



PROSPECTUS 2020- 2021

Four Year Residential B.Tech. (Marine Engineering) (Affiliated to Indian Maritime University)

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INTRODUCTION

Ocean shipping has always been the most efficient mode of transporting goods. This fact has not changed over the centuries even though technology has made enormous strides. In fact, the maritime industry has effectively harnessed technology to become increasingly more efficient and thereby sustain its comparative advantage over other forms of transport. The growth of global trade has led to a commensurate growth in the world fleet to well over 50,000 ships plying the world's oceans today. These ships are manned by deck officers who are responsible for navigation, cargo operations and maintenance of the ship and by engineer officers who maintain and operate all the machinery on board.

Marine engineering is a multi-disciplinary, “non-conventional” branch of engineering, so called because a marine engineer working aboard a ship has to perform varied functions in the areas of mechanical, electrical, electronic, and environment engineering. A marine engineer needs to perform these functions in the self-contained environment of a ship at sea and must also demonstrate additional skills such as firefighting and damage control. Further, ships are required to remain in operation 24 hours a day, 365 days a year. All this makes the Marine Engineer's job extremely challenging and demanding.

At the same time, the opportunity to travel the world, work with global organizations and experience varied technologies make it an exciting career. The demands of the career are of course compensated by excellent remuneration leading to a comfortable lifestyle at an early age.

Due to the global nature of the shipping industry, to be eligible for employment on board ships, Marine Engineers must be trained in conformity with the requirements of the International Maritime Organization (IMO) and certified by a recognized authority with respect to competency level. In India, the Directorate General of Shipping (DGS) approves maritime training institutions and their curricula. The same agency also administers examinations to evaluate competency and issues appropriate Certificates of Competency. The general level of training imparted to Indian officer candidates and the standards maintained in evaluation are globally recognized and this ensures the worldwide acceptability of the Indian seafarers.

CAREER PATH OF A MARINE ENGINEER

There are a number of possible ways one can become a qualified Marine Engineer. However, the track that provides the strongest foundation in engineering theory and practical skills is by commencing with Tolani Maritime Institute's (TMI's) B.Tech. degree programme in Marine Engineering.

The chart shows the requirements for progressing from a qualified Watch keeping Engineer to Chief Engineer. New Watch keeping Engineers today command a remuneration of about US\$ 2,200 per month on board while Chief Engineers start at a minimum of US\$ 9,000 per month. However, it is relevant to note that typically ships' officers spend about 6 to 8 months in a year working on board and the rest of the time on leave. Therefore, a Chief Engineer can expect to earn at least US\$ 55,000 per annum. At the same time, a sea service requirement of 12 months can be expected to take about 18 months to complete. Merchant Navy Officers are allowed to claim tax-

free income subject to conditions/ tax regulations. Upon graduation from TMI, the students get exemption from appearing in the Part A of the DGS Class IV Examination. However, they have to complete a minimum of six months sailing and 3 advanced modular courses before they become eligible to appear in the Class IV Part B Examination as per Directorate General of Shipping (DGS), Govt. of India regulations. After passing this exam, they become certified Watch keeping Engineers, commonly known as MEO Class IV.

It is not uncommon for Marine Engineers to retire from sea service well before the traditional retirement age. They are then able to find numerous opportunities ashore with shipping companies, hotels, hospitals, oil and gas companies, insurance and survey agencies and other organizations using similar expertise.

The ship board training of six months after graduation is a mandatory requirement for those who wish to pursue ship board career and the institute will assist in arranging the ship board training without any extra fee.



B.TECH. MARINE ENGINEERING PROGRAMME

The programme is spread over a period of 4 years and is divided into 8 academic semesters. At TMI candidates for the B.Tech. degree in Marine Engineering are grounded in the foundations of applied engineering sciences, mathematics, computers, mechanical engineering, electrical engineering and electronics. Over and above they are provided an in-depth understanding of specific mechanical, electrical and instrumentation systems onboard ships - their operations and maintenance. The formal academic curriculum also includes the development of competency in verbal communication, a safety culture as well as knowledge of the maritime environment and institutional aspects of shipping.

Marine Engineering education is distinctive in its emphasis on practical knowledge and skills. Apart from the traditional experimentation and demonstration work done in laboratories in conventional engineering curricula, Marine Engineering requires that graduates be skilled in using onboard workshops and tools to effect repairs of components and manufacture simple items.



Also essential is the ability to monitor normal operations of a power plant including all the auxiliary machinery and the capability to troubleshoot malfunctions. Therefore, the Marine Engineering curriculum has large components of workshop training, hands-on exposure to equipment maintenance and actual watch keeping of engineering systems on the campus.

