

GLOBAL COMMUNICATION CAPA PROBLEM SOLVING SKILL AM ERSE VALUE SETS INTERPERSO SKILLS AI LE GLOB GLOBAL ARCH LEADERSHIP AND FOLLOWE WELCOME THE MISTAKES WELCO THE DIFFERENCE AND ENJOY IT

Global Technology Architects Course

グローバル技術科学アーキテクト養成コース

Guide book

ガイドブック



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Explanation of the Global Technology Architects Course (GAC)

Q What is the “Global Technology Architects Course (GAC)”?

A It is a course to nurture “Global Technology Architects.”

Under **the Top Global University Project** led by the Ministry of Education, Culture, Sports, Science and Technology, TUT developed a concept of a “Creative Campus for Nurturing Global Technology Architects” and launched the Global Technology Architects Course (GAC) as its main project in 2014.

The Top Global University Project is a project by the Ministry of Education, Culture, Sports, Science and Technology to extend support focusing on universities that carry out thorough globalization and university reform and to strengthen the international competitiveness of higher educational institutions in Japan.

Q Who are “Global Technology Architects”?

A Global Technology Architects are high-level engineers who can contribute to the development of a global society with their highly advanced skills and practical creativeness in science and technology.

“Global Technology Architects” are high-level engineers with the following capabilities.

They :

- (1) Can recognize global issues;
- (2) Have a comprehensive outlook and design ability that will enable them to analyze and resolve global issues; and
- (3) Pioneer practical manufacturing techniques by employing their advanced technological and scientific backgrounds

Q What capabilities are required to become a “Global Technology Architect”?

A In addition to practical/creative technical skills and leadership, it is necessary to have high-level qualities and abilities in the following three categories to become a Global Technology Architect.

Category 1

Global Communication Capability

- 1-1 Superior language skills:** English is the most widely used language for global communication. At the same time, Japanese language skills are essential for international students who want to learn advanced technology in Japan, find a job at a Japanese company, or play an active role in the world.
- 1-2 Open-mindedness toward different cultures:** Each person has a different personality. Similarly, each region or country has a different culture that functions as a standard of the place concerned. When encountering different cultures and values, it is necessary to accept the differences and to respect the history and value standards behind them. Furthermore, this ability is indispensable for creating innovation, as it is said that “new things are born when different cultures encounter.”
- 1-3 Ability to understand and express oneself amidst diverse value sets:** Instead of subjectively and unilaterally making judgments about different cultures and values, one must be able to accept and respect those differences and convey their thoughts in an easy-to-understand manner based on logical reasoning.

Category 2

Problem Solving Skills Amidst Diverse Value Sets

- 2-1 Superior technical capabilities and scientific knowledge:** Technical skills and scientific knowledge can be acquired by accumulating practical learning.
- 2-2 Ability to grasp and analyze problems:** Even if a problem exists, it cannot be recognized as a problem without a critical mind. Even if it is recognized as a problem, the essence of the problem cannot be understood without analytical ability. It is possible to come up with a solution only when the essence of the problem is first understood.
- 2-3 Ability to come up with ideas and create solutions:** Even if you recognize and analyze a problem, you cannot come up with a solution without creativity. A range of skills, including considering various options, comparing and considering the most effective and efficient solutions, and proposing and implementing them as a concrete project, is indispensable for the creative process. In a broad sense, an "architect" refers to a person who has the ability to create ideas and projects, develop solutions, manage costs, resources, and other complicated constraints in an integrated manner, and realize such ideas and projects.

