

Preface

Whenever we talk about trading and business, logistics comes to our mind for estimating its suitability, feasibility and sustainability. Since very old days waterways have been used as an extremely useful means of transportation. For the similar reason it can be observed that most of the developed cities in India or abroad are either a port or situated on the bank of a river or sometimes both. With the growth of technologies and increasing size of business, trading through the waterways is increasing day after day. Merchant Navy is the career which is dedicated to develop and manage the business through the waterways.

With the invention of Aeroplane by Wright Brothers, in 1905, the business took a fast track and gradually the industry of aviation evolved. We are going to see in detail about the jobs available in the field of Aviation industry and Merchant Navy. Please go through our other published booklets to paint a larger horizon of your career. Please refer to www.njcf.in for more information and consultation.



Merchant Navy

When we talk about the Merchant Navy, it reminds us of the Indian Navy. Although the connection between them is very less, as the Indian Navy has the domain of National Defence and is operational over a fixed International territory over the water bodies and naval bases. On the contrary, the Merchant Navy has a broader area of operation and they are more focussed into safety of goods and passengers they are carrying. They are bound to maintain the law of International Trade and commerce. Just like Railways, there are two types of Ships / vessels :

1. Passenger Ship
2. Cargo Ship

The goods and shipment carriage is common in both types of ships, but a cargo ship has only crew members of the ship on its board and no passenger. Let us understand the permanent positions in a ship.

In general the ranks are divided into 3 (three) departments in Merchant Navy, viz. -

- Deck Department
- Engine Department and
- Catering Department

A cadet/trainee undertaken in Merchant Navy course is given training for each of the departments and later one may select a department in particular. Following are the general job functions of Merchant Navy:

Deck Department

1. The Captain

The Captain (or Master) of the ship is the final authority of the ship and is the highest rank that one can achieve onboard. He shoulders total responsibility and oversees all shipboard operations.

2. Chief Officer / First Mate

The chief officer occupies the second responsible position after the Captain of the vessel. He is the executive head of the deck department and executes the order of the Master at the operational level. In absence of the Captain, he bears the responsibility of a Captain.

3. Second Officer / Mate

The 2nd Mate is an OOW (Officer Of the Watch) responsible for the charts & publications on board and their maintenance. Also, he is the medical officer on board responsible for the upkeep and administering of all medically related services onboard.

4. Third Officer / Mate

The 3rd Mate is in charge of all the Life Saving Appliances (LSA) and Fire Fighting Appliances (FFA) onboard and is assigned the duty to upkeep and maintain them onboard. Apart from that, he has to handle all the port documents for use by the Master along with handling the bond store onboard.

5. Deck Cadet

The deck cadet is the trainee officer onboard who learns, comprehends and applies skills for the process of becoming a skilled officer in the future.

6. Bosun

Bosun is the head of the rating division on deck and carries out the scheduled work on deck in liaison with the Chief Mate.

7. Able Seaman

According to modern nautical terminology, an able seaman (AB) possesses a merchant mariner's document and is eligible to assist the deck department.

8. Ordinary Seaman

The post of an ordinary seaman, denoted by OS, serves the vessel's deck department. An OS is usually busy with tasks such as buffing, scaling, cleaning the deck and occasionally painting the superstructure above the main deck.

Let's understand the job function of Engine department and their positions' hierarchy.

Engine Department

1. Chief Engineer

The Chief Engineer is the head of the engineering department on a vessel. The required qualification for this position is loosely referred to as the "Chief's Ticket". Alternatively, he can also be termed the "The Chief" and usually draws similar pay as compared to the Captain, although the complete responsibility of a particular vessel falls solely on the Captain's shoulder.

2. Second Engineer / First Assistant Engineer

As the name suggests, a second engineer is responsible for monitoring the implementation of Chief Engineers order as well as maintaining the communication flow between Chief Engineers and subordinates. Gives direction and tasks to officers, crew and other engine room workers.

3. Third Engineer / Second Assistant Engineer

This is the next position after the Second Engineer and is assigned jobs to look after machinery ordered by the chief engineer, along with daily watchkeeping. He reports to the second engineer

4. Fourth Engineer / Third Assistant Engineer

This is the next position after the Third Engineer and is assigned jobs to look after correct working of the assigned machinery system, along with daily watchkeeping. He reports to the second engineer.

5. Fifth Engineer / Engineering Cadet

The fifth engineer is a trainee under the Second Engineer officer, and he assists and learns while observing and carrying out activities in the engine room. He would accompany a senior officer (mostly second engineer) during the watch duty. **An Electrical Officer's** post is sometimes assigned to them.

Catering Department

The department is responsible for food and cleanliness of the ship. The department also monitors various stores and kitchens, procuring food stuff and ensuring its hygiene and cleanliness in storage, keeping them free from any form of contamination. The cargo vessel has a smaller team size for the Catering Department but on a passenger ship the team is larger and the hierarchy is longer. Let's understand the hierarchy in each case one after another.

