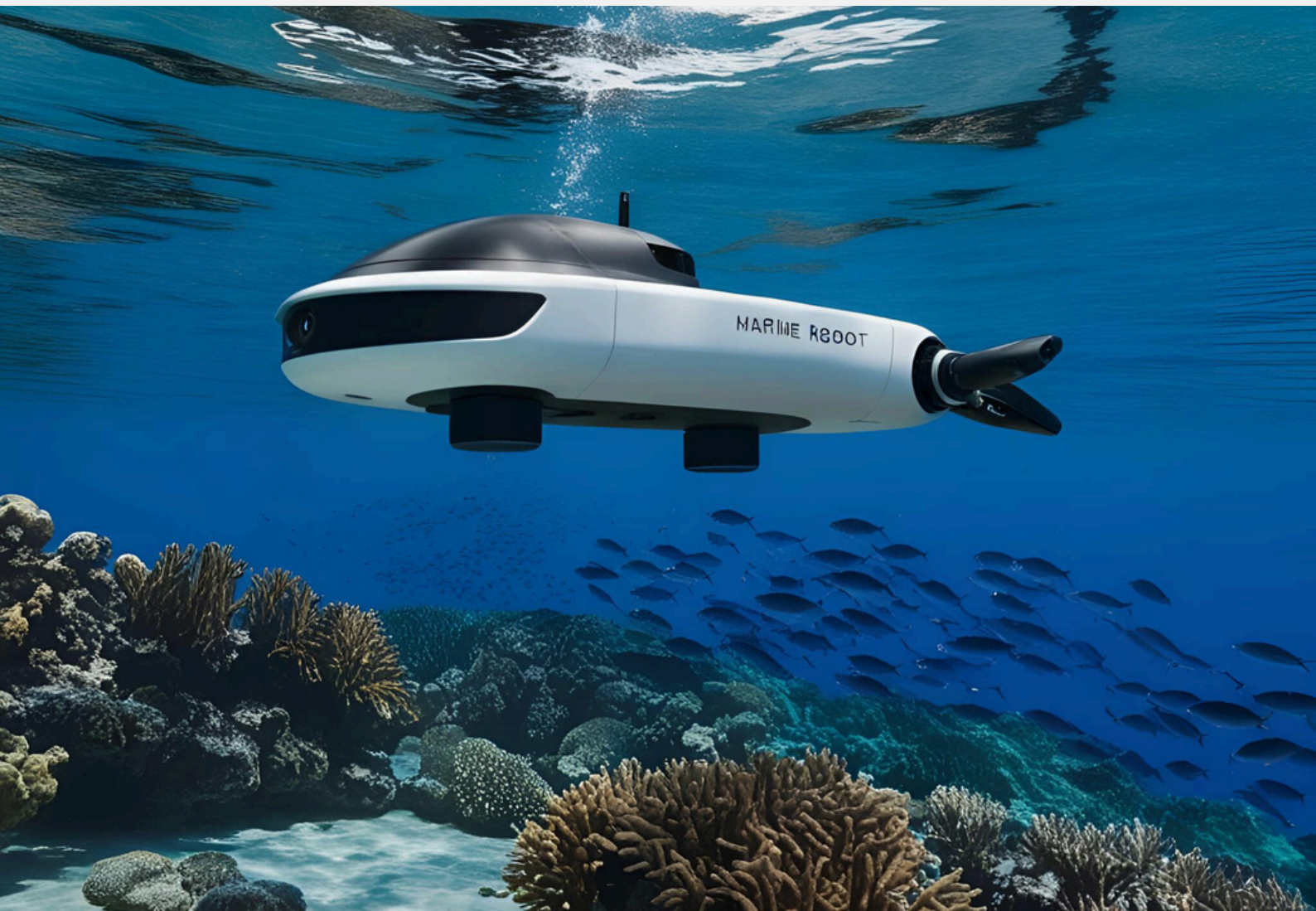


M.TECH

MARINE SCIENCE & TECHNOLOGY



PROGRAM HANDBOOK



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Option for Double Degree with the National School of Engineering Brest, France (for Select Top 2 students)

Admission Through COAP

GATE Streams: EE/ME/EC/IN/NM/CE/CS/AE

Admission Categories for M. Tech Program

Category A: Regular M. Tech (Teaching Assistantship Category)

Category B: Sponsored/Self-Financed M. Tech (Without Assistantship)

Eligibility for Admission

Category A:

A. 1 – Regular candidate

1. Qualifying degree:

1. GEN/EWS/OBC-NCL candidates: B.E./ B.Tech. with a minimum of 60% marks OR CPI of 6.0 out of 10.0 (or proportional on another scale) OR a first Class as specified by the university awarding qualifying degree.

2. SC/ST/PWD candidates: B.E./ B.Tech. with a minimum of 55% marks OR CPI of 5.5 out of 10.0 (or proportional on another scale).

AND

3. A valid GATE score.

a. Candidates with a valid GATE score in the streams mentioned against the discipline(s) are advised to apply for admission to M. Tech program.

SI No.	Discipline	Stream Code
01.	Marine Science and Technology	ME,EE,EC,IN,NM,CE,CSE,AE

A. 2 – B.Tech. Degree holder from an IIT:

B.Tech. degree holders from any of the IITs in the above-mentioned disciplines with a CPI \geq 8.0 will be directly eligible in this category without a GATE score. They may be admitted to the M.Tech. Program under TA (Teaching Assistants) positions through a written test and /or an interview.