Category 3

Interpersonal Skills Applicable Globally

- 3-1 Broad culture:** In order to play an active role in the world, it is necessary to have broad knowledge of world history and cultural backgrounds as well as global trends in specialized fields. Therefore, it is important to learn “liberal arts” covering a wide range of wisdom, such as human history and art.
- 3-2 Willingness to take on challenges:** It is impossible to create innovation on the global stage without the spirit of jumping out of a field where you can feel safe (both academically and physically) and

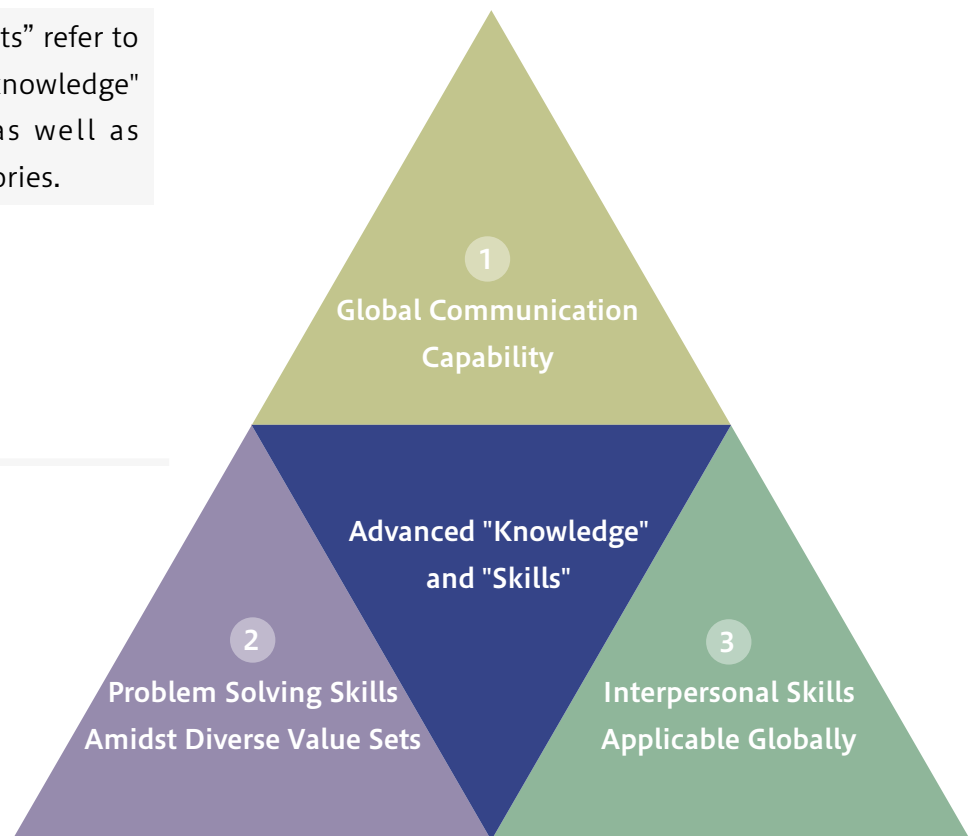
taking on new challenges.

3-3 Flexibility and tolerance: In order to create new things by taking advantage of technical skills while facing different cultures and values, it is extremely important to have flexibility like that of a willow tree that cannot be broken even in strong winds, a persevering spirit of trying again even after failing, and tolerance toward others in situations where things do not go as well as expected.

3-4 Leadership with a cooperative attitude: New leaders, who play an active role in a global society, are said to be collaborative leaders who promote cooperation, collaboration, changes, and diversity, not leaders who are charismatic in a top-down way.

Image of the Abilities in the Three Categories Required for “Global Technology Architects”

“Global Technology Architects” refer to those who have advanced “knowledge” and “skills” as the core as well as abilities in these three categories.



Q What kind of educational programs are offered in the GAC, which is a course to develop “Global Technology Architects,” to enhance these three abilities?







































A GAC students **belong to the same departments as regular course students**. In addition to the “technological science” program with a track record beginning from the foundation of TUT, GAC students participate in the following educational programs to effectively acquire skills and experience that are required to become active on the global stage as highly skilled engineers and researchers.

