



**The Graduate School of Marine Science and Technology,
Tokyo University of Marine Science and Technology**

**“Development of WISE Program (World-leading Innovative &
Smart Education) Program to foster AI(Artificial Intelligence)
Professionals for Marine Industries”**

Application information for the April 2024 period

【Doctoral program】

(Special Selection for “Marine AI Core Course”)

July 2023



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1 Application Schedule

- ※ Applications for Schedule B will be accepted only from those who are unable to apply for Schedule A due to special reasons (such as boarding for classes). Those who fail the Schedule A cannot apply.

For the April 2024 period

	Schedule A	Prior Contact Period
(Only Schedule B) Prior Contact Period		June 5, 2023 - January 19, 2024
Application period	January 12 - 19, 2024	April 3 - 10, 2024
Announcement of the result of the first screening	January 25, 2024	April 15, 2024
Date of the second screening	January 29 - 31, 2024	April 18 and 19 2024
Announcement of successful applicants	February 16, 2024	April 30, 2024

Development of WISE Program (World-leading Innovative & Smart Education) Program to foster AI(Artificial Intelligence) Professionals for Marine Industries (“the Program”) recruits program students (master's program at our university).

2 Overview of the Program

In modern society, the marine industry workforce is expected to decrease. Development of WISE Program (World-leading Innovative & Smart Education) Program to foster AI(Artificial Intelligence) Professionals for Marine Industries develops researchers who will lead diverse fields in domestic and international research communities as well as in other countries. As such, we build innovative systems, create diverse values, and re-establish the international presence of Japan in the global marine industry. The Program is established as an educational program for a integrated graduate school course where all activities, including coursework, thesis writing, and evaluation of the written thesis, help students earn a degree in an organic and synergic manner.

We are soliciting proposals from students who understand the Program’s vision and would like to participate in the program.

Diploma policy

① Characteristics of personnel in the Program

Innovators, advanced professional engineers, and marine policymakers with technical literacy in big data analysis and machine learning capable of evaluating AI performance accurately and leading the social implementation of AI based on expertise and extensive field experience learned at TUMSAT.

② Skills and qualities to be learned by students

In addition to the diploma policy of each graduate school, the Program's students acquire the following skills and qualities:

- Knowledge and skills in the data science fields, including big data analysis and machine learning, to perform social implementation of AI
- Clear understanding of issues in their own areas of expertise that may be resolved with data science (big data and machine learning) and the ability to plan, propose, and implement technologies to solve such issues
- Ability to develop, verify, and analyze the results of research projects that scientifically evaluate efficacy and validity of application cases of big data and machine learning towards social implementation of AI
- Competent decision-making and communication skills to disseminate results of big data analysis and machine learning with the public (for students in the fields of resource assessment and management)
- Accurately interpret results of big data analysis and machine learning in a scientific manner and make full use of the results (for students in the field of marine observation)

3 Number of applicants and qualifications

For the April 2024 period

	Schedule A	Schedule B
Doctoral Program 2024 enrollment	Some people	Some people

Qualification requirements

Satisfy the following ①~④.

- ① Those who are scheduled to enroll in the first year of the doctoral program at our graduate school in April 2024.
 - ※ If the applicant have applied for the selection of students for the master's program at our university, you can apply even before the announcement of the results.
- ② Those who must meet the requirements for completion of the "Marine AI Core Course".
- ③ Those who must be able to clearly demonstrate the ability to apply AI and data science to the field of specialization in the doctoral program (a master's

thesis on AI and data science is even more desirable).

- ④ Those who are willing to complete the doctoral program in 3 years and have goals that match the educational and research principles of this program.

4 Application method

Please submit 1-4 documents within the applicable period.

As a general rule, application documents should be submitted by email.

[Address for the submission] marine-ai_office@o.kaiyodai.ac.jp

- 1) Application form of the Program
- 2) Research plan (The dedicated form is attached to this document. The plan must include the motivation for applying for this program, content related to AI or big data, and future plans after completing this program and obtaining a degree).
 - * Deliverables that demonstrate the ability to apply AI
 - * If the applicant have written a master's thesis on AI and data science, please attach an abstract of the thesis.
- 3) Transcript of the final school (submitted in the doctoral program entrance examination)
- 4) Recommendation letter from the faculty member who will be accepted
 - * No examination fee is required to apply to the Program.
 - * If the applicant studied at any School (master's course) of TUMSAT, a certificate of academic results is not required. Instead, the applicant must include the student number given at the School in the application.
 - * Prior to submitting an application and research plan, the applicant must obtain approval of the main academic advisor.

