2022.03.03.

University of Tsukuba, Graduate School of Science and Technology
Degree Programs in Systems and Information Engineering
Master's/Doctoral Program in Risk and Resilience Engineering

Explanatory Materials for Student Achievement Assessment system

1. Overview of Student Achievement Assessment System

Introduction

In the Master's/Doctoral Program in Risk and Resilience Engineering, we have been conducting "achievement assessment" for educational goals since 2008, when we were the Department of Risk Engineering, the predecessor of Master's/Doctoral Program in Risk and Resilience Engineering.

The student achievement assessment system is an evaluation system for the educational process that simultaneously satisfies the educational goals of the Master's/Doctoral Program and the general educational goals of graduate students.

As described below, this system is significantly useful for checking the progress of each student's study. Please make good use of this system and have a meaningful student life.

Purpose of Conducting Achievement Assessment

The achievement assessment is conducted to satisfy the educational goals of the Graduate School of Science and Technology, Degree Programs in Systems and Information Engineering, and Master's/Doctoral Program in Risk and Resilience Engineering, as well as the specialized competence of the Master's/Doctoral Program.

Specialized Competencies for the Master's/Doctoral Program in Risk and Resilience Engineering

Master's program

1) Fundamentals of engineering
   Basic knowledge and academic skills of advanced professionals in engineering.
2) Knowledge of basic theories and related skills
   Knowledge of basic theories for risk and resilience analysis and assessment, and knowledge of information processing technologies related to risk and resilience analysis and assessment.
3) Knowledge of issues in the real world
   Knowledge of real-world issues covered by risk and resilience engineering.
4) Broad perspective overlooking circumstance
   Ability to see the subject of risk and resilience engineering from a broad perspective.
5) Abilities of problem setting and solving
   Ability to understand the process from setting up problems to solving them by engineering means, and to devise and develop specific solutions for problems related to risk and resilience.
6) Global communication ability
   Ability to fulfill assigned roles in a research team or research project, demonstrate adequate communication skills, and take on leadership roles as needed.

Doctoral program

1) Fundamentals of engineering
   Basic knowledge and academic skills of researchers or advanced professionals in engineering
2) Knowledge of theoretical foundation and related skills

Knowledge of theoretical foundations for risk and resilience analysis and assessment based on fundamentals of engineering, and knowledge of advanced information processing technologies related to risk and resilience analysis and assessment.

3) Knowledge of issues in the real world

In-depth knowledge of real-world issues covered by risk and resilience engineering.

4) Broad perspective overlooking circumstance.

Ability to see the subject of risk and resilience engineering from a broad and comprehensive perspective.

5) Abilities of problem setting and solving

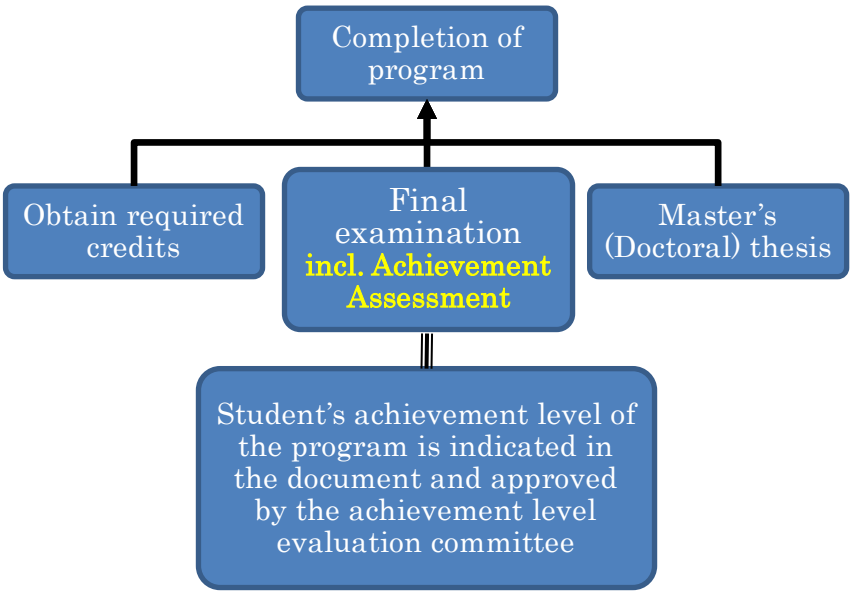
Ability to understand the process from setting up problems to solving them by engineering means in depth and to devise and develop specific solutions for problems related to risk and resilience.