Flow and Programs of the GAC



Reference Table of the GAC Programs and the Abilities Enhanced Through each Program

 Learn, practice
  Experience
  Voluntary challenge is available

	1 Simulated experiences in a global society	2 Real experience	3 Review	0 Base
	Living & Learning Program	On-the-Job Training	GAC Global Leaders Seminar	Lectures/ Practical Training/ Research/ Out-of- class Study
1-1 Superior language skills				
1-2 Open-mindedness toward different cultures				
1-3 Ability to understand and express oneself amidst diverse value sets				
2-1 Superior technical capabilities and scientific knowledge				
2-2 Ability to grasp and analyze problems				
2-3 Ability to come up with ideas and create				
3-1 Broad culture				
3-2 Willingness to take on challenges				
3-3 Flexibility and tolerance				
3-4 Leadership with a cooperative attitude				

Special Programs for GAC Students

① “Living & Learning Program” at TUT Global House (Dormitory for GAC students)

GAC undergraduate students are required to live in the TUT Global House (GH). The GH is a shared-house style dormitory where five students live in one unit. Japanese and international students live together, collaborate on the planning and implementation of events, and participate in various activities on and off-campus.

② On-the-Job Training Education Program (Jiitsum-Kunren)

On-the-Job Training (training at companies, internships) is a compulsory course for all TUT undergraduate students and is carried out for about two months from January to February in the fourth year of the undergraduate program. On-the-Job Training (OJT) for GAC students should be conducted outside the home country of the student concerned, i.e., organizations in foreign countries for Japanese students and those in Japan for international students in principle.

In addition, the GAC is an integrated education course for both undergraduate and master's degree programs. Therefore, GAC students may extend the On-the-Job Training period to five months, starting in January of their fourth year of the undergraduate program and lasting until early June in the master's degree program. They can participate in a project-based long-term internship program (the OJT (compulsory subject for undergraduate students) and Project-based OJT (elective subject for master's degree students)).

③ GAC Global Leaders Seminar

This course was jointly developed with the training department responsible for human resource development at IBM as a special course exclusively for GAC students. It is an intensive lecture (full-day program for four days) that takes place during the summer vacation period in the first year of the master's degree program and is a compulsory subject for all GAC students. During the four days, GAC students can acquire grounding as a global leader through repeatedly taking lectures and participating in exercises based on group work focused on leadership, facilitation skills, problem solving methods, and the like.

Programs in Common

① Lectures/ Practical Training/ Research/ Out-of-class Study

The following programs for both regular course and GAC students aim to enhance the skills stated below that are required for **Global Technology Architects**.

① English/Japanese bilingual lectures

English/Japanese bilingual lectures are introduced into general subjects and specialized subjects throughout the university. English/Japanese bilingual lectures enable Japanese students to improve their English skills and international students to ramp up their Japanese skills through English textbooks, Japanese lectures, writing on the blackboard in English and Japanese, presentations, Q&A sessions, reports, and examinations.

② Education to reinforce language skills in Japanese and English

University-wide efforts are being made to strengthen students' language skills. Such efforts include small classes organized based on proficiency level, an increase in the number of language subjects and their periods to secure sufficient time to study languages, and individual consultation by language study advisors (one full-time English advisor for five days a week and a Japanese language advisor once a week), etc.

In addition, a language instructor is assigned as a mentor to each GAC student. The mentors support students until Japanese students acquire a TOEIC score of 730 or more and international students pass the N1 level of the Japanese Language Proficiency Test, which are part of the GAC program's completion requirements.

Special English classes exclusively for GAC students are also offered in partnership with Queens College of The City University of New York, which has the longest history of teaching English to non-English speaking students in the United States.

③ Global Education in Liberal Arts

Among the Humanities and Social Science courses, Comparative Culture Studies, Intercultural Communication Theory, Foreign Language Learning Theory, and International Intellectual Property Law are designated as recommended courses for GAC students. Improvements have also been made gradually on entrepreneurship education and the like.

Applying what you learn in the GAC Special Programs to your professional studies and research will lead to deeper learning. It is essential that you integrate what you learn and apply it to your academic and personal life.

University education is just the beginning of a full career in a long life. If compared to mountain climbing, those who have just graduated are standing at the foot of the mountain wearing the appropriate clothing and equipment necessary to climb it. TUT hopes that GAC students will continue to challenge themselves by leveraging their willingness to take on challenges, their ability to solve problems, and the friendship developed with those who learned alongside them at TUT as they continue to climb through trial and error while considering what kind of mountain to climb, with whom to climb it, what route to take, and what kind of equipment to use under what conditions.