- **Training Ship / Cargo Vessels**

- 1. Chief Cook**
- 2. Trainee Cook**
- 3. Steward**

- **Passenger Ship**

- 1. Chief Cook / Chef**

The cooking area of the large ships are called galley kitchen. The Chief Cook or Chief Chef is the highest level in the hierarchy of ship galley jobs. The chief cook is the one who is in-charge of the galley as a whole. He is also known as the Executive Cook. It is the chief cook's responsibility to check for the menus and assign duties to other professionals working in the galley.

- 2. Assistant Chief Cook / Chef**

As the name suggests, the assistant chief cook is required to assist the chief cook in the planning and organising of meals and menus. Also the duty of the assistant chief cook extends to maintaining the presentation aspect of the meals and menus.

- 3. The First Cook**

The duty of the First Cook is to monitor the preparation of meals and menus. He has his assistants as second and the third cook in large galleys.

- 4. The Second Cook and The Third Cook**

Their prime duty of the Second and Third Cook is to assist and help the First Cook. They ensure smooth preparation and serving of food to all passengers and crew on due time. Trainee Cooks also has the similar responsibilities and gradually they are promoted on mastering the skill of a particular level.

- 5. The Party Chef**

As the name suggests, the Party Chef is responsible for arranging, planning and managing buffet on the ship for special occasions or parties. The formal name of the same is "*Chef De Partie*".



6. Steward / Stewardess

As per the name, they are responsible for maintaining the housekeeping, serving the meals and cleaning the wastes. Although they fall under the Catering Department, but they have to closely work with the deck department and engine department too.

The hierarchy in the Marine industry remains uniform throughout the shipping companies, however the names are varying from language to language for the similar job description. Let us understand the selection procedure to join the mariners' board. The job involves people management of international culture and hence each job in the career of a mariner needs great interpersonal skills and communication skills. Particular department needs particular speciality but over all, each member has to be developed as an open minded - inclusive personality.

Most popular channel in India to opt the career of merchant navy is to clear the entrance of Indian Maritime University and pass out of the University as a trained mariner.

Indian Maritime University

Indian Maritime University has been a Central University since the year 2008. The University has following 6 (six) campuses :

1. Mumbai Port
2. Navi Mumbai
3. Chennai
4. Kolkata
5. Kochi
6. Visakhapatnam

They are offering following courses / programmes through following 17 (seventeen) affiliated colleges as listed below :

1. Anglo Eastern Maritime Academy, Mumbai
2. Training Ship Rahman, Mumbai
3. Maritime Training Institute (SCI), Mumbai
4. Yak Education Trust, Navi Mumbai
5. Samundra Inst. Of Maritime Studies, Pune
6. Tolani Maritime Institute, Pune
7. Great Eastern Inst. Of Maritime Studies, Pune
8. Seven Islands Maritime Training Institute, Raigad
9. Dr.Ambedkar Inst. Of Technology, Andaman & Nicobar Island
10. Southern Academy of Maritime Studies, Chennai
11. Hindustan Institute of Maritime Training, Chennai
12. Coimbatore Marine College, Coimbatore
13. R L Institute of Marine Science, Madurai
14. Euro Tech Maritime Academy, Kochi
15. College of Ship Technology, Palakkad
16. International Maritime Institute, NOIDA
17. Shriram Institute Of Maritime Studies, New Delhi

Further there are 28 (twenty two) maritime training institutions (MTIs) which are not affiliated to the Maritime University, but recognised by the Directorate General of Shipping. The MTIs are listed below :

1. BP Marine Academy-Panvel, Panvel (Navi Mumbai)
2. TS Rahaman, Mumbai
3. Maharashtra Academy Of Naval Education & Training, Pune
4. **U. V. Patel College Of Engineering, Mehsana**
5. AMET University, Chennai
6. GKM College Of Engineering & Technology, Chennai
7. GKM Institute Of Marine Sciences And Technology, Chennai
8. International Maritime Academy, Chennai
9. *Southern Academy of Maritime Studies, Chennai*
10. Maritime Foundation, Chennai
11. ***Vels Academy of Maritime Education & Training, Kancheepuram***
12. Jeyanthinather Academy Of Marine Studies, Thoothukudi (Tamil Nadu)
13. *Coimbatore Marine College, Coimbatore*
14. Kunjali Marakkar School Of Marine Engineering Of Cochin University Of Science And Technology, Kochi
15. Mangalore Marine College And Technology, Mangaluru
16. ***SU-NAV Maritime Academy, Veppampattu***
17. Noorul Islam University, Kanyakumari
18. Praveenya Institute Of Marine Engineering & Maritime Studies, Visakhapatnam
19. PSN College Of Engineering & Technology, Tirunelveli
20. Sri Nandhanam College of Engineering And Technology, Tirupattur
21. Sri Venkateswara College Of Engineering, Sriperumbudur
22. *HIMT College, Kalpakkam*
23. Chitkara University School Of Maritime Studies, Chandigarh
24. C.V. Raman College Of Engineering, Khurda (Odisha)
25. ***School of Maritime Studies, Centurion University of Technology & Management, Ramchandrapur Jatni (Odisha)***
26. Haldia Institute Of Maritime Studies & Research, Haldia
27. Seacom Marine College, Howrah
28. The Neotia University, Kolkata

Few institutions written in ***bold italic*** are those which are affiliated to ITM for certain courses but only recognised by DGS (Directorate General of Shipping) for others. The entrance test is separately conducted for IMU named as IMU CET. Earlier, it used to be through the JEE Mains score. The examination pattern also has very strict medical standards. The selected candidates have to appear for a personal interview too after clearing the written entrance examination. The questions are based on standard 12 Mathematics, Physics, Chemistry and English Language. Questions are MCQ by nature.