6) Global communication ability

Ability to fulfill assigned roles and take leadership in a research team or research project with high communication skills.

Completion Requirements and Achievement Assessment

In order to complete the Master's/Doctoral Program in Risk and Resilience Engineering, students are required to obtain the required credits, to complete and pass the master's (doctoral) thesis exam, and to pass the final examination. The Achievement Assessment is positioned as a part of the final examination. Students are required to reach the level required for completion of the programs in all evaluation items (specialized competence).



Method of Achievement Assessment

The Master's/Doctoral Program in Risk and Resilience Engineering uses the following three main methods to assess achievement.

1. Monthly student portfolios based on academic evidence

"Academic evidence" refers to all records and artifacts that show the content of all activities and experiences related to one's learning. "Student portfolio" includes monthly academic goals and plans, summarizing actual academic work, progress, achievement, and assignments. Students are required to file and store evidence of their daily academic work and then create and submit a student portfolio based on that evidence each month.

Through the process above, students will periodically self-assess their progress toward their academic goals, reconfirm the direction and content of their subsequent studies, and revise their academic plans to achieve systematic and effective study during the program.

The recording and storage of academic evidence and the creation of student portfolios are both methods of achieving this goal.

2. Quantitative evaluation of course-taking by professional competence points

Specialized competence is a set of indicators that categorize the knowledge, background, abilities, and skills that a student should have as a person who meets the educational objectives of the Master's/Doctoral Program.

Courses offered by the Master's/Doctoral Program are assigned a standard number of points for each specialized competence, which is then multiplied by a coefficient based on the student's performance in each course for which credits are earned and then accumulated as specialized competence points. Students must take courses and earn credits so that their specialized competence points can reach the specified standard.

By adding quantitative evaluations based on these points, we aim to prevent students from selecting courses based solely on their interests and achieving a well-balanced course of study consistent with educational goals.

The "Specialized competence Point Table" and the "Specialized competence Point Graph" are provided as tools for this purpose.

3. Qualitative evaluation of academic progress using self-evaluation sheets

The "Achievement Assessment Self-evaluation Sheet" is a self-evaluation sheet for the Achieve Level Evaluation Committee. It is held twice a year, basically at the end of each semester. Students need to summarize the main learning items, progress and evidence, and future issues for each specialized competence.

At the meeting of Achieve Level Evaluation Committee, students explain their academic progress based on the description on the self-evaluation sheet and state their level of achievement. In response, the Achieve Level Evaluation Committee feeds back the self-evaluation sheet to the students with teachers' evaluation and comments.

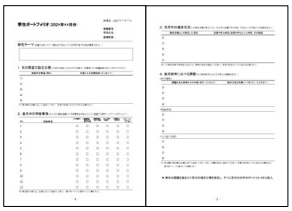
Students need to confirm the appropriateness of the quality, quantity, and schedule of academic activities, then improve the plan as necessary, through their process in preparing self-evaluation sheets, in receiving questions and advice from the meetings, and in reading the feedback in teachers' evaluation and comments.

The "Achievement Assessment Self-Evaluation Sheet" is provided as a tool for this purpose.