Q What are the requirements for completing the GAC?

A GAC students shall meet the following five requirements.

- 1) GAC students are required to take and earn necessary credits from general subjects (including subjects exclusively for GAC students and recommended subjects for GAC students) and specialized subjects in order to meet the graduation requirements for undergraduate students and the requirements for completing the master's degree program.

GAC students belong to the same departments as regular course students and write a graduation thesis and master's thesis by receiving instruction from an academic advisor in their laboratory.

- 2) Japanese students are required to acquire an official certification of English skills equivalent to a TOEIC score of 730 or higher by the end of the master's degree program. International students are required to acquire a certification equivalent to the N1 level of the Japanese Language Proficiency Test by the end of the master's degree program.
- 3) GAC students are required to participate in the “Living & Learning Program” at the TUT Global House and receive a certificate of completion.
- 4) GAC students shall participate in On-the-Job Training (OJT) outside their home country (i.e., organizations in foreign countries for Japanese students and those in Japan for international students in principle.)
- 5) GAC students are required to earn credits from the GAC Global Leaders Seminar.

Below are the requirements for the certification of completion of the programs exclusively for GAC students.

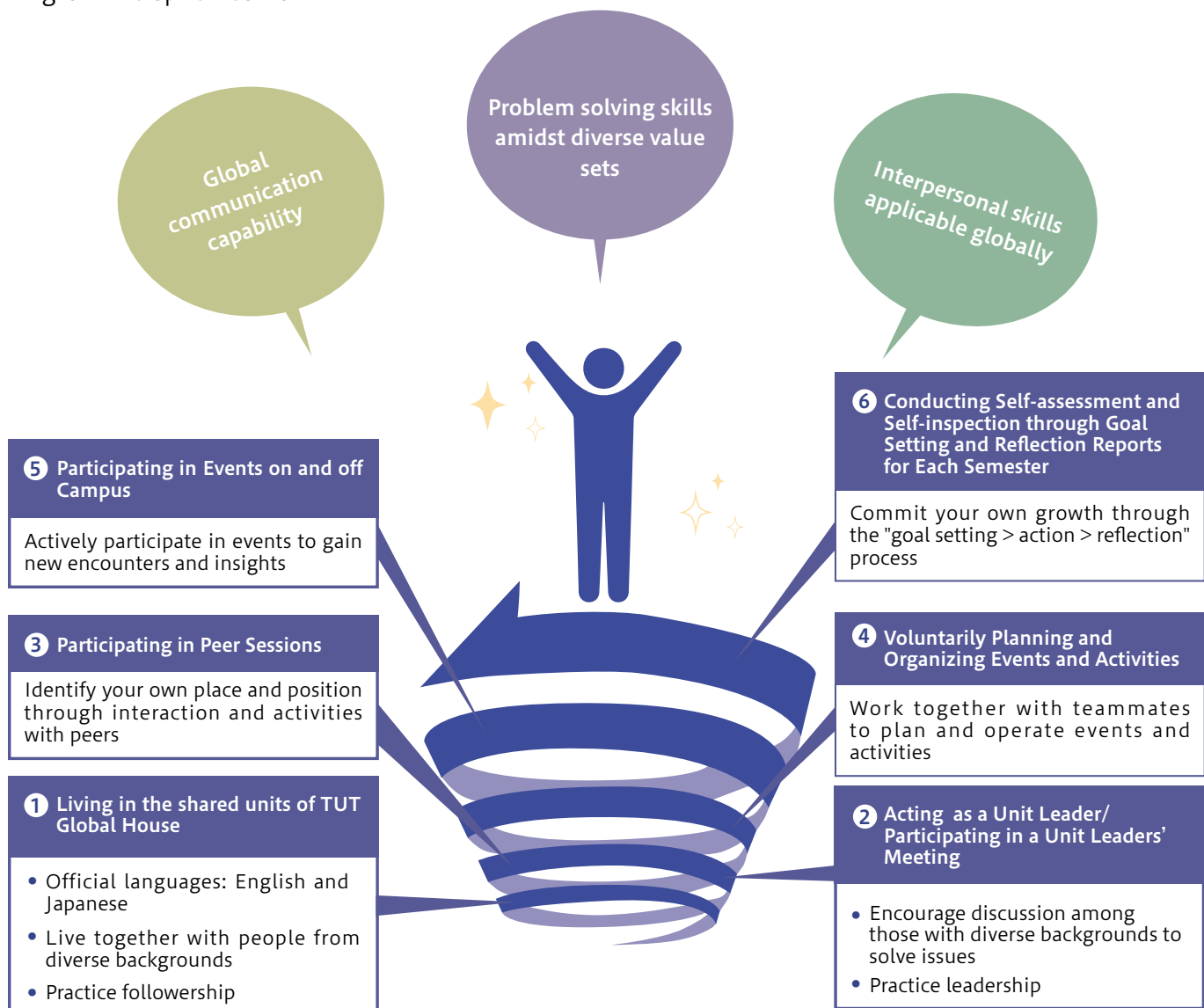
Program	Requirement for Certification of Completion	Remarks