The admission test is conducted to fulfil the seats in various courses in following schools :

1. School of Nautical Studies

- a. DNS - Diploma in Nautical Science (1 year Residential Course)**
- b. BSc - Bachelor of Nautical Science (3 years Residential Course)**

2. School of Marine Engineering and Technology

- a. B.Tech. Marine Engineering (4 years Residential Course)**
- b. M.Tech. Marine Engineering (2 years Residential Course)**
- c. Post Graduate Diploma in Marine Engineering (1 year Residential Course)**

3. School of Naval Architecture and Ocean Engineering

- a. B. Tech. Naval Architecture and Ocean Engineering (4 years Residential course)**
- b. B. Tech. Naval Architecture and Ship Building (4 years Residential Course)**
- c. B.Sc. Ship Building and Repair^{*1} (3 years Residential Course)**
- d. M. Tech. Naval Architecture and Ocean Engineering (2 years Non-Residential course)**
- e. M. Tech. Dredging and Harbour Engineering (2 years Non-Residential course)**



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¹ College of Ship Technology-Palakkad only offers the course with approved intake of 40 candidates per year

4. School of Maritime Management

- a. BBA Maritime Logistics (Apprenticeship embedded 3 years Non-Residential course)**
- b. BBA Logistics, Retailing and E-Commerce (3 years Non-Residential course)**
- c. MBA Port and Shipping Management (2 years Non-Residential course)**
- d. MBA International Transportation and Logistics Management (2 years Non-Residential course)**

The courses written in **Blue** are **Undergraduate Programmes**. Let us understand the nature of IMU CET before we see the seat matrix for various UG programmes.

IMU CET

IMU-CET is expanded as Indian Maritime University Common Entrance Test. English language skill is emphasised in the test and a minimum mark of 50% in 10th, 10+2 and Graduation in English is an eligibility criteria. The test is conducted around May / June, while the registration window for the online application is invited around March. The test is conducted on following subjects :

1. English
2. Mathematics
3. Physics
4. Chemistry
5. General Knowledge
6. General Aptitude 1
7. General Aptitude 2

The academic session starts by August of the year. A few courses also include a physical fitness test followed by medical check-up after qualifying the IMU-CET. Few colleges also have intakes by the February of the subsequent year of examination for a few courses. Let us understand the stages of examination from the following Table 1 :

Table 1

Activity related to IMU CET	Tentative Time
Online Registration and Application	Feb.- May
Examination issuing Rank Card	May/June
Spot Counselling and Medical Examination	June/July
Commencement of batches	1st August, 2024

Let us check the undergraduate courses that are available in various institutions and set of eligibility criteria like educational qualification, physical standards etc.

DNS - Diploma in Nautical Science (one year residential course)

The course is taken sometimes to bridge the gap between a general candidate and a skilled seafarer. The course is available with the following institutions given in Table 2 :

Table 2

Name of the Institution	Location	State / UT	Intake
Anglo Eastern Maritime Academy	Mumbai	Maharashtra	160 (Aug batch), 120 (Feb Batch)
Dr.Ambedkar Inst. Of Technology	Andaman & Nicobar Island.	Andaman & Nicobar Island.	30 (Aug)
Great Eastern Inst. Of Maritime Studies	Pune	Maharashtra	80 (Aug Batch), 40 (Feb Batch)
Hindustan Institute of Maritime Training	Chennai	Tamil Nadu	120
International Maritime Institute	NOIDA	Delhi* ²	160 (Aug Batch), 40 (Feb Batch)
Maritime Training Institute (SCI)	Mumbai	Maharashtra	120 (Aug Batch), 40 (Feb Batch)
Samundra Inst. Of Maritime Studies	Pune	Maharashtra	120 (Aug Batch), 40 (Feb Batch)
Seven Islands Maritime Training Institute	Raigad	Maharashtra	80 (Aug Batch), 80 (Feb Batch)
Shriram Institute Of Maritime Studies	New Delhi	Delhi	40(Aug)
Southern Academy of Maritime Studies	Chennai	Tamil Nadu	40 (Aug Batch)
Tolani Maritime Institute	Pune	Maharashtra	120 (Aug Batch)
Training Ship Rahman	Mumbai	Maharashtra	120 (Aug Batch), 40 (Feb Batch)
Yak Education Trust	Navi Mumbai	Maharashtra	120 (Aug)
International Maritime Academy	Chennai	Tamil Nadu	240
Maritime Foundation	Chennai	Tamil Nadu	40
Grand Total			1830

² Even though NOIDA is politically in Uttar Pradesh, but much convenient to reach through Delhi

