Joint Master's Degree Program in Sustainability and Environmental Sciences

Name of the degree to be conferred	Master of Sustainability and Environmental Sciences
Educational purpose	The program guides students to become a professional who can contribute to solving problems and realizing sustainable society in tropical Asia in the point of the global issues such as water resources/aquatic environment, flood, and ecosystem in terms of specialized and comprehensive insights of sciences, agricultural sciences, engineering, and social science.
Vision of human resources development	・The professional who can contribute to solving local and global-scale issues relating to water resources/aquatic environment, bioresources/biodiversity and etc. and urban problems etc. in tropical Asia/monsoon regions. ・The professional who understands various issues in developing countries and is equipped with the knowledge and skills necessary to create sustainable and resilient future local communities. ・The professional who has a specialized and panoramic view, can seriously work on challenging issues and take measures to properly solve the problems.

Diploma Policy

The degree of Master of Sustainability and Environmental Sciences is commenced to those who have fulfilled the requirements for the completion of the Master's programs, as set out in the Graduate School Regulations of the University of Tsukuba and related university regulations, and who are deemed to have the following competencies.

Competencies	Evaluation perspectives
1. Literacy: an ability for panoramic thinking and logical constitution.	① Having an ability for comprehensive thinking, which is necessary to position specialized knowledge into environmental issues. ② Having an ability for the logical constitution to analyze and explain environmental issues in a specialized/comprehensive way.
2. Ability to coordinate: communication skills/ability for negotiation/ability for adjustment.	① Having communication skills/ability for negotiation with various stakeholders. ② Having an ability for adjustment and arrangement in filed surveys ③ Having an ability to organize meetings with relevant institutions/ stakeholders.
3. Practical skills: executive ability/ expressiveness ①if having an executive ability to organize/set the problems and establish the process to solve such problems.	① Having an executive ability to organize/set the problems and establish the process to solve such problems. ② Having expressiveness such as presentation and self-appeal.
4. Fundamental knowledge: basic knowledge necessary for understanding/analysis of various issues in tropical Asia regions.	① Capable of understanding/analyzing various issues based on basic knowledge/skills of sciences, agricultural science, engineering and social science. ② Having acquired an ability to explain identification of problem logically.
5. Technological capacity: technological capacity necessary to solve various issues in tropical Asia regions.	① Having acquired knowledge relating to skills for problem-solving technics based on understanding/analysis of environmental issues. ② Having acquired an ability to estimate various issues that can be expected while application of technologies in a panoramic way.
6. Ability for social implementation: an ability to perform social implementation that requires academic knowledge/skills necessary to solve various issues in tropical Asia regions	① Having acquired an ability to suggest a system that can be socially implemented based on understanding various issues. ② Having acquired an ability to point out the problems of existing relevant technologies/policies and provide new suggestions.

Dissertation evaluation criteria

The requirements shall be as follows: completing interdisciplinary curriculum in the program, acquiring the prescribed credits and carrying out research for master's thesis. The dissertation should be passed in the thesis defense.

(Examination system for dissertation)

The Thesis Examination Committee shall be composed of three members, including a supervisor as a main examiner from a home university and two sub-examiners from a home university and a host university respectively. However, an examiner can be selected as a committee member from other program members as necessary.

The Thesis Examination Committee shall evaluate a Master's thesis and submit an evaluation report to the Chair.

(Evaluation items for dissertation)

1. If setting of problems in the thesis is clearly indicated, and the issues are recognized as being able to contribute to solving environmental issues directly or indirectly.
2. If the conventional research outcomes (literature and materials) are specified and properly evaluated and validity of the procedures in exploring issues in developing points of argument is appropriately presented upon achieving research objective.
3. If the research methods (theory, experiment method/materials, survey method etc.) are recognized as appropriate upon achieving research objectives.
4. If the thesis from problem setting to conclusion is narrated demonstratively and logically, new knowledge is presented, and in the conclusion, academic contribution of the conclusion drawn is confirmed in terms of sustainability and environmental sciences.
5. If the dissertation is presentable as a thesis for master's degree.

(Examination standard for dissertation)

The dissertation that satisfies all the following items above 1 to 5 shall be a pass as the thesis for master's degree after going through final examination.

Curriculum Policy

This course shall aim to understand the mechanism of environmental issues and find their solutions and construct a curriculum to develop communication skills and practical ability in addition to basic knowledge of natural science and social sciences and humanities. In detail, in order to acquire knowledge/ability required for degree awarding, skills/a judgment ability/practical ability abilities that are required for highly specialized professionals solve local-scale/global-scale issues such as climate changes, water resources, bioresources, urban problems, and disasters, etc., especially in tropical Asia/monsoon regions. This course aim allow students that can contribute to solving problems with specialized and panoramic insights of sciences, agricultural science, engineering and social science etc. The curriculum shall be designed for focusing on basic of sciences, agricultural science, engineering and social science. Students are able to obtain the and an ability to understand/recognize problems, an ability to solve problems and capable of suggestion/practical ability etc. For this purpose, the curriculum shall be organized according to the following policies.