Living & Learning Program at TUT Global House	1) Live in the Global House during the undergraduate program* 2) Set goals and submit reflection reports (twice a year) 3) Fulfill residents' responsibilities (serve as a unit leader, etc.) 4) Participate actively in the programs provided by the university and the activities planned and carried out voluntarily by residents and commit to one's own growth. => The achievement levels of the above four items are comprehensively judged based on reflection reports to certify the completion of the Living & Learning Program.	*In the absence of special circumstances and prior approval, GAC students shall live in the Global House until the day before the start of the spring break in March of their fourth year in the undergraduate program.
On-the-Job Training (OJT should be conducted outside the home country of the student concerned: i.e., organizations in foreign countries for Japanese students and those in Japan for international students in principle)	1) GAC students are required to participate in and earn credits from On-the-Job Training (for two months). This is a compulsory course for fourth-year undergraduate students and should be carried out outside the home country of the student concerned (i.e., organizations in foreign countries for Japanese students and those in Japan for international students in principle). 2) Project-based On-the-Job Training, which is conducted continuously in the spring semester of the master's degree program, is an elective course.	*If On-the-Job Training does not meet the requirements due to special circumstances, a comprehensive judgment will be made considering overseas internships, etc. during the graduate program.
GAC Global Leaders Seminar	GAC students are required to take and earn credits from the Global Leaders Seminar, which is a compulsory subject for GAC students in the master's degree program.	