Eligibility criteria for the DNS programme is verified by the empanelled doctors of DGS (Directorate General of Shipping). Further, the intakes may vary from year to year, so it is highly recommended to verify the exact intakes from the Prospectus of IMU CET for the particular year. Candidates seeking admission to the institutions other than the schools of IMU may directly apply to the affiliated / non-affiliated institution after obtaining the Rank Card of IMU CET. The eligibility criteria for DNS is as given below in the Table 3 :

Table 3

Course	Eligibility			
	Education	Age Criteria	Relaxation	Physical Fitness
1-Year Diploma in Nautical Science - Residential (DNS) AND 3-Year B.Sc. in Nautical Science - Residential Programme	(i) 10+2/equivalent (PCM-Average: Minimum 60%) and minimum of 50% marks in English subject in 10th or 12th Examination. (ii) Must qualify IMU CET and possess the Rank Card during counselling session or admission.	For Male: General-25 years, OBC(NCL)-28 years, SC/ST-30 years For Female: General-27 years, OBC(NCL)-30 years, SC/ST-32 years. The reference date for calculation of the age will be from the date of commencement of the Academic Session (1st August of the Year)	For SC/ST candidates: There will be a 5% relaxation in eligibility marks of PCM; however, it will not apply to English Marks. Relaxation of 5% in English marks will be applicable to candidates who are native of the Lakshadweep and Andaman & Nicobar Islands and belong to recognised Scheduled Tribes of the islands and who & both of whose parents were born in these islands & belong to the Scheduled Tribes of those islands.	Candidates seeking admission to this Nautical Science Programme must be medically fit including eyesight and hearing as prescribed in the Merchant Shipping (Medical Examination) Rules, 2000, as amended. At the time of admission, candidates will be required to produce certificate of medical fitness issued by doctors approved by the Directorate General of Shipping, Mumbai. (Refer: https://www.dgshipping.gov.in/Content/MaritimeHealthBranch.aspx) Eye Sight : There shall be no evidence of any morbid condition of either eye or of the lids of either eye which may be liable to risk of aggravation or recurrence. Candidates must possess good binocular vision(Fusion faculty and full field of vision in both eyes). Movement of the eyeballs must be full in all directions and the pupils should react normally to light and accommodation. Normal colour vision shall be tested by Ishihara Test Chart. Distance Vision unaided 1.0*(6/6) in better eye and 0.67*(6/9) in another eye.

Sometimes after completion of DNS, cadets are directly promoted to the second year batch of the B.Sc. Nautical Science. That is why the eligibility criteria of both the programmes are same.

B.Sc. Nautical Science (Three years residential course)

As the name suggests, the programme B.Sc. (NS) is different from DNS as the former is a degree course and imparts in depth knowledge of Nautical Science to the students. The course is available in the following institutions as given in Table 4:

Table 4

Name of the Institution	Location	State / UT	Intake
Hindustan Institute of Maritime Training	Chennai	Tamil Nadu	80
Tolani Maritime Institute	Pune	Maharashtra	120
AMET University	Chennai	Tamil Nadu	360
BP Marine Academy-Panvel	Panvel	Maharashtra	40
Chitkara University School Of Maritime Studies	Chandigarh	Punjab	40
GKM Institute Of Marine Sciences And Technology	Chennai	Tamil Nadu	40
Haldia Institute Of Maritime Studies & Research	Haldia	West Bengal	80
International Maritime Academy, Chennai	Chennai	Tamil Nadu	160
Jeyanthinather Academy Of Marine Studies	Thoothukudi	Tamil Nadu	40
Maharashtra Academy Of Naval Education & Training	Pune	Maharashtra	120
Seacom Marine College, Howrah	Howrah	West Bengal	30
Sri Nandhanam College of Engineering And Technology	Tirupattur	Tamil Nadu	40
The Neotia University	Kolkata	West Bengal	40
U. V. Patel College Of Engineering	Mehsana	Gujarat	40
Grand Total			1230

The eligibility criteria is the same as given above for the DNS course.

B.Sc. Ship Building & Repair (Three years residential course)

Ship Building is a combination of art, science and Engineering. But there are a number of other important factors too to be considered in ship building. Therefore, the curriculum includes types of ships, materials, welding and cutting, ship structure, outfitting, design ,dimensions, displacement, stability, propulsive characteristics, Hull form, general arrangement, structural details, prefabrication, shell plating, framing, decks, Hatches, superstructure, tanker construction, pumping, piping, painting, corrosion control, ventilation, refrigeration, testing, launching, international regulations and shipyard layout etc.

The course is offered only at **College of Ship Technology, Palakkad (Kerala)** with 40 (Forty) intakes per annum. Eligibility criteria is the same as mentioned above for DNS.