Curriculum organization policy	① The program allow students to have a broad scientific knowledge and problem-solution skills for the environmental issues in tropical Asia/monsoon regions. Students develop an internationally competent research skill and deeper specialized knowledge as a researcher and a manager to apply other regions through the compulsory and elective courses. ② To confirm/evaluate the students' learning/research activities progress, share awareness between chief supervisor and sub supervisors and confirm instruction policy etc., actualize cooperative instruction system and cooperative education system, and confirm standardization in evaluating learning/research outcomes etc., The seminar course of Joint Seminar with MJIIT shall be established as jointly established courses. ③ To conduct a highly novel and internationally competent research, the classes for master thesis research shall be established.

	④ To understand various issues in the developing countries and develop the skills necessary to implement surveys and experiments in broad areas of environmental sciences in other countries with different cultures, overseas internship shall be performed. In this internship, students at University of Tsukuba learn an interactive experiment from field surveys and field work in Malaysia. Students of MJIIT shall perform the same learning in Japan. Upon implementation, considering that this internship is performed as a practical activity, careful attention shall be given in order to perform the internship overseas safely and efficiently through close cooperation between Japanese faculty members of MJIIT and the ones dispatched from the University of Tsukuba and the ones in this Degree Course. Additionally, for the students of MJIIT as well, through close cooperation between the program members of this Degree Course and the ones of MJIIT, internship shall be safely and efficiently performed. ⑤ To develop an ability to write a thesis and a knowledge, a seminar course shall be established. To complete a thesis and obtain a presentation skill, a special research course shall be established. ⑥ To develop a research management skill that is essential for a scientific technology in the 21st century and a career development, and English writing skill to announce research outcomes to the world and to build legal, social, and ethical knowledge relating to environmental issues and for further achievement for students' goal with communication skill to debate with others who have different opinions, general courses are established.
Learning methods・Processes	In this course, the students whose home university is University of Tsukuba or Malaysia-Japan International Institute of Technology (MJIIT) shall spend their 1st term in their home university and then perform educational research by staying in the host university. At each university, the supervisors shall be appointed. In their home universities, through completing a course work and compulsory classes for one term, students shall understand the principle and approach of this course and prepare for learning/research activities in overseas partner graduate school through course work and lab work while learning basic knowledge and skills necessary for learning/research. In overseas partner graduate school, the students shall take classes etc., conduct filed surveys to carry out research for master's thesis and carry out research/learning and receive evaluation under sub supervisor of the overseas partner graduate school. The program allows smooth communication among supervisors through joint seminars. The instruction shall be provided for the students according to their proficiency. Students exchange the information closely with the supervisors of their home university during their stay in the partner university. The program takes great care of students.
Evaluation of learning outcomes	In Joint Seminar which the faculty members and students at both universities conduct (targeting the 1st year: for the students from University of Tsukuba, joint seminar shall be performed one year after enrollment), the students shall give a presentation about the contents of their research and learning, and their achievement shall be evaluated, including questions and answers based on their presentation. In the last term, under instruction of the main supervisor in their home university, the students shall analyze the research data etc. obtained in the partner's university and be engaged in thesis writing and prepare for the final examination for their master thesis research. The final examination shall be performed by the thesis examination committee composed of both faculty members of home university and host university, making use of video conference system.
Admission Policy	
Desired students	The program seeks students that, with a strong interest in issues to be solved in tropical Asia and a background in natural science or social science and a cooperative spirit, are strongly determined to innovate and contribute to the sustainable society by solving global issues with environmental scientific approaches. As for selecting of students, the applicants shall be examined by two screenings: the first one is by each university and the second one is by both universities jointly, leading to final decision of candidates.

Selection policy	By comprehensively evaluating the application forms (reason for application, research plan, transcript/diploma of home institution (bachelor's degree), degree certificate, English proficiency certification etc.) and the results of the interview test (based on the application forms, the interview test shall be performed. which shall be performed in the university which the applicants apply for and the partner university shall participate in such interview test by video conference system), the acceptance of the applicants shall be judged. Additionally, since the program has international characteristics, a certain level of English proficiency shall be required. Furthermore, the following three precautions for applicants shall be informed: ・Having sufficient communication skills to take curriculum in English provided by this course. ・Being in the situations where applicants can complete the curriculum, for one year in a university where the applicants are dispatched and for one year in the one they are accepted during enrollment period. ・Capable of paying travel expenses, lodging expenses and living expenses that are necessary for learning in the University of Tsukuba and the University of Technology Malaysia at the applicants' own expense (including acquisition of scholarship).