Features of the Achievement Assessment System

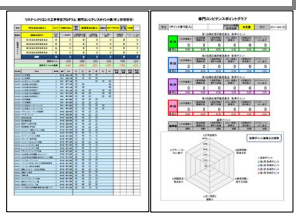
In the Master's/Doctoral Program in Risk and Resilience Engineering, we have been conducting "Achievement Assessment" for educational goals since 2008, when we were the Department of Risk Engineering predecessor. The Student Achievement Assessment System is a system for evaluating the educational process so that students simultaneously meet the educational objectives of the department and the general educational objectives of the Graduate School. As described below, it is significantly useful for checking the level of everyone's study progress. Therefore, this system is utilized for having a more meaningful experience in the Graduate School

Feature 1 Student portfolio (submitted monthly) and academic evidence | Creation of Student Portfolios, Recording and Storage of Academic Evidence:pp. 12-19



- Each month, a summary of the student's state of academic study, called the student portfolio, is created and stored.
- The Achievement Level Evaluation Sheet that is submitted to the Achievement Level Evaluation Committee is created based on the student portfolio, which can be saved as evidence when necessary.
- Evidence of Study: Materials that are created during the study program, including study notes created for Project Research in R2E, group work, and internships, research reports for laboratory seminars, and manuscripts prepared for academic presentations and research conferences. The student can be requested to submit these materials as evidence for the "Achievement Level Evaluation Sheet (Self-Assessment)" described below, so all of the materials should be saved.
  * These materials should be kept by students to prove the "Achievement Level Evaluation Sheet".

Feature 2 Checking the completion of courses by points | Specialized competence point table and graph: pp.26-27, pp.28-29

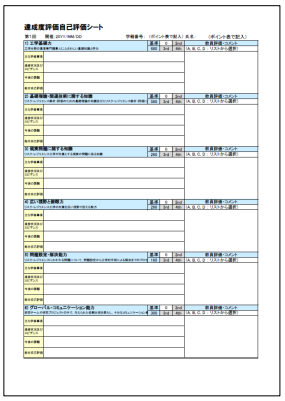


- The points are accumulated according to credits acquired, based on point conversion rules.
- The designated points are multiplied by 1.2 for grades of As, by 1.0 for Bs, and 0.8 for Cs.
- By taking courses so that a good balance of points can be acquired, students can avoid taking only courses that they tend to have an interest in.

Feature 3 Creation of achieve level evaluation sheet | Achieve Level Evaluation Sheet: p.21, pp.30-31

- By creating Achievement Level Evaluation Sheets (Self-Assessment), students can confirm the state of progress toward their own goals before

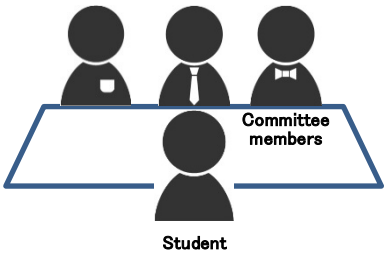
the meeting of Achievement Level Evaluation Committee.



- Students can review their learning status from the viewpoint of six kinds of "specialized competence".
  1) Fundamentals of Engineering,
  2) Knowledge of Basic Theory and Related Skills (Master) / Knowledge of Theoretical Foundation and Related Skills (Doctor),
  3) Knowledge of Issues in the Real World,
  4) Broad Perspective Overlooking Circumstance,
  5) Abilities of Problem Setting and Solving,
  6) Global Communication Ability
- This can be opportunity to practice showing achievements, which can help developing self-promoting skills that they will need in their future workplace.

Feature 4 Meeting of the Achievement Level Evaluation Committee (twice a year)

Meeting of the Achieve Level Evaluation Committee:pp. 34



- Guidance from multiple professors.
- By preparing materials as Achievement Level Evaluation Sheets, students can make objective assessment at the state of regular study, and to maintain the course when achieving goals.
- Feedback from the evaluations can provide meticulous guidance.

