fright Broker – Shipping fright broker acts as a link between those who want to ship cargo and those who have ships to transport that cargo. The career of shipping fright broker is a highly competitive and rewarding field.

12. Cruise Ship Designer – Ever wondered how those massive cruise ships are designed? If you have a penchant for designing things, then this can be an exciting career for you.

13. Quitting sea life to settle ashore ← **Recommended** – Some people may not want to go to sea but would still want a career in the marine industry. If you are one of them, then find out about how to settle ashore in the marine industry.

14. Shipwright – A shipwright is a person who is involved with designing and construction of ships. A highly specialized field, shipwright is all about making of ships and marine vessels.

15. A List of Shipyard Jobs ← **Recommended** – Shipbuilding and ship breaking yards provide a number of opportunities for those interested. Explore the amazing world of marine employment offered by shipyards in here.

16. Pump man – The job of a pump man deals with pipelines on ships and offshore vessels. This is an extremely responsible job which requires both physical and mental strength.

17. A List of Job Opportunities on Yachts ← **Recommended** – Jobs on yachts are also one of the most sought after careers around the world because of the glamour and money attached with the same. Find out a list of various job opportunities available on yachts.

18. Roughneck – The job of a roughneck involves laborious work on oil rigs and offshore platforms. It is one of the lower level marine jobs.

19. Motorman – The job of a motorman on ship is to help in maintenance and watch keeping of the ship's engine room. This is one of those marine careers which require lesser qualifications. However, like all marine jobs, this is also a rewarding one.

20. Wiper – Wiper helps in maintenance of the ship and assists ship officers in carrying out various procedures. Though this career requires fewer qualifications, there is great scope to learn and grow.

**21. Marine Environmental Management** – If you are an environment lover and are concerned about the deteriorating state of the global environment, then the marine environmental management is the right thing for you.

**22. A List of Unique Marine Careers** ← **Recommended** – If you are interested in fields such as ocean engineering, marine biology, marine mammal trainer, marine archaeology, marine researcher, oceanography, aquatic veterinarian, marine scientist, marine scientist, or marine environmental economist, then you must read this.

**23. Barge Engineer** – The job of a barge engineer is to ensure smooth functioning of the barge and other operations involved. An important position in the oil and gas industry, the career of barge engineer has a lot to offer.

**24. Underwater Photography** – This is definitely the most glamorous and adventurous marine career which requires both great skills and courage. If you are interested in marvellous underwater world and have a thing for photography, then there is no better career than this.

**25. Career in Underwater Exploration** – There are great mysteries lying at the ocean floor. If you are intrigued by what lies beneath the blue surface then the career of underwater exploration is the right thing for you. Needless to say this is unique and requires great deal of physical and mental strength.

**26. Aquaculture** – If fishes and sea life interests you then aquaculture can become a marine career of your interest. This is an unconventional career option which requires great interest and passion to undertake.

**27. Ship Banker** – Though not totally a marine career, ship banking or financing helps to understand the system behind the commercial aspect of the shipping industry. If you are interested in banking and the marine world, the being a ship banker can be extremely rewarding.

**28. Electro Technical Officer** – The career of electro technical officer deals with understanding and maintaining electrical equipment and systems on board ships or offshore vessels. If you a thing for electrical gadgets and circuitry then this is the right choice for you.

**29. Cargo engineer** – The marine work of cargo engineer deals with supervising loading, discharging and conditioning of cargo which is transported by ships. This is one field of engineering which is always in demand.

**30. Gas Engineer** – The job of gas engineer mainly deals with offshore oil and gas industry. This is one marine career which requires great physical and mental skills. It is one of the most rewarding marine careers out there.

31. Maritime Reporter – An extremely amazing job for those who would love to explore different aspects of the marine world. Maritime reporter deals with reporting news, hidden stories, and amazing trends of the marine world.
32. Marine Underwriter – The job of a marine underwriter falls under the marine insurance department. A marine underwriter is a professional who has the expertise of various aspects of marine insurance.
33. Radio Officer – The career of radio officer is slowly disappearing because of the advancement in technology. However, those interested in the amazing world of ship navigation must explore this field.
34. Ship Superintendent – A ship superintendent ensures that all the ship repairing work is done in a smooth and efficient manner. The job of ship super involves both great power and responsibilities.
35. Cruise Ship Captain – This is the ultimate job any person interested in marine careers would like to have. Being a captain of a cruise ship is a matter of great pride. This is one rewarding job which involves great responsibility as well.
36. Jobs in Ship's Galley ← **Recommended** – Ships and other floating vessels offer a variety of non technical jobs as well. Jobs in the ship's galley fall under the hospitality department of the marine careers. Find out a variety of jobs in the ship's galley inside the article.
37. Shipper – A shipper deals with various formalities attached with the cargo that has to be shipped. Shipper also takes the responsibility of ensuring that the cargo reaches its intended destination without any accident or mishap.
38. Shipping Agent – A shipping agent is a person who deals with the transactions of a ship in every port that the ship visits or docks. He or she is a local expert that acts as a representative of the owner of the ship and carries out all essential duties and obligations required by the crew of the ship.
39. Ship Chandler – A ship chandler is a person who exclusively deals with supplying commodities to the ship and its crew.
40. Marine Archaeology – Interested in finding hidden truths lying at the ocean floor? A career in marine archaeology deals with the history of the marine world. This is an interesting field which is both unique and adventurous.

41. Subsea Engineer – This is an interesting career option which is a part of offshore industry. A subsea engineer is mainly responsible for digging out crude oil and gases from the vast marine reserves using the latest technologies. Find out more about subsea engineer inside the article.
42. Navy Nurse – This job is for those female candidates who are looking for a respectful and rewarding career at the sea.
43. Marine Biologist – A career in marine biology deals with understanding and researching the living organisms found in the sea. This is supposed to be known as the most sought after careers in today's time.
44. Maritime Consultant – Maritime consultants are people who have the expertise to advice and suggest better trade routes and address other necessary shipping concerns to individuals and corporations engaged in the marine business to help them boost, advance and further their business positively. As a career in maritime consultant, the person requires several years of experience in the same field.
45. Maritime Security Jobs – The job of maritime security officer is in great demand lately because of the rise in piracy activities. Find out about different opportunities offered by maritime security jobs.
46. Hydro graphic Surveyor – A career in hydrography deals with various aspects of the ocean such as geography, hydrogeology, and geophysics. This is an ever green field which required great expertise and knowledge.
47. Ocean Engineer – Ocean Engineering is a unique field which deals with various aspects of construction of offshore structures such as planning, designing and construction. This is a sought after career which is equally demanding.
48. Maritime Lawyer – As a maritime lawyer one deals with maritime laws, rules and regulations of the sea, and aspects related to the commercial side of shipping.
49. Ship's Steward – It's a job that falls under the hospitality department of the ships. This is a demanding job which is also rewarding.
50. Boat Mechanic – The responsibility of a boat mechanic includes repairing, installation of required machinery and carrying out periodic upkeep of the boat. Certain boat mechanics are also called upon to carry out restoration work for boats. Know more about boat mechanic inside the article.

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