Q What is the “Living & Learning Program” at the TUT Global House?

A Students accumulate learning and experiences in the Living & Learning Program through the following 6 steps.

- 1 Living in the shared units of TUT Global House
- 2 Acting as a Unit Leader/ Participating in a Unit Leaders’ Meeting
- 3 Participating in Peer Sessions
- 4 Voluntarily Planning and Organizing Events and Activities
- 5 Participating in Events on and off Campus
- 6 Conducting Self-assessments and Self-inspections through Goal Setting and Reflection Reports for Each Semester

Repeating this series of cycles will allow students to acquire the ability to learn by themselves and grow in a spiral fashion.



Q Who are involved in the Living & Learning Program at the TUT Global House?

A The Living & Learning Program is organized and managed by the following members.

● Unit Members

Unit members who manage their own unit in cooperation with the unit leader

● Unit Leaders

A leader of each unit who manages his/her unit in cooperation with the unit members

● Global House Student Committee (GHSC)

A student representative organization of TUT Global House comprising volunteer members and working based on the mission of "creating a positive and fulfilling multicultural environment"

● GH Mentors

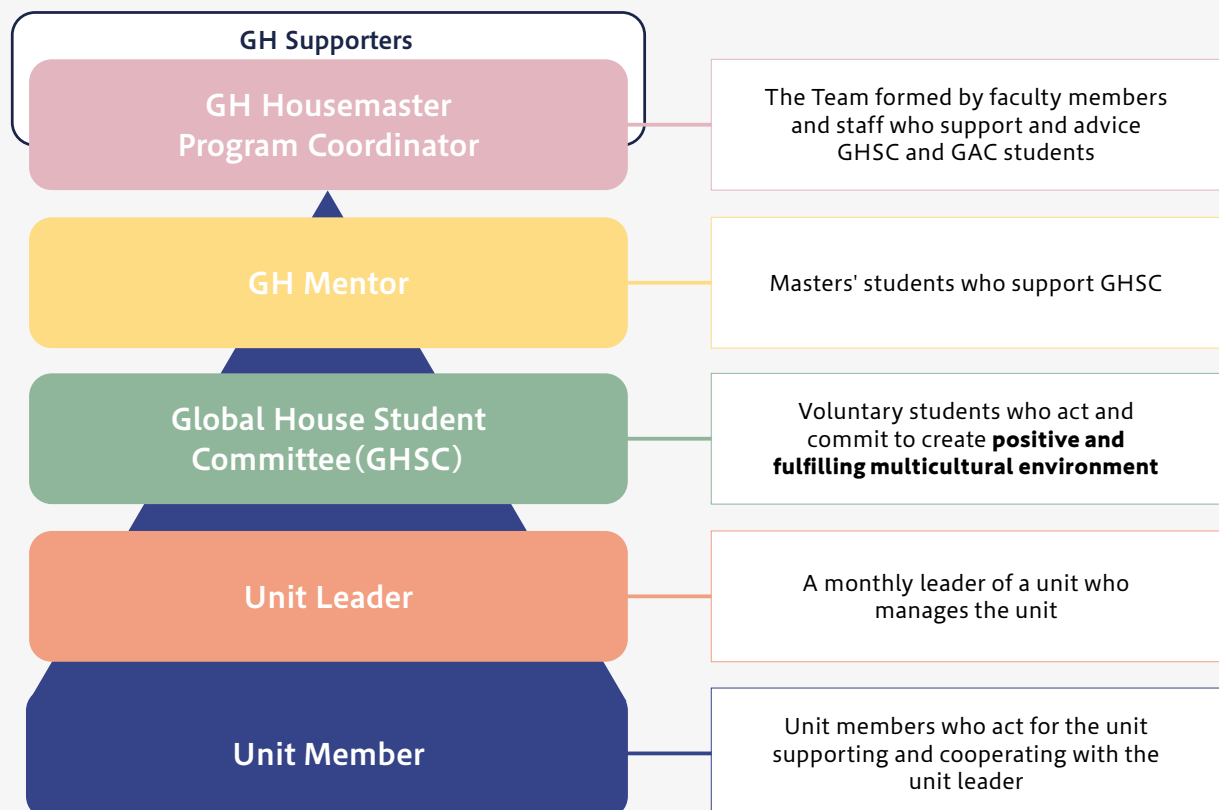
Advisors of the GHSC, who are master's degree students appointed from those who have completed the Living & Learning Program

● GH Housemaster/Program Coordinator

TUT's staff who run the Living & Learning Program of TUT Global House and support GHSC members and GAC students

● GH Supporters

TUT's faculty members who support the Global House, consisting of members of the Office for Top Global University Project (university faculty members)



FAQ on the GAC

FAQ	Answer
<p>What is the difference between the GAC and the Regular Course?</p>	<p>① The GAC is a 6-year integrated education program for undergraduate and master's degree programs. (It is a four-year program for transfer students from technical colleges who entered TUT as a third-year student.)</p> <p>In order to be certified as a GAC graduate, it is necessary to advance to and complete the master's degree program at the graduate school. GAC students are required to take an entrance examination for their advancement to the graduate school in their fourth year of the undergraduate program in the same manner as regular course students. GAC students who pass the examination will continue to be enrolled in the GAC. Students who graduate from TUT after completing the fourth year of the undergraduate program and/or join the workforce after the fourth year of the undergraduate program will not be certified as a GAC graduate.</p>
	<p>② GAC students are required to live in the TUT Global House (GH) and participate in the "Living & Learning Program," which are the conditions for the completion of the GAC.</p> <p>GAC students are required to live in the Global House during the undergraduate program.</p> <p>The Global House was originally established as an educational dormitory for GAC students. However, if rooms are available, Japanese and international students in the regular course may also live in the GH for the purpose of enhancing the educational effects of the "Living & Learning Program."</p>
	<p>③ GAC students shall participate in "On-the-Job Training," which is a compulsory course for all students (during the last two months of the undergraduate program), outside their home countries (i.e., organizations in foreign countries for Japanese students and those in Japan for international students in principle.)</p> <p>Reference: About 10% of Japanese students in the regular course participate in On-the-Job Training overseas.</p> <p>Since Japanese students in the GAC are required to participate in the On-the-Job Training overseas, the academic advisors in their laboratories and On-the-Job Training committee members from each department enthusiastically cultivate the companies and research institutions to which GAC students are dispatched.</p>