Basic Principles of the Achievement Assessment System

1) Agreement on Achievement Assessment in Master's Course→ p.40
2) Agreement on Achievement Assessment in Doctoral Course → p.43
3) Achievement Assessment Standards in Self-Evaluation Forms → p.46

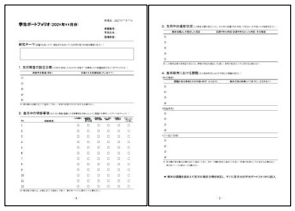
Progress Flow of the Achievement Assessment System

Student Portfolio Evidence

All Students	Submitted monthly	Upload to manaba	pp.12-19

- Laboratory seminar
- Research report
- Special research
- Group work
- Internship
- Papers for academic presentations and conferences
- etc.

Creation

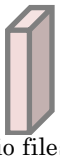


Creation of student porfolio

Submission of electronic files

Upload files on Manaba

All materials saved by the students theselves



Saved portfolio files (saved by the students)

1) Every month, students create a student portfolio, and submit their electronic file to Manaba. (Check with your TA about how to submit the files)

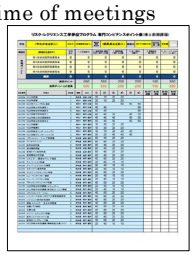
2) The submission of evidence is voluntary. However, everyone should be prepared to submit evidence when an instructor asks you to do so

Meetings of the Achievement Level Evaluation Committee (twice a year)

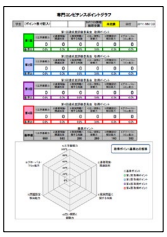
All Students	December and March	To the Chair of the Achievement Level Evaluation Committee	pp.34

E-mail to inform date and time of meetings

1) The Chair of the Achievement Level Evaluation Committee sets the date and time for each student to meet with the Achievement Level Evaluation Committee, and e-mails this information to each student and to the GP Core Addresses.



Specialized Competence Sheet→p.20



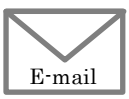
Graphs→p.21

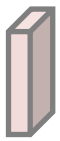
Self Evaluation Sheet→p.22

2) Students should create

- Specialized Competence Sheet
- Graph
- Self Evaluation Sheet

before the meeting of the evaluation committee. If you have any questions, please consult with supervising TA.





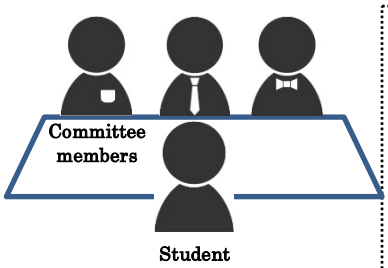
Saved portfolio files

Hard copies (one for each member of the Committee)

Hard copies (one for each member of the Committee)

Hard copies (one for each member of the Committee)

3) After creating these materials, students should submit an electronic file and hard copies (one for each member of the Committee) to the Chair of the Achievement Level Evaluation Committee beforehand.



4) Holding a meeting of the Achievement Level Evaluation Committee

・Results of daily studies can impress Committee members!

