

WISE Program in Tokyo University of Agriculture and Technology (TUAT) Fostering Brilliant Leaders by Emphasizing Diversity and the Creation of New Industries to Drive a Super Smart Society



Selected to participate in the Ministry of Education, Culture, Sports, Science and Technology's FY2018 Doctoral Program for World-leading Innovative & Smart Education (WISE Program), TUAT is implementing the "Program to Foster Brilliant Leaders with Emphasis on Diversity and the Creation of New Industries to Drive a Super Smart Society."

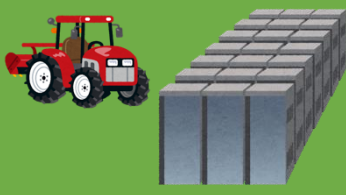
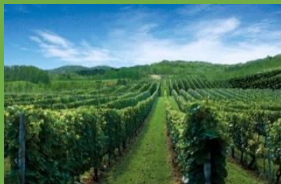
Vision:

The vision of the program is to foster brilliant leaders...

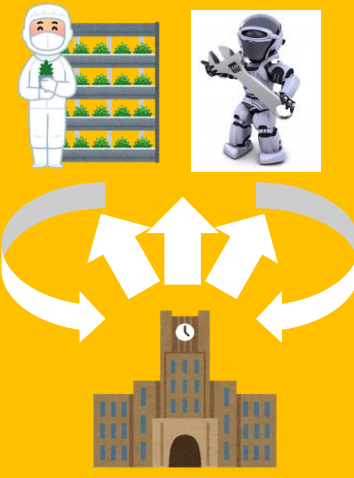
1. Who will leverage the collaboration of agriculture and engineering, and use high engineering technology to create new industries that offer solutions for the social challenges presented by agriculture
2. Who belong to underrepresented groups, including female scientists, and will provide the diversity for promoting innovation
3. Who have the capacity for big-picture thinking, creativity, an appreciation of diversity, internationally competitive strengths and high-level expertise

The program objective is to foster brilliant leaders in partnership with industries and overseas research institutions. These leaders will take on the creation of new industries through the collaboration of agriculture and engineering to solve the social challenges presented by agriculture. The program will develop leaders, including female scientists, who understand the importance of diversity, and who also possess internationally competitive strengths and high-level expertise.

1. Agri-engineer collaboration



2. Creation of new industries



3. Diversity



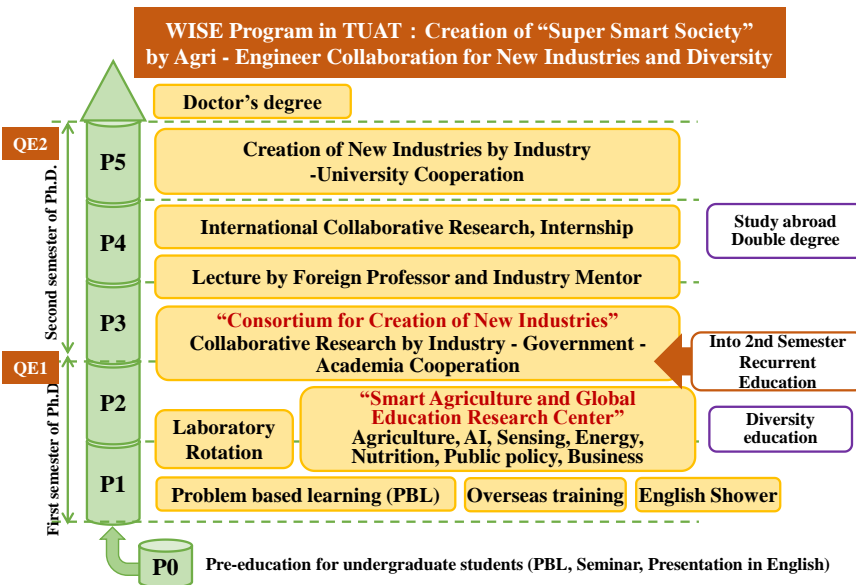
Diversity Education Environment

TUAT has long been addressing diversity at the university, including improving the environment for female researchers, increasing the number of women hired as teaching staff, and executing activities to boost the population of women in the sciences. As a result, it has one of Japan's highest ratios of female faculty members. The ratio of female students in agriculture and engineering also continues to rise. In fact, 22% of TUAT students in the faculty of engineering are women, which is the highest in Japan. As for the faculty of agriculture, 46% are women. Meanwhile, the Organization of Global Education are offering diversity-related subjects available to students of all faculties. The university has a competitive advantage in terms of diversity education, including its unique focus on developing female scientists.