FAQ	Answer
	<p>Scholarships are offered as financial support for On-the-Job Training in foreign countries. The application and selection process for the scholarships is carried out under the same conditions for both GAC students and regular course students.</p> <p>④ As GAC students are expected to advance to the master's program, they may take the project-based long-term internship program that allows students to extend their On-the-Job Training period for another three months.</p> <p>⑤ As a special course exclusively for GAC students, an intensive lecture “GAC Global Leaders Seminar” (compulsory for GAC students) is provided during the summer vacation period in the first year of the master's degree program. Those who fail to take this course in the first year due to special circumstances must complete it in the second year.</p> <p>⑥ Concerning reinforcing of foreign language skills,</p> <ul style="list-style-type: none"> • A language instructor is assigned as a mentor to each GAC student. The mentors support students until Japanese students acquire a TOEIC score of 730 or more and international students pass the N1 level of the Japanese Language Proficiency Test, which are part of the GAC program's completion requirements. • Additionally, special English classes exclusively for GAC students are provided in partnership with Queens College of the City University of New York, which has the longest history of teaching English to non-English speaking students in the United States.
<p>On the flip side, what do the GAC and the regular course have in common?</p>	<p>GAC students belong to the same departments and take the same general and specialized lectures as students in the regular course. GAC students belong to a laboratory in the same manner as those in the regular course as well.</p> <p>The degrees awarded to GAC students are “Bachelor (of Engineering)” and “Master (of Engineering),” which is the same as students in the regular course.</p>

FAQ	Answer
<p>Are there any advantages (qualifications, etc.) that will help students find a job by completing the GAC?</p>	<p>As a requirement for completing the GAC course,</p> <ul style="list-style-type: none"> • Japanese students shall acquire an official certification of English skill equivalent to a TOEIC score of 730 or higher, and • International students shall acquire a certification equivalent to the N1 level of the Japanese Language Proficiency Test by the end of master's degree program. GAC students can receive support to achieve this goal. Those who have acquired language skills at such a level can be regarded as having the ability to work using the language concerned. Thus, such an accomplishment would be worth stating on a curriculum vitae for self-promotion. <p>Students completing the GAC are also awarded a "Certificate of Completion of the Global Technology Architects Course (GAC)" in addition to the degree of "Bachelor (of Engineering)" and "Master (of Engineering)," which are the same as the regular course students. Students awarded the certificate of completion of the GAC are recognized by the university as highly skilled engineers with the ability to play an active role on the global stage. Therefore, the certificate is also worth stating on a curriculum vitae.</p> <p>A "Certificate of Completion of the Global House Living & Learning Program" is also given to the GAC students meeting the requirements upon graduation from the undergraduate program. Additionally, members of the TUT Global House Student Association (GHSC) are awarded a certificate of appointment, and the students, whose outstanding achievements are recognized in line with the purpose of the Living & Learning Program, will receive the Global House MVP Award. These accomplishments are also worth stating on a curriculum vitae for self-promotion.</p>
<p>What are the objectives and goals of the "Living & Learning Program" at the Global House?</p>	<ol style="list-style-type: none"> ① Students experience the diversity of a global society. ② Students gain an the attitude of respect towards to each other. ③ Students nourish problem solving skills by independently solving the issues that arise from differences between diverse culture and value sets through interpersonal communication. ④ Students experience an enhancement of the quality of life, solidarity and empathy through working together with others using personal strength.