B.E./B.Tech. Marine Engineering (Four years residential course)

The course is available in the following institutions as given in Table 5 :

Table 5

Name of the Institution	Location	State / UT	Intake
Coimbatore Marine College	Coimbatore	Tamil Nadu	80
Euro Tech Maritime Academy	Kochi	Kerala	80
Hindustan Institute of Maritime Training	Chennai	Tamil Nadu	80
International Maritime Institute	Noida	Delhi NCR	80
R L Institute of Marine Science	Madurai	Tamil Nadu	120
Samundra Inst. Of Maritime Studies	Pune	Maharashtra	40
Tolani Maritime Institute	Pune	Maharashtra	240
AMET University	Chennai	Tamil Nadu	360
C.V. Raman College Of Engineering	Khurdha	Odisha	80
Gkm College Of Engineering & Technology	Chennai	Tamil Nadu	36
International Maritime Academy, Chennai	Chennai	Tamil Nadu	160
Kunjali Marakkar School Of Marine Engineering Of Cochin University Of Science And Technology	Kochi	Kerala	80
Maharashtra Academy Of Naval Education & Training	Pune	Maharashtra	200
Mangalore Marine College And Technology	Mangalore	Karnatak	80
Maritime Foundation	Kilakarai	Tamil Nadu	30
Noorul Islam University	Kanyakumari	Tamil Nadu	40
Praveenya Institute Of Marine Engineering & Maritime Studies	Visakhapatnam	Andhra Pradesh	40
PSN College Of Engineering & Technology	Tirunelveli	Tamil Nadu	60
Seacom Marine College, Howrah	Howrah	West Bengal	80
Sri Nandhanam College of Engineering And Technology	Tirupattur	Tamil Nadu	40
Sri Venkateshwara College Of Engineering	Sriperumbudur	Tamil Nadu	30
The Neotia University	Kolkata	West Bengal	80
U. V. Patel College Of Engineering	Mehsana	Gujarat	40

The intakes at institutions undertaken by DGS have no information on the particular number of seats.

B.Tech. Naval Architecture and Ocean Engineering (Four years residential course)

B.Tech in Naval Architecture & Ocean Engineering is a 4-year undergraduate engineering program that focuses on the design, construction, operation, and maintenance of ships, offshore structures, and other marine vessels. As a graduate of B.Tech in Naval Architecture & Ocean Engineering, students can gain employment on-board Indian/Foreign going ships as marine engineers or naval architects.

The course is offered at Visakhapatnam Campus, IIT Kharagpur and IIT

Eligibility criteria is mentioned below in the Table 6 :

Table 6

Course	Eligibility			
	Education	Age Criteria	Relaxation	Physical Fitness
4-Year B.Tech. in Marine Engineering Residential (B.Tech. ME) AND 4-Year B.Tech. in Ocean Engineering and Naval Architecture Residential Programme	(i) 10+2/equivalent (PCM-Average: Minimum 60%) and minimum of 50% marks in English subject in 10th or 12th Examination. (ii) Must qualify IMU CET and possess the Rank Card during counselling session or admission.	For Male: General-25 years, OBC(NCL)-28 years, SC/ST-30 years For Female: General-27 years, OBC(NCL)-30 years, SC/ST-32 years. The reference date for calculation of the age will be from the date of commencement of the Academic Session (1st August of the Year)	For SC/ST candidates: There will be a 5% relaxation in eligibility marks of PCM ; however, it will not apply to English Marks . Relaxation of 5% in English marks will be applicable to candidates who are native of the Lakshadweep and Andaman & Nicobar Islands and belong to recognised Scheduled Tribes of the islands and who & both of whose parents were born in these islands & belong to the Scheduled Tribes of those islands.	Candidates seeking admission to this B.Tech. Programme must be medically fit including eyesight and hearing as prescribed in the Merchant Shipping (Medical Examination) Rules, 2000, as amended. At the time of admission, candidates will be required to produce certificate of medical fitness issued by doctors approved by the Directorate General of Shipping, Mumbai. (Refer: https://www.dgshipping.gov.in/Content/MaritimeHealthBranch.aspx) Eye Sight : There shall be no evidence of any morbid condition of either eye or of the lids of either eye which may be liable to risk of aggravation or recurrence. Candidates must possess good binocular vision(Fusion faculty and full field of vision in both eyes). Movement of the eyeballs must be full in all directions and the pupils should react normally to light and accommodation. Normal colour vision shall be tested by Ishihara Test Chart. Distance Vision unaided 0.67*(6/9) in better eye and 0.33*(3/9) in another eye.

Apart from the regular entry through entrance examination, there is also a lateral entry directly into the 2nd Year of the Engineering Programme. The eligibility criteria for the same is as following :

- 3-years Engineering Diploma in Marine/ Mechanical / Electrical / Electrical & Electronics, from the colleges approved by AICTE or State Board of Technical Education with minimum 55% of aggregate marks in the last year of Diploma Course.

Or

- 4 years Diploma in Shipbuilding Engineering from the colleges approved by AICTE or State Board of Technical Education with minimum 55% aggregate marks in the last year of diploma course.

Or

- 1st year training from the Alternate Training Scheme, approved by D.G.Shipping (This will not be applicable to MERI).
- The candidate should have completed the diploma within its stipulated duration of 3/4 years.

BBA Maritime Logistics (ML) / Logistics and Retail Management (LRE) (Apprenticeship embedded 3 years Non-Residential course)

Bachelor of Business Administration (BBA) program in Maritime Logistics, is embedded with an apprenticeship. The BBA program is designed to provide students with a comprehensive understanding of the logistics operations in the maritime industry. The program encompasses a wide range of subjects, including Shipping Economics, Marine Insurance, Freight Forwarding, Port Management, and Supply Chain Management. Students are encouraged to take full advantage of the resources available to them during their time of coursework and strive towards a fulfilling and rewarding career in the maritime industry.