The shipboard/shore internship training of one semester is a mandatory & integral requirement for this programme and the institute normally arranges for the training by organising campus placements.

The TMI programme is unique for the industry internship component, which underscores the emphasis on application of theory as well as development of skills and provides a means to reinforce the learning process. During the last year of the degree programme students are required to spend final semester for completion of internship requirement integral to the degree program.

The Placement Cell of TMI helps students secure internship positions either onboard ships or ashore in 'Prabhu Vidya - Ship in Campus'. During internship, students are expected to develop an appreciation for real world issues related to operations, maintenance, safety and discipline. On completion of internship, students are required to submit a detailed report of the training period and are evaluated for the semester on the basis of this report and feedback from the internship provider. In most cases this internship relationship leads to permanent employment on graduation. A "Student employability index" helps to access students in this regards.

EVALUATION

The academic year is divided into two semesters of 18-week each. During each semester, students are required to complete a prescribed set of courses as laid down in IMU syllabus.

The curriculum on campus is structured so that all students complete, by the end of the sixth/seventh semester, all the modular courses required for employment onboard a ship. In addition, the workshop training ensures that, by the end of the seventh semester/before boarding vessels, the students are also reasonably skilled in the use of shipboard tools, welding, maintenance procedures and other practical shipboard skills.

IMU grading system as applicable will be followed.

CODE OF CONDUCT

TMI requires a high level of discipline in terms of personal appearance and conduct, class attendance, participation in sports etc. All students wear a standard Merchant Navy uniform. Residence in the hostel is compulsory for all students for the entire programme, except during the Internship Semester in the fourth year. The Institute strives to instill discipline by encouraging students to participate in various activities that help personality development, team building and a feeling of co-operative amity. All students must participate in all scheduled activities, such as



physical training, swimming, games, parades and inspections. Students are expected to abide by the institute rules at all times while on or off campus.

Consistent with the requirements of present legislation in the shipping industry, **TMI has a strict Drug and Alcohol Policy with zero tolerance.** Non-compliance is dealt with severely and may lead to expulsion. Students are expected to protect the property of the Institute at all times and conduct themselves in a manner so as not to cause any damage. The institute reserves the right to recover from errant students the cost of damage inflicted on any Institute property and to take other disciplinary action.

The institute normally operates a five and a half day workweek. The workday commences with a muster at 6:00 am followed by 45 minutes of physical training. Thereafter, classes commence at 8:30 am and continue till 4:40 pm with a 60-minute lunch break. Sports are scheduled for late afternoon and students are expected to utilize the evenings for self study, assignments and extra curricular activities.

Leave of absence is granted only upon the written request of parents. Unauthorized absence is treated as a serious breach of the rules. Minimum 85% attendance is required in classrooms, while workshop sessions require 100% participation. In the event of deficiency in workshop participation, it is necessary for students to complete the requisite workshop hours with attendance outside the normal schedule during the semester or during holiday periods.

Visits of guests are regulated. Parents, guardians and personal friends are allowed to visit students in the hostel during specified visiting hours.

Ragging on campus is strictly prohibited. Any incidence of ragging is immediately acted upon and the guilty is liable to be dismissed from the Institute.



B.TECH. MARINE ENGINEERING DEGREE CURRICULUM

Semester I

English
Mathematics —I
Basic Thermodynamics
Basic Electrical & Electronics Engineering
Engineering Mechanics - I
Workshop Technology
Geometrical Drawing
Basic Electrical & Electronics Laboratory
Workshop Practicals —I
Communicative English Lab

Semester III

Computational Mathematics
Analog Electronics & Communication
Applied Thermodynamics —II
Strength of Materials —II
Mechanics of Machines —I
Electrical Machines —I
Marine Engineering Drawing
Electronics Laboratory
Heat & Chemical Laboratory
Workshop Practicals —III

Semester V

Material Science
Ship Structure & Construction
Marine Internal Combustion Engine —I
Fluid Mechanics
Marine Auxiliary Machines —I
Naval Architecture —I
Elementary Design & Drawing
Material Science Laboratory
Vibration Laboratory & Fluid Mechanics Laboratory
Marine Power Plant Operation —I

Semester VII

Ship Operation & Management
Advanced Marine Control Engineering & Automation
IMO - Maritime Conventions & Classification Society
Advanced Marine Technology
Engine Room Management
Elective
Marine Machinery & System Design
Simulator & Simulation Laboratory
Technical Paper & Project