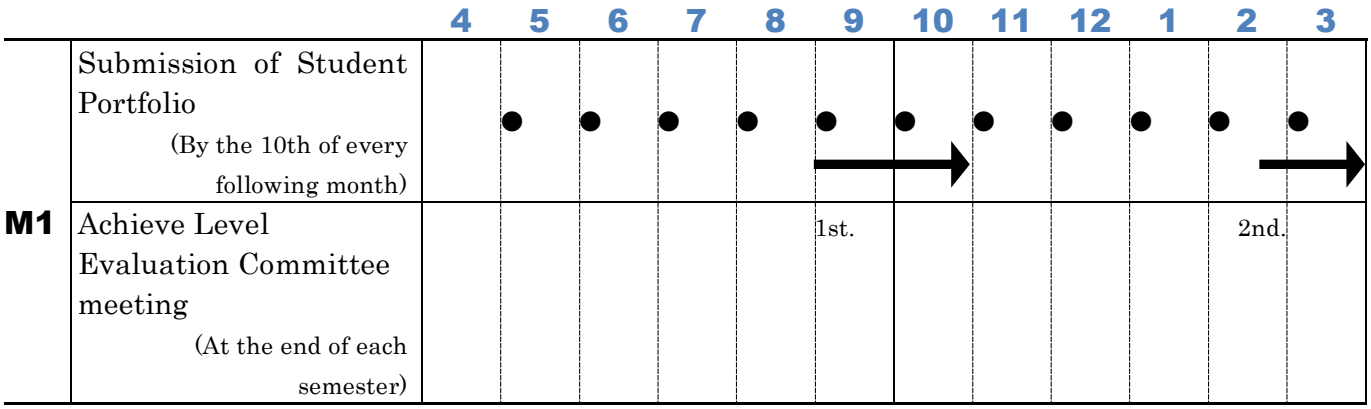
・Students can directly ask Committee members their questions.

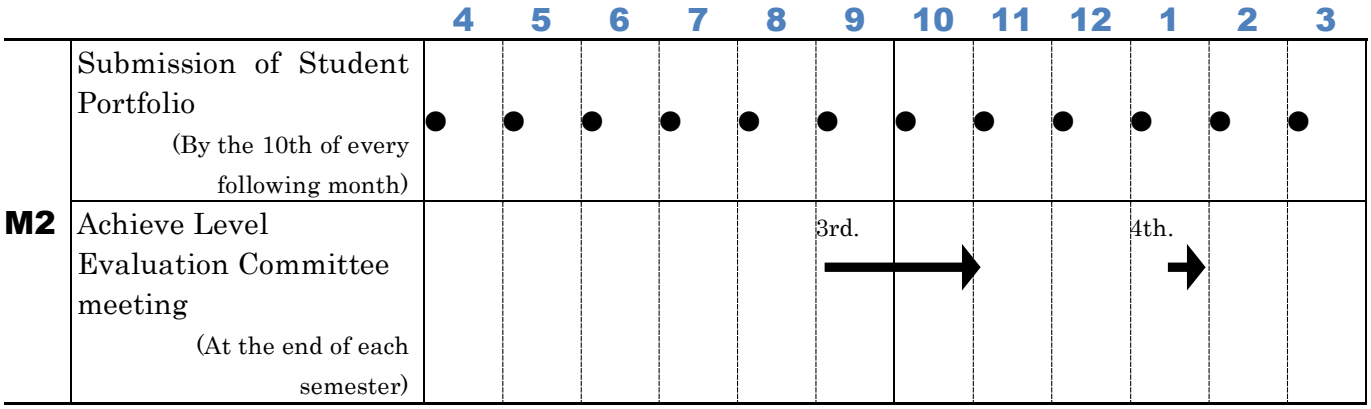
・The state of study can be reviewed objectively!

5) The Chair of the Achievement Level Evaluation Committee summarizes the evaluation results to provide feedback to the students. The self-assessment sheet file with comments attached is returned to the student.