5 Selection criteria

- (1) First selection: document screening

Screening will be conducted based on Transcript of the final school, motivation for the application, and research plan in a comprehensive manner.

* Please note that the submitted documents may not be changed and will not be returned.

- (2) Second selection: interview screening

The interview screening includes a presentation regarding the contents of the submitted research plan (20 minutes) and a subsequent question and answer session (10 minutes). The sessions evaluate applicants in a comprehensive manner based on their academic abilities, research skills, and understanding about and motivation for the Program.

* Interviews will be conducted online using Cisco Webex.

6 Briefing session for students

On the start date of each application period, Cisco Webex will be conducted an online briefing session.

- ① December 11, 2023 from 10:30 to 11:30

7 Announcement of successful applicants

Successful applicants will be announced on the Program website (<https://www.g2.kaiyodai.ac.jp/marine-ai/>).

Successful applicants will be also notified individually.

8 Procedures for participating in the Program

The Program's administration personnel will notify successful applicants of the procedures to participate in the Program.

No additional fee is needed for entry or study in the Program.

9 Curriculum and requirements for completion of the Program

In addition to completing the coursework of the Graduate School to which the student belongs, all students who study in the Program must take subjects that are offered by the Program and earn credits as shown below. Students must pass Qualifying Examination and the Program's completion review provided by Quality Assurance Unit ("QAU") .

Students who complete the Program earn doctor's degree of Marine Science or doctor's degree of Engineering. They also receive a certificate of degree with a note stating that they have completed the Development of WISE Program (World-leading Innovative & Smart Education) Program to foster AI (Artificial Intelligence) Professionals for Marine Industries.

*About the Program completion review

The Program completion review will be conducted by QAU during the third year of the doctoral course.

Doctoral course completion requirements

	Classification	Subject title	Required credits
Required	" WISE Program" Common subjects ※1		
	AI (machine learning)	Advanced Artificial Intelligence and Machine Learning (2)	4
	Big data	Social Implementation of Data Science (2)	
	Collaboration with different fields	Marine AI Workshop II	1
Elective	"WISE Program" in each major Designated subject ※2	" WISE Program" designated subjects in each major	2
	Courses ※3		
	Course on Advanced Reliability Assessments	Advanced Evaluation of Ship Navigation Safety (2)	2
	Course on Social Implementation Impact Assessments	Interlaboratory Seminar in Social Implementation (2)	
Required	Marine AI Residency Program		2
	Advanced Seminar		2
	Research of specialization		4
Total			17

* 1 Each subject will be established as a Graduate School Common Subjects.

* 2 Each subject is designated in each major.

* 3 Select either one when entering the second semester program.

10 Supports for students

Students who participate in the Program may receive support and travel expenses for overseas training opportunities offered by the Program and Salary based on RA employment. Please consult with the Academic Affairs Division in charge of the WISE Program for the details of available supports.

In addition to the above supports, the Marine AI Consortium, which is an industry-academia-government collaboration, provides different support opportunities, including 1) matching needs and interests between students studying in the Program and private companies, 2) in-residence projects, where students work in actual projects at partner institutes. In-residence projects will be offered to doctoral course students. A support system with mentors is also available.

Furthermore, to allow students participating in the Program to concentrate on their studies, financial support for education/research expenses will be provided for students selected by the QAU among those who achieve excellent results in the screening contest.

11 Marine Industry AI Professional Faculty

The program provided training for faculty members with the aim of further utilizing AI in research and certified the completion of AI training.

Please use it as a reference when deciding on an academic advisor.

<https://www.g2.kaiyodai.ac.jp/marine-ai/students/>

12 Handling of personal information

Personal information that is provided in the application documents, including supporting documents and those provided by the Course to which the applicant belongs, will be used to select successful students who will participate in the Program and to prepare for acceptance, education, and research guidance of successful students.

13 About security export control

TUMSAT thoroughly vets international students when accepting them. The examination is conducted pursuant to the Rules for Security Export Control at the Tokyo University of Marine Science and Technology, which is established according to the Foreign Exchange and Foreign Trade Act of Japan.

14 Document submission destination

WISE Program Promotion Support Office [Academic affairs division]

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