Elective Subjects
Advanced Marine Heat Engines
Environmental Science & Technology
Advanced Material Science & Surface Coating Engineering
Renewable Energy Sources & Applications

Audit Course: Foreign Languages (Spanish, Japanese, French, German, etc.)
(Please note that the Audit Course does not form part of the curriculum)

Semester II

Seamanship, Elementary Navigation & Survival at Sea
Mathematics —II
Applied Thermodynamics —I
Strength of Materials —I
Computer Science
Engineering Mechanics —II
Engineering & Machine Drawing
Applied Mechanics Laboratory
Workshop Practicals —II
Computer Laboratory —I

Semester IV

Marine Boilers
Digital Electronics & PLC
Mechanics of Machines —II
Electrical Machines —II
Fluids Mechanics
Marine Heat Engine & Air Conditioning
Applied Marine Control & Automation
Computer Microprocessor & PLC Laboratory
Workshop Practicals —IV
Control Engineering Laboratory

Semester VI

Ship Fire Prevention & Control
Marine Internal Combustion Engine II
Marine Electrical Technology
Marine Auxiliary Machines —II
Naval Architecture —II
Management Science & Economics
Marine Steam Engineering
Fire Control & Life Saving Appliances Laboratory
Marine Power Plant Operation —II
Electrical Machines Laboratory

Semester VIII

ON BOARD TRAINING & ASSESSMENT
Voyage / Training Report
Project on Environment & its Project
Viva - Voce



FEES AND ESTIMATED EXPENSES ACADEMIC YEAR 2020-21

Fees	SEM I	SEM II	1st year (Sem I & II)
Admission & Orientation Fee	21,000	NIL	21,000
Tuition Fee	89,000	89,000	178,000
Welding	NIL	9,500	9,500
Campus & Establishment Fee	114,000	114,000	228,000
Total	224,000	212,500	436,500
Less: Covid Relief	12,500	12,500	25,000
Total fees	211,500	200,000	411,500
DGS Cess @ 1% of total fees	2,115	2,000	4,115
Student Services Expenses			
Books	5,000	NIL	5,000
Laundry	1,950	1,950	3,900
Messing	24,000	24,000	48,000
Medical Insurance Premium	6,000	NIL	6,000
Stationery	6,000	NIL	6,000
Uniform	20,000	NIL	20,000
Total of Student Services Expenses	62,950	25,950	88,900
DGS Cess @ 1% of Student Services	630	260	890
IMU fee	35,000	NIL	35,000
Caution Deposit (Interest free and Refundable)	20,000	NIL	20,000
Total Payable	332,195	228,210	560,405

For Student enrolling in the first year of Academic Year 2020-21, the Estimated fees and Student Services for the four year programme will be approx. Rs. 20,53,924/-

Special Note Applicable to Students enrolling for Academic Year 2020-2021:

In view of the ongoing COVID pandemic, a " COVID Relief " is being granted to all students by the Institute. This has been reflected in the Fee Structure.

Note:

- a. Female students are entitled to a waiver of 50% in Tuition fee for each semester.
- b. Fees and student services expenses are indicative and are subject to change.
- c. Student Services expenses are charged on actuals.
- d. IMU Fee is payable to Indian Maritime University
- e. Caution Deposit (Interest free and Refundable) is payable on admission.
- f. Statutory taxes / levies, if any imposed, will be charged on actuals.
- g. Monies due for each semester is payable at the beginning of the semester before the due dates.
- h. Late fee @ 18% p.a. is applicable for monies received after due date.
- I. Value added courses undertaken by the students will attract additional fees.
- j. Separate charges would be levied at actual costs incurred by the Institute in respect of excursions, visits, medical expenses (to the extent not covered under insurance).
- k. Fees, Estimated Expenses and Caution Deposit are payable in either of the modes mentioned below
 - Online through the URL www.tolani.edu
 - Demand Draft in favour of 'Tolani Maritime Institute' at any of the HDFC Bank branches



Refund Policy

As mentioned on institute website www.tolani.edu

LOANS & SCHOLARSHIPS

Loans

TMI degree courses are eligible for educational loans disbursed by banks. Students desirous of availing loan facility may approach any bank of their convenience, including the following banks who have pre approved the TMI degree courses:

1) Axis Bank 2) Bank of Maharashtra 3) Corporation Bank 4) HDFC Bank 5) State Bank of India

Scholarships

Liberal scholarships are available every semester to the deserving students. The details of scholarships are as follows-

Merit Scholarships

The institute awards generous merit scholarships to attract the very best talent and promote sustained achievement. For each Marine Engineering on-campus semester, 35 top ranking students of the batch are awarded scholarships aggregating to approx. Rs. 46 lacs per year. The highest scholarship of Rs.40,000/- per semester is named the '**Dr. C.P. Srivastava Scholarship**'.