Schedule for Achievement Level Evaluation Committee Meetings

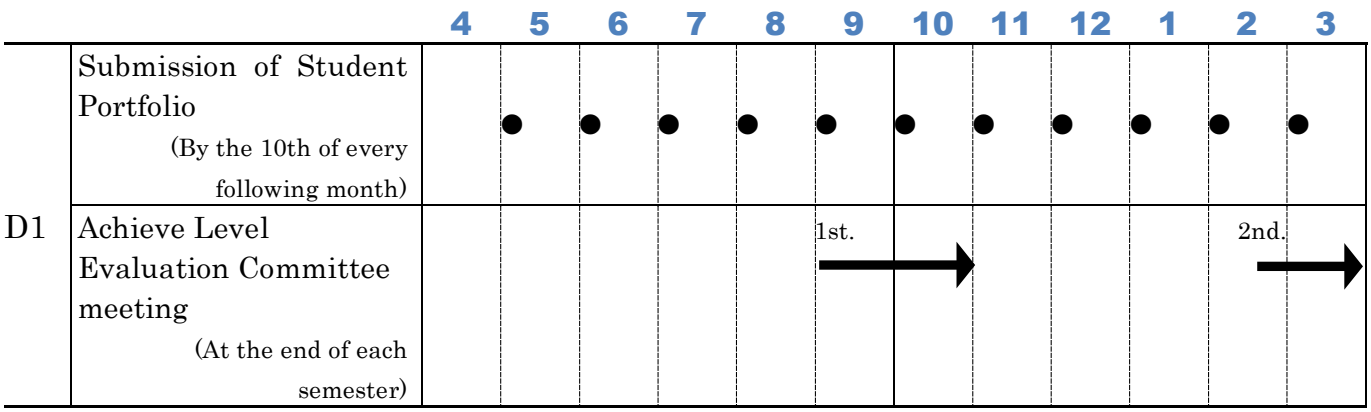
(1) Master's Program

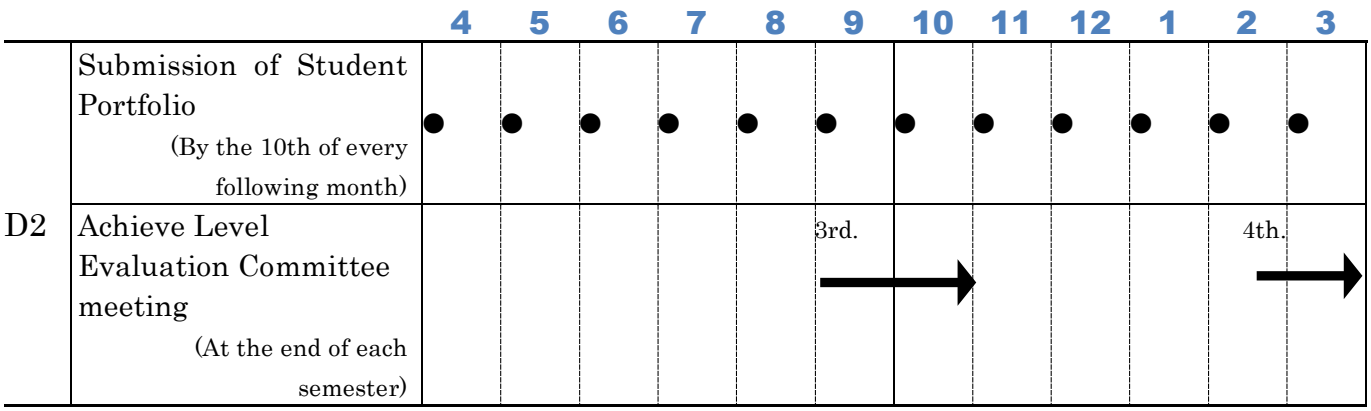


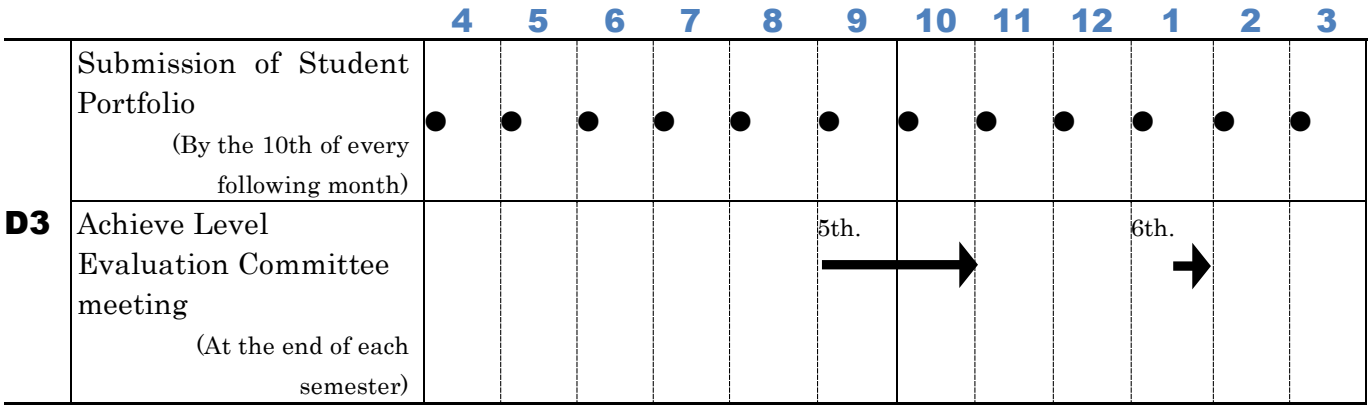


- Student portfolios for each month are needed to be uploaded to manaba by the 10th of the following month.
- The Achievement Evaluation Committee meeting is held at the end of each semester. However, the fourth (final) meeting is held in conjunction with the final review of the master's thesis.

(2) Doctoral Program







- Student portfolios for each month are needed to be uploaded to manaba by the 10th of the following month.
- The Achievement Evaluation Committee meeting is held at the end of each semester. However, the sixth (final) meeting is held in conjunction with the final review of the master's thesis.
- The Achievement Level Assessment Committee shall have six meetings before the end of the program, except for early completion. If necessary, the committee may hold more than six meetings.

2. Creation of Student Portfolios, Recording and Storage of Academic Evidence

Student Portfolio (for 202*<year> **<month>)

Date created: 202* ****
<Year, Month>

Student number
Student's name

Supervisor

Research theme (A tentative title is acceptable; briefly describe the research content/direction that you are currently pursuing)

1. Targets set at the beginning of the month (The items set at the beginning of the month to be implemented during the month and the completion degree of these items (what will be done and to what extent))

Targets (what)	Target Completion (how far?)
1)	
2)	
3)	
4)	
5)	

The number of items can be added as necessary.