The affiliated programme is available with **College of Ship Technology, Palakkad (Kerala)**.

The eligibility criteria and the fees is a bit relaxed as compared to other undergraduate programmes of the University. The criteria is mentioned below in the Table :

The eligibility criteria for normal entry is as follows in the Table 7 :

Table 7

Course	Eligibility			
	Education	Age Criteria	Relaxation	Physical Fitness
BBA Maritime Logistics AND BBA Maritime Logistics (Apprentices Embedded 3 years Non-Residential course)	10+2/equivalent with minimum 50% of aggregated marks in any stream and minimum of 50% marks in English subject in 10th / 12th Examination	For Male: General-25 years, OBC(NCL)-28 years, SC/ST-30 years For Female: General-27 years, OBC(NCL)-30 years, SC/ST-32 years. The reference date for calculation of the age will be from the date of commencement of the Academic Session (1st August of the Year)	For SC/ST candidates: There will be a 5% relaxation in eligibility marks of PCM; however, it will not apply to English Marks.	All the candidates who qualify for this program require to submit a Physical Fitness Certificate from a Registered Medical Practitioner at the time of Certificate Verification

The seat matrix of the BBA courses are given in the following Table 8 :

Table 8

Name of the Institution	Location	State / UT	Intake
College of Ship Technology	Palakkad	Kerala	30 (BBA ML)
Hindustan Institute of Maritime Training	Chennai	Tamil Nadu	30 (BBA LRE)

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Aviation

Aviation is certainly a very fascinating career. With increasing technology the business world is shrinking and aviation plays an important pivotal role in the context. The major types of commercial aircrafts are :

1. Cargo Aeroplanes
2. Passenger Aeroplanes
3. Private Aircrafts / Air Taxis

When we talk about the air-vehicles, then two categories comes to our mind :

- I. Aeroplanes
- II. Helicopters

The industry has several roles right from managing the aircraft maintenance, security and safety check ins to control the traffic. From flying the aircraft to serving safety and comfort to the passengers. From carrying passengers luggages to international shipments.

The Indian workforce is considered to be one of the best in the world and hence the industry is very much dominated by Indians in the international forum.

Here we shall discuss the non-military career option in the aviation industry. The job is categorised into three , viz. -

- a. Ground Duties
- b. Technical Duties
- c. In-flight Duties

The career options are as given below :

- Pilot
 - Ferry Pilot
 - Helicopter Pilot
 - Loco Pilot
- Assistant Managers and Managers
 - Operations
 - Ground Engineering and Ground Duties
 - Airport
- Air Hostess / Cabin Crew
- Flight Assistant
- Ground Instructor
- Flight Instructor
- Flight Engineer
- Ground Staff
- Aviation Consultant

Each of the above mentioned positions, undergo a professional training program, practical and classroom activities and intensive studies. There are various flying clubs which run various programmes on aviation across the nation like Bombay Flying Club, Patna Flying Club etc.

The foremost institutions in India offering various courses of aviation are as listed below :

- Alpine Institute of Aeronautics, Dehradun
- Hyderabad College of Aviation Technology (various campuses)
- Bharat Institute of Aeronautics, Patna, Bihar
- **Western India Institute of Aeronautics (WIIA), Ahmedabad**
- Indira Institute of Aircraft Engineering, Pune
- Falcon Institute of Aircraft Maintenance Engineers, Lucknow
- Institute of Aircraft Maintenance Engineering (IAME), Aurangabad
- School for Aircraft Maintenance Engineering (SAME), Delhi/NCR
- Rajiv Gandhi National Aviation University, Amethi (UP)
- Indira Gandhi Rashtriya Uran Akademi, Amethi (UP)
- Pawan Hans Helicopter Training Institute, Mumbai
- Indraprasth Institute of Aeronautics, Gurugram, Haryana
- Rajiv Gandhi Aviation Academy, Hyderabad
- **NDC Institute of Aircraft Maintenance Engineering, VADODARA, Gujarat**

The list is very long. Let us understand the procedure of entry in these institutes. There are three major entrance examinations conducted for admission into the training institutes of the aviation industry listed as following :

1. AME CET
2. IGRUA Entrance Examination
3. NMIMS-NPAT (for Pawan Hans Helicopter Training Institute)

Most of the institutes accept the score of AME CET. We shall understand each of the above examination procedures one after the other in a later phase of the booklet. Let us know about the programmes run by various institutes of aviation. The programmes and courses available at entry level of the aviation institutions are given in the following Table 9 :