In the first semester on admission, the new entrants are ranked on the basis of the merit list prepared for admission to the Institute. In subsequent semesters, students' performance during the previous semester at the campus determines the ranking for the purpose of scholarships. The Institute's Scholarship Committee administers the above scholarships. This scholarship is given for the on-campus semesters and not for the period spent on internship.

Need cum Merit based Scholarships

Need cum Merit based Scholarships have been instituted for the students undergoing UG programmes at TMI as follows:

Tolani Education Foundation (TEF)

Tolani Education Foundation awards scholarships each semester to ME and NS degree course

students to provide financial support to the identified students undergoing UG programmes at TMI Induri. The Scholarship amount of Rs. 15,000/- per semester once awarded continues till the end of the third year of the programme subject to the performance and conduct of the student conforming to the laid down rules.

Mrs. Papu Tolani Need cum Merit Scholarship

Mrs. Papu Tolani, wife of Dr. N P Tolani has instituted a scholarship of Rs.10,000/- per semester. Once a scholarship is awarded, it continues till the end of the programme for all on campus semesters subject to the performance and conduct of the student conforming to the laid down rules.

Menghraj Karna Need-cum-Merit based Scholarship for Girls

Menghraj Karna scholarship is instituted only for girl students undergoing UG programmes at TMI, Induri. The scholarship amount is Rs.10,000/- per semester and once the scholarship is awarded, it continues till the end of the third year of the programme subject to performance and conduct of the student conforming to the laid down rules.

Vasant J. Sheth Memorial Foundation Need cum Merit based Scholarship

The Vasant J. Sheth Memorial Foundation has instituted three need-cum-merit based scholarships. Students offered admission to TMI and able to demonstrate the need for financial assistance, as per the criteria established by the Foundation, may apply for the scholarship. This scholarship provides assistance of Rs. 30,000/- per semester over the full four-year programme to three students selected from batch of new entrants. Once awarded, this scholarship is continued for the entire four year program provided the recipient maintains a Cumulative Grade Point Average of at least 5.0 and is not cited for any disciplinary lapses.

The Foundation will award the scholarship based on the student's annual family income and other resources. The Foundation will require documentary evidence of this as well as family details and an explanation of how they intend to meet the total cost of education at TMI.

Industry Sponsored Scholarships

To promote meritorious students, leading shipping companies NYK, K-Line, Dockendale etc. have instituted scholarships for the students selected by them in the first/second year of the programme.

Concession in Fee for Girl Students

TMI is committed to encouraging girls' participation in the maritime industry. To this end, in addition to the eligibility for the scholarships mentioned above they are also given a reduction of 50% in Tuition fees per semester.



ELIGIBILITY

Unmarried candidates, of either sex, born on or after 1st October 1999 are eligible to apply for admission in 2020. The date of birth as recorded on the applicant's School Leaving Certificate will be considered for this purpose. For female candidates there is a relaxation of the age limit up to 2 years.

Candidate must have successfully completed the Senior Secondary Examination (10+2) or its equivalent having secured at least 60% marks in Physics, Chemistry and Mathematics (P-C-M) and at least 50% marks in English either in Class X or Class XII.

Candidates must meet the minimum physical fitness and medical standards as laid out in the Merchant Shipping (Medical Examination) Rules, 2009 as amended from time to time. It is important to note that any deficiency in this respect would disqualify a candidate from a career at sea.

Qualifying in IMUCET is mandatory for admission

Eyesight: Distance vision unaided 0.5 (6/12) in each eye or 0.67 (6/9) in better eye and 0.33 (6/18) in other eye. Normal colour vision shall be tested by Ishihara test chart.

Having Passport is mandatory at the time of admission

APPLICATION PROCESS

Step I : Fill the application form on TMI website www.tolani.edu. Last date for availability of forms - as declared on website

Step II : Pay the **non-refundable** application and online test fees through the website using credit / debit card / internet banking OR by a Demand Draft / Pay Order for Rs. 1200/- in favour of "Tolani Maritime Institute", payable at Pune.

Step III: Print duly filled application form and the summary generated. Send the same along with the transaction receipt, if paid online, OR Demand Draft/Pay Order to TMI. Please write your form no. and contact details on the reverse of the draft.