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Educational curriculum (Integrated doctoral course – five years)



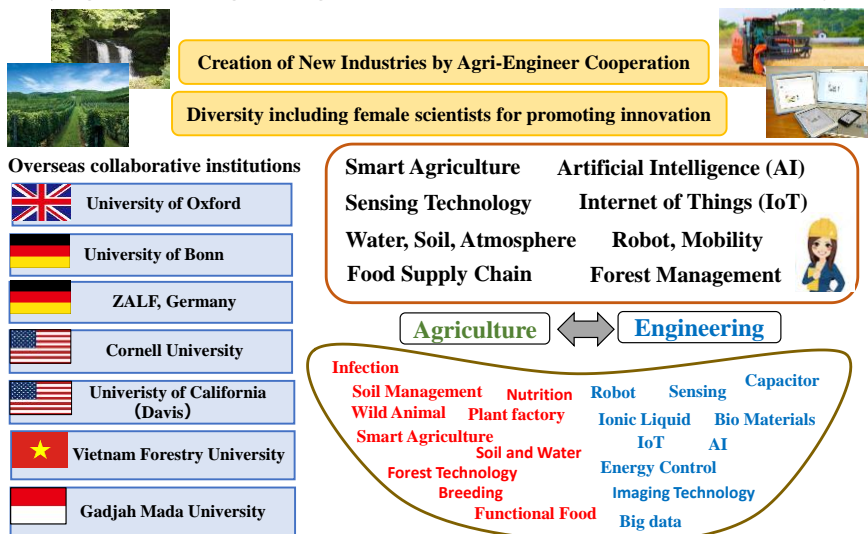
In Year One (the first phase of the integrated doctoral program), problem-based learning (PBL) is carried out in collaboration with cooperation company. Students engage in group work to find solutions to problems. Also implemented during the first year is an English immersion program intended to improve English language skills as well as training abroad at an overseas partner institution. In addition to teaching staff from TUAT's faculties of agriculture and engineering, businesspersons from cooperation companies also give lectures on specialized subjects for industry-academia cooperation in the fostering of leaders.

From Year Two, project-based practical education begins with utilization of the Consortium for the Creation of New Industries, cultivating the ability to innovate and find solutions to complex issues related to agriculture using high engineering technologies.

From Year Three, issue-proposal-type joint industry-academia research will begin, with the Consortium as the platform. Students in the Program will negotiate with researchers at overseas partner institutions and promote international collaborative research. From Year Four to Five, students will select activities such as study abroad for international collaborative research, Internship in companies, and cooperative research with partner institution. They will summarize their learning from lectures and exercises in a portfolio that will be continuously evaluated. Furthermore, the students will carry out self-evaluations of their problem-setting capabilities, conceptual abilities, creativity, planning and implementation capacities, integration competency, diversity comprehension, and communication skills. This will then be evaluated by doctoral advisors and collaborative teaching staff and serve as competency evaluations for encouraging self-growth. A new system to match the PhD students with various companies will be developed jointly with the businesses to provide an appropriate place for PhDs who have completed the Program to play an active role.

Consortium for the Creation of New Industries

WISE Program in TUAT : Creation of “Super Smart Society” by Agriculture-Engineer Collaboration for New Industries and Diversity



As a growth industry, agriculture must be provided with a stronger foundation for innovation in the entire system for the distribution of agricultural products. This includes breeding and production to processing and distribution as well as household consumption and the restaurant industry.

This Program not only leverages high engineering technology in the production of food but also introduces artificial intelligence (AI), robots and self-driving smart mobility technology to production and distribution to build a new smart food supply chain as one model for the creation of new industries.

An educational system with the commitment of the industrial circle is indispensable for the realization of this graduate program. A Consortium for the Creation of New Industries will be formed with the participation of businesses and other organizations as partner institutions, and leaders will be developed through the cooperation of government, industry and academia. At present, there are nine partner institutions, universities and others participating in the Consortium. Also we have seven overseas collaborative partner institutions for the program.