The description of each section does not have to be contained in one row.

2. Academic activities in the month (List the academic activities that were conducted or experienced during the month. and check the related specialized competence)

No.	Academic activities	1) Fundamentals of Engineering	2) Knowledge of Basic Theory and Related Skills	3) Knowledge of Issues in the Real World	4) Broad Perspective Overlooking Circumstance	5) Abilities of Problem Setting and Solving	6) Global communication Ability
1		☐	☐	☐	☐	☐	☐
2		☐	☐	☐	☐	☐	☐
3		☐	☐	☐	☐	☐	☐
4		☐	☐	☐	☐	☐	☐
5		☐	☐	☐	☐	☐	☐
6		☐	☐	☐	☐	☐	☐
7		☐	☐	☐	☐	☐	☐
8		☐	☐	☐	☐	☐	☐

9	☐	☐	☐	☐	☐	☐
10	☐	☐	☐	☐	☐	☐
11	☐	☐	☐	☐	☐	☐
12	☐	☐	☐	☐	☐	☐

The number of items (rows) may be added as necessary.
It is acceptable if the table spans pages.

3. Current status (For each of the targets in "1.Targets set at the beginning of the month" column, indicate what you were able to achieve during the month, what you were not able to achieve during the month, and to what extent)

Targets	What has achieved/not achieved, and to what extent
1)	
2)	
3)	
4)	
5)	

New items may be added in addition to the items listed in the "1.Targets set at the beginning of the month".
The description of each item does not have to be contained in one row.

4. Tasks at the end of the month (Academic tasks at the end of the current month)

(Course assignments)

Academic tasks and contents (what and why)	Solution strategy and timing (by when and how?)
1)	
2)	
3)	
4)	

(Studies related to thesis)

1)	
2)	
3)	
4)	

(Other studies)

1)	
2)	

3)

4)

The number of items in each category can be added as necessary.