Hard copy of Brochure and Prospectus is available for Rs. 300/-

Please note that you will be required to upload the following documents in soft copy while filling the form online and also send one photocopy of each document along with hard copy of the form.

1. Recent passport size photograph
2. Class X mark sheet
3. Class XII mark sheet (Candidates appearing for Class XII exam in 2020 may submit these copies after declaration of results.)
4. Leaving / Transfer Certificate / Birth Certificate (For age proof)
5. Downloaded copies of class XII mark sheet from internet (Candidates appearing for Class XII exam in 2020 may submit these copies after declaration of results.)

Necessary documents to be sent to TMI with all applications:

1. Printed copy of the application form and the summary generated after an application is made through this website
2. Two identical recent passport size photographs with name & form no. written at the back
3. Self attested Copies of certificates and / or mark sheets of your 10th and 12th examinations (or its equivalent). Applicants who have not received 12th marksheet may submit a bonafide certificate from the head of the school or college where they appeared for these exams
4. Self attested Copy of Birth Certificate (for proof of age and place of Birth)
5. Downloaded copies of class XII marksheet (on receipt) from internet attested by school Principal
6. Copies of certificates for sports and any other extra curricular activities, if available (Std. VIII and above only)
7. Online transaction receipt, if paid online, OR Demand Draft payable at Pune for Rs. 1200/- favouring Tolani Maritime Institute. *Please write your form no. and contact details including mobile phone no. on the reverse of the Demand Draft.*

All applicants are advised to ensure that:

- (1) A copy of the application form is retained with them.
- (2) Name, form number and contact number are written on the reverse of the DD also.
- (3) Their addresses and telephone numbers are complete and correct on the application form.
- (4) Subsequent correspondence refers to the applicant's name exactly as entered on the application and quotes the Dossier Id that appears on the form.

For further instructions on Do's and Don'ts please refer to the institute website page:

<http://www.tmi.tolani.edu/admission/b-tech-marine-engineering/how-to-apply/>

LATERAL ENTRY

TMI also provides lateral entry into second year of B.Tech Marine Engineering. The criteria for admission are as follows:

Eligibility:

- ♦ Unmarried candidates of either sex, less than 24 years of age
- ♦ Candidates must have successfully completed Diploma in Mechanical Engineering or Diploma in Marine Engineering from any Institute approved by AICTE with at least 60% marks overall and should have complete the Diploma within the stipulated period of 3 years
- ♦ Candidates should have secured 50% marks in English in 10th Std or 12th Std

Application Procedure:

- ♦ Apply online from TMI website www.tolani.edu
- ♦ Send duly filled Application Form to the institute along with the documents as mentioned in the application form
- ♦ Appear for TMI admission test and interview

Course commencement: As declared on website



SELECTION PROCESS

Tolani Maritime Institute's selection process will test candidates by taking into account candidate's 10+2 PCM marks, rank in IMUCET, result of the TMI online entrance exam, performance in an interview and satisfactory medical tests.

Due COVID restrictions, the online test (TMISAT) and interview will be conducted online commencing June 2020.

TMI Online Scholastic Aptitude Test (TMISAT)

The Online Test has Main Test with 80 Questions in four sections and a Behavioral Assessment.

The on-line test has a multiple-choice format covering Physics, Mathematics, Analytical and Logical Reasoning. The questions are of 10+2 level. There is one section each with negative marking in Physics and Mathematics. Duration of the test is 90 minutes.

On completion of the Main test consisting of above four sections there will be a behavioral assessment for 30 minutes.

Medical Test

The medical examination shall be conducted by DGS approved examiners to ensure that candidates are fit for sea service. Candidates are required to pay fees to cover the cost of the medical examination. List of Medical Practitioners approved by D G Shipping is available on institute's website.

Personal Interview

The interviewing panel of the Institute, which comprises of faculty and external experts, will make an evaluation of the candidates' suitability for a sea faring career. All the candidates tested and interviewed will be ranked on the basis of application information, tests and interview. This ranking by the institute will be final and binding. Candidates will be offered seats strictly on basis of merit list.

Admission is confirmed after the fee has been paid by the due date as intimated through Admission Letter. Failure to make the required payment or to report for the course by the stipulated dates will result in the admission being cancelled.

Candidates accepting admission shall be required to submit the certificates in original together with set of photocopies as intimated in the Admission Letter.

Please note that all photocopies are to be in A4 portrait format. These photocopies are required for Directorate General of Shipping, Govt. of India documentation.