NOTE:

1. The GATE score cut-off for different categories and disciplines will be decided by the Program level Admission Committee based on applications received.

M.TECH IN MARINE SCIENCE AND TECHNOLOGY

General Information

A Memorandum of Understanding (MoU) has been established between IIT Goa and ENIB (National School of Engineering Brest, France) to consider a Double Degree program in MTech in Marine Science and Technology (MST) with an aim to achieve significant growth in research and academic opportunities for students at both institutions.

The academic requirements to achieve the dual degree program. They combine the ones imposed by each partner institution in order to be able to deliver their own degree (MTech for IIT GOA and ENIB and also MEng for ENIB). All these requirements should be respected by the students registered in the dual degree program to obtain at the end the two degrees.

Requirements for IIT GOA students:

1. To have validated a full M1 level (so the academic semesters I and II of the M.Tech in Marine Sciences & Technology of IIT GOA) before registering to the dual degree program; this will be done by a historical analysis of the academic results and provided by the IIT GOA.
2. To be registered during 2 semesters in ENIB for the academic semester and for the semester dedicated to the master thesis work of ENIB MSc program.
3. To be still registered in IIT GOA during the total duration of the dual degree curriculum.
4. To validate all the credits associated to the required courses to validate the academic semester I (see appendix III for the detailed description of the content of the syllabus).

Requirements for ENIB students:

1. To have validated a full M1 level (so all the academic semesters of the curriculum of ENIB) before registering to the dual degree program; this will be done by a historical analysis of the academic results and provided by ENIB.
2. To have validated the assistant engineer internship (semester 8 in ENIB curriculum) in a company.
3. To be registered during 3 semesters in IIT GOA: for the two academic semesters I and II and for an additional semester dedicated to the master thesis work (merge of semester III and IV) of IIT GOA MTech program.
4. To be still registered in ENIB during the total duration of the dual degree curriculum.
5. To validate all the credits associated to the required courses to validate the academic semester I and semester II (see appendix III for the detailed description of the content of the syllabus).
6. To validate the master thesis work by respecting all the conditions for this master thesis defense and the report required by IIT GOA M.Tech Marine Sciences & Technology degree. A copy of this report should be provided at ENIB to validate the semester 10 by compensation.

Students of IIT GOA registered in the M.Tech in Marine Science & Technology.

The student will leave IIT GOA after their semester II to reach ENIB to follow the academic semester I (lectures mainly) from September to December. Then, they will make the academic semester II which is dedicated to the master thesis work, from January to July. As the semester II of the MSc of ENIB will replace the semesters III and IV of IIT GOA MTech, the students should prepare the master thesis work at the home institution (second part of semester II) and also during semester I in the host institution. Semester III and IV of IIT GOA M.Tech are replaced by semester I and II (master thesis work) of the MSc at ENIB. So the elective courses of semester III will be replaced/compensated by the courses in the « host » program.

Students of ENIB registered in the MEng system engineering

The student will leave ENIB after their semester 8 to reach IIT GOA to follow the academic semester I from August to November. Then they will make the academic semester II from January to June. Then, they will make the academic semester III and semester IV in the same time from August to November. Merging semester III and IV of the M.Tech of IIT GOA, which are dedicated to the master thesis work, imposes that they should prepare the master thesis work during the second part of semester II during June and July.

Specific focus on the master thesis work (semester III and IV for the IIT GOA M.Tech and semester II for the ENIB MSc):

This master thesis work should meet both the requirements of the two MTech/MSc programs (GOA and ENIB). For this research work, a placement in a research lab is required. It could be in France or in India, depending on the subject and where will be located the facilities needed for the research project. For this research work a co-supervising with an IIT Goa and an ENIB Professor will be favoured.

Program structure M.Tech in Marine Science and Engineering

Semester	Courses	Credits
Semester I	<ul style="list-style-type: none"> • Core Course I • Core Course II • Core Course III • Elective Course I 	<p>(4+4+3+3=14)</p> <p>At least 2 core courses with lab components</p>
Semester II	<ul style="list-style-type: none"> • Core Course I • Core Course II • Elective Course I • Elective Course II 	<p>(4+4+3+3=14)</p> <p>Core courses with lab components</p>
Summer Term	Thesis Preparation	6
Semester III	Project/Thesis Work – Phase I	12
Semester IV	Project/Thesis Work – Phase II	12
Total		58

Tentative List of Core Courses

Sr. No.	Course Name
1	Marine Data Science
2	Underwater Imaging
3	Marine Hydrodynamics
4	Introduction to Marine Robotics and Instrumentation Systems
5	Transport Theory

Tentative List of Elective courses

Sr. No.	Course Name
1	Ocean Vision AI
2	Underwater Sensing and Communication
3	Emission Control in Marine Diesel Engines
4	Sustainable Marine Transport Fuels and Emissions
5	Computational Marine Dynamics
6	Marine Chemistry
7	Deep-sea Science, Resources, and Environmental Management
8	Modeling & Simulation of Systems
9	Analytical Techniques Laboratory
10	FEM for Marine Structures
11	Sensors and IoT for Marine Engg
12	Machine Learning for Engineering Mechanics