Table 9

	Courses after each stage of qualification		
	12th PCM	12th Any Stream	10th
Licence	<ul style="list-style-type: none"> ● Pilot (DGCA Approved) ● AME (DGCA Approved) ● AME (EASA Approved) 	<ul style="list-style-type: none"> ● AME (EASA Approved) 	<ul style="list-style-type: none"> ● AME (EASA Approved)
Engineering Degree	<ul style="list-style-type: none"> ● Aerospace Engineering ● Aeronautical Engineering 		
Graduation Degree	<ul style="list-style-type: none"> ● BBA Aviations ● BBA Airport Management ● BSc AME ● BSc Aviation ● BSc Aeronautical 	<ul style="list-style-type: none"> ● BBA Aviations ● BBA Airport Management 	
Certification	<ul style="list-style-type: none"> ● Cabin Crew ● Airport Management ● Ground Staff 	<ul style="list-style-type: none"> ● Cabin Crew ● Airport Management ● Ground Staff 	
Diploma	<ul style="list-style-type: none"> ● AME (EASA Approved) ● Aerospace Engineering ● Aeronautical Engineering 	<ul style="list-style-type: none"> ● AME ● Aerospace Engineering ● Aeronautical Engineering 	<ul style="list-style-type: none"> ● AME ● Aerospace Engineering ● Aeronautical Engineering

This is to be noted that all technical diploma and engineering programmes are AICTE approved. The Graduation degree courses are approved by the UGC (University Grant Commission), while certification programmes are self approved under the “Skill India” project.

AME CET

AME CET expands as Aircraft Maintenance Engineering Common Entrance Test. AME CET is the national-level common entrance test that offers admission in aviation courses in the premium colleges in India. The test is conducted online around the month of April / May of the year while the application form is published online around March. The test is different for different categories of courses. Basically there are three categories of admissions in UG courses with different eligibility, viz. -

1. 12th pass with PCM
2. 12th pass with any stream
3. 10th pass

Each of the above mentioned categories have a unique way of conducting entrance tests. Syllabus and paper pattern are also different.

AMECET (12th pass with PCM)

AME CET full form is Aircraft Maintenance Engineering Common Entrance Test. AME CET is the national-level common entrance test that offers admission in aviation courses in the premium colleges in India. This is the scholarship-based exam and it provides up to 100% scholarships based on your AIR (All India Rank). The test comprises following five sections with **90 MCQs** in all :

- Mathematics (20 MCQs - 80 marks)
- Physics (20 MCQs - 80 marks)
- Chemistry (20 MCQs - 80 marks)
- English Grammar (15 MCQs - 60 marks)
- GK and Reasoning (15 MCQs - 60 marks)

Successful candidates are offered admission in following five categories of courses in various institutions across the country :

Licence category Courses :

1. Pilot
2. Aircraft Maintenance Engineering (DGCA)
3. Aircraft Maintenance Engineering (EASA - European Aircraft Safety Agency)

In the course number 2 and 3, the difference is the approving authority and a few standard parameters. DGCA is our local government body whereas EASA is as the name suggests.

Engineering category Courses :

1. Aerospace Engineering
2. Aeronautical Engineering

The above courses are AICTE (All India Council for Technical Education)

UGC (University Grant Commission) affiliated Undergraduate Courses :

1. B.B.A. in Aviation
2. B.Sc. in Aeronautical Science
3. B.Sc. in Airport Management
4. B.Sc. in AME
5. B.Sc. in Aviation

AICTE affiliated Undergraduate Diploma Courses :

1. AME Diploma
2. Aeronautical Engineering
3. Aerospace Engineering

Skill India Self approved Certification Courses :

1. Cabin Crew
2. Airport Management
3. Ground Staff

All the courses have a 100% placement guarantee record, as the aviation industry is expanding rapidly worldwide. The career also offers overseas appointments.

AMECET (12th pass for Non PCM)

The test comprises following three sections with **90 MCQs** in all :

- General Awareness (30 MCQs - 120 marks)
- English Grammar (30 MCQs - 120 marks)
- General Intelligence and Reasoning (30 MCQs - 120 marks)

Successful candidates are offered admission in following five categories of courses in various institutions across the country :

Licence category Courses :

1. AME (EASA Approved)

DGCA is our local government body whereas EASA (European Aircraft Safety Agency) is as the name suggests an overseas standard.

UGC (University Grant Commission) affiliated Undergraduate Courses :

1. B.B.A. in Aviation / BMS in Aviation
2. B.B.A in Airport Management / BMS in Airport Management

AICTE affiliated Undergraduate Diploma Courses :

1. AME Diploma
2. Aeronautical Engineering
3. Aerospace Engineering

Skill India Self approved Certification Courses :

1. Cabin Crew
2. Airport Management
3. Ground Staff

AMECET (10th pass)

The test comprises following three sections with **90 MCQs** in all :

- General Awareness (30 MCQs - 120 marks)
- English Grammar (30 MCQs - 120 marks)
- General Intelligence and Reasoning (30 MCQs - 120 marks)

Successful candidates are offered admission in following five categories of courses in various institutions across the country :

Licence category Courses :

1. AME (EASA Approved)

DGCA is our local government body whereas EASA (European Aircraft Safety Agency) is as the name suggests.

AICTE affiliated Undergraduate Diploma Courses :

1. AME Diploma
2. Aeronautical Engineering
3. Aerospace Engineering

After passing the diploma course one may apply further to upgrade their training skill to attain a degree.