FAQ	Answer
	<p>5 Students gain sustainable self-learning skills by spinning the cycle of setting goals, making actions, and reflection.</p>
<p>What programs and frameworks does the university offer in the GH's "Living & Learning Program"?</p>	<p>[The Ground Rules of TUT Global House] By following these rules, residents can live in a safe and secure environment and gain deep knowledge through the Living & Learning Program. Each resident is required to be aware and responsible for observing the ground rules.</p> <p>[Unit Leader System] All the residents of the Global House take turns acting as a unit leader. Unit leaders are required to attend Unit Leader Meetings (ULM), which take place once a month, where they share information with other unit leaders. Additionally, unit leaders participate in workshops to strengthen their ability to solve problems, etc. It is mandatory for the residents to assume the role as a unit leader in turn and attend the meeting.</p> <p>[Peer Sessions] "Peer Sessions" are held monthly and offer increased opportunities for GAC students in the same year to meet each other and to create an atmosphere of mutual assistance as well as a sense of security. At the same time, these sessions aim to help students improve their skills through group interactions.</p> <p>[Goal Setting and Reflection report] Based on the Plan-Do-Check-Act (PDCA) cycle, students go through a cycle of goal setting → implementation → self-evaluation and report creation → goal review → implementation → self-evaluation and report creation in one year. Students can commit to their growth by continuing this cycle during their stay in the GH.</p>
<p>What make a GAC student ineligible to receive a certificate of completion of the GAC?</p>	<p>GAC students must meet the following five requirements to complete the GAC:</p> <ol style="list-style-type: none"> 1 Take and earn the required credits from general subjects and specialized subjects to satisfy the undergraduate graduation requirements and the master's degree completion requirements applicable to GAC students. 2 Acquire a TOEIC score of 730 or higher (applicable to Japanese students) or pass the N1 level of the Japanese Language

FAQ	Answer
	<p>Proficiency Test or higher (applicable to international students).</p> <ol style="list-style-type: none"> ③ Receive a certificate of completion of the "Living & Learning Program." ④ Complete On-the-Job Training outside the home country of the student concerned (i.e., organizations in foreign countries for Japanese students and those in Japan for international students in principle). ⑤ Earn credits from the GAC Global Leaders Seminar. <p>In other words, students who fail to meet one or more of the above five requirements, such as in the following cases, do not receive a certificate of completion of the GAC. Even in such a case, however, GAC students will be awarded the degree of "Bachelor (of Engineering)" or "Master (of Engineering)" as a regular course student on the condition of meeting the relevant requirements.</p> <p>Fail to obtain the required credits as stated in ① : In this case, the GAC student cannot graduate from TUT.</p> <p>Fail to meet the language-related requirements stated in ② by the end of the master's degree program: Even in this case, GAC students may complete the master's program and be awarded the degree.</p> <p>Fail to receive the certificate of completion stated in ③ :</p> <p>Example 1 Case where a GAC student violates the TUT Global House rules, etc. and is forced to leave the Global House during the undergraduate program when GAC students are required to participate in the GAC Living & Learning Program or leaves the Global House of their own accord before the start of the spring break in March of the 4th year. (One of the requirements for the certification of completion is to live in the TUT Global House until the day before the start of the spring break in March of the fourth year of the undergraduate program.)</p> <p>Example 2 Case where a GAC student fails to submit a TUT Global House</p>

FAQ	Answer
	<p>report by the due date.</p> <p>Example 3</p> <p>Case where the content of the submitted reflection report and the behaviour of the student, who should be participating in the GAC Living & Learning Program and working on self-growth, are found to be extremely inappropriate. This includes failure to participate in the program or to submit assignments.</p>
	<p>Case where a GAC student does not participate in the On-the-Job Training (OJT) stated in ④ outside of their home country</p> <p>Japanese students shall participate in OJT at an overseas organization, and international students should participate in OJT at an organization in Japan in principle.</p>
	<p>Case where a GAC student fails to earn credits from the GAC Global Leaders Seminar stated in ⑤.</p>

End