As we have seen the subject lines one has to prepare to qualify are as follows :

- a. English Grammar
- b. General Awareness
- c. Mathematics
- d. Physics
- e. Chemistry
- f. General Intelligence and Reasoning

We shall be looking into the syllabus of various subjects for AMECET in following Table 10 :

Table 10

	Syllabus of AME CET ³		
	12th PCM	12th Non-PCM	10th
General Awareness	<ul style="list-style-type: none"> • Static GK • Science • Books and Authors • Current Affairs • Portfolios 	<ul style="list-style-type: none"> • Static GK • Science • Books and Authors • Current Affairs • Portfolios 	<ul style="list-style-type: none"> • Static GK • Science • Books and Authors • Current Affairs • Portfolios
English Grammar	<ul style="list-style-type: none"> • Reading Comprehension • Fill in the Blanks • Spellings • Phrases and Idioms • Synonyms and Antonyms • One word Substitution • Sentence Correction 	<ul style="list-style-type: none"> • Reading Comprehension • Fill in the Blanks • Spellings • Phrases and Idioms • Synonyms and Antonyms • One word Substitution • Sentence Correction 	<ul style="list-style-type: none"> • Reading Comprehension • Fill in the Blanks • Spellings • Phrases and Idioms • Synonyms and Antonyms • One word Substitution • Sentence Correction
General Intelligence	NA	<ul style="list-style-type: none"> • Coding Decoding • Analogy • Odd one Out • Directions Sense • Ranking • Non-verbal: Paper Folding & Cutting • Mirror Image • Embedded or Complete the Image • Counting Figure • Words order according to dictionary • Blood relations • Matrix 	<ul style="list-style-type: none"> • Coding Decoding • Analogy • Odd one Out • Directions Sense • Ranking • Non-verbal: Paper Folding & Cutting • Mirror Image • Embedded or Complete the Image • Counting Figure • Words order according to dictionary • Blood relations • Matrix
Mathematics	CBSE class 11 and 12 syllabus	NA	NA
Physics	CBSE class 11 and 12 syllabus	NA	NA
Chemistry	CBSE class 11 and 12 syllabus	NA	NA



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³ <https://www.amecet.in/aircraft-maintenance-engineering-common-entrance-test-amecet-exam.php>

IGRUA Examination

Indira Gandhi Rashtriya Uran Akademi (IGRUA) is considered to be the most prestigious institution in the career of Aviation in India. At present 70% of the employees in the aviation industry are related to the institution.

Moreover the institution hosts training programs for various trainers, pilots, Government officials, commercial pilots etc. apart from the trainees and apprentices. The institute is approved for certain courses that is mentioned below :

- Ab-initio to CPL (Commercial Pilot Licence) Course on Fixed wing aircraft. Instrument rating and multi engine endorsement is part of this course.
- Three years Graduation Program for IGRUA CPL trainees in B. Sc. (Aviation) through Dr. Ram Manohar Lohia Avadh University (RMLAU), Faizabad, UP.
- DGCA - Certified Drone Training Course to become professional RPAS Pilots on both Micro & Small - Category drones in collaboration with M/s Drone Destination
- “Train the Instructor” training course in collaboration with M/s Drone Destination to impart training to trainers of RPTOs approved by DGCA for imparting Drone Training.
- English Language Proficiency (ELP) Training & Testing for pilot aspirants.
- Crew Resource Management (CRM).
- Multi Crew Conversion Course on DA 42 Aircraft.
- Conversion training for cadets undergoing training abroad for the issue of Indian CPL.
- Impart Flying Training to the Navy and Coast Guard.
- Refresher Course for Certified Flying Instructors and Pilot Instructors of Flying Training Institutes.

- Courses for Assistant Flight Instructor Rating (A) and Flight Instructor Rating (A).
- Skill Tests for renewal Licence for Ex-students of IGRUA.
- Simulator training & checks and other facilities to outside aviation agencies for their Pilot's Selection & Interview.
- On the Job Practical Training on aircraft of Diploma Holders in Aeronautical and Aircraft Maintenance Engineering.
- Vocational Training of Engineering Graduates.
- AME Continuation Training.
- AME Course.

All the above mentioned courses are approved by DGCA. The application for AME and Ab-initio to CPL courses is published in the month of April every year. Cost of the course is 45 Lakhs and very high on demand. Additional cost of 2 Lakhs is for uniform and equipment. All these are over and above the tuition fees paid to the college / University where the course is pursued.

The cadets undergo intensive training in the core subjects for CPL requirements as per curriculum and clear all examinations conducted in house as well as by DGCA.

The flying stage begins with the Pre-Flight Ground Training (PFGT) on a specific aircraft.

Students have to pass the Student Pilot License (SPL) exam which is in the form viva / oral followed by FRTOL(Flight Radio Telephony Operator's Licence) Online Test and viva exams. The cadet is first trained on pre-flight stage – Simulators and then taken on actual aircraft with exercises becoming more and more interesting and challenging during the flying training program.

For admission in the Pawan Hans Helicopter Training Institute, one has to write and qualify NPAT.

Please contact us for any further information through www.njcf.in.