The number of category can be added as necessary.

The description of each section does not have to be contained in one row.

The table is allowed to break across pages.

➡ Based on the tasks at the end of the month, set targets for the following month and immediately fill it into the student portfolio for the following month.

Notes on Completing the Student Portfolio

The purpose of creating a student portfolio

Student portfolio is a tool for students to plan and effectively carry out their studies in the Master's or Doctoral program by helping them periodically self-assess their progress. To reach their academic goals, students should reconfirm their subsequent studies' direction and revise their academic plans as necessary.

By completing a monthly student portfolio, you will be able to reflect on the current state of your studies and the problems you face, and to use those information to plan your studies for the next month and so forth.

Student Portfolio Form

The Master's/Doctoral Program in Risk and Resilience Engineering provides a standard portfolio format. However, you can use any format for your student portfolio, as long as it meets the above objectives. Please use an appropriate format while considering the characteristics of your research field and the opinions of the Achieve Level Evaluation Committee Chair.

The following listed the instructions and notes to fill in standard form provided by the Master's/Doctoral Program for your reference.

How to fill in the standard form

0. Title

- The student portfolio should be completed and submitted monthly.
- Specify the year and month in the title of the portfolio.
- Fill in the date of creation.
- Don't forget to enter your student number, name, and the name of your supervisor.
- In the "Research Theme" column, please write a brief description of the current direction of your research, even if it is a tentative title. In the future, you can review the changes in your thought simply by referring to this column.

1. Targets set at the beginning of the month

In this column, you should fill in the targets for each academic activity items that you set at the beginning of the period covered by the student portfolio (the beginning of that month). Typically, the student portfolio is completed at the end of each month, but only this column can and should be filled in at the beginning of the month (or at the end of the previous month).

- In the "Items to be implemented" column, please fill in the items that were planned to be carried out at the beginning of the month (what you want to do, what you should do, and what you must do).
- In the "Target Completion" column, please fill in the specific goal of how far you intend to go to implement each item.
- If the contents of both "Items to be Implemented" and "Target Completion" are too abstract,

they will not be useful for self-assessment, so please try to be specific.

- There are five blank rows in the standard form, but you do not need to reduce the content accordingly. If the blank rows are not enough, please add rows as necessary.
- Also, the description of each section does not have to be contained in one line.
- It is acceptable to increase pages due to increased row and table line heights.

2. Academic activities in the month

In this column, please fill in all the academic activities that you carried out or experienced during the period covered by the student portfolio (the month when the portfolio was completed), regardless of whether they are related to the objectives set in "Targets set at the beginning of the month" column.

- In the "Academic activities" column, please include not only activities and achievements related to your course and research, but also activities and achievements in Seminar in R2E, Group Project Based Learning in R2E, independent seminars, seminars both on and off-campus, TA/RA work, internships, and volunteer activities for social contribution. To list all the things that are useful to improve your ability as a Master's student or Doctoral student.
- Not all opportunities for academic activities are planned or scheduled in advance. Please calmly recall your activities and experiences during the month and identify what you have done.
- For each of the academic activity listed, please check the □ that you think is relevant among the six specialized competences and turn it into a ■ (by clicking on it, the □ and the ■ will substitute alternately). It is acceptable to have more than one related competences to check for a single academic activity.
- In the standard form, there are 12 blank rows, but it is no need to narrow down your contents to fit in these rows. You can add as many rows as necessary. To do so, use the "insert" function and then copy and paste the checkboxes for each specialized competence in MS-Word.
- Also, the description of each section does not have to be contained in one row.
- It is acceptable if the rows break across pages.

3. Current status

In this column, please fill in your progress in each of the goals set in "Targets set at the beginning of the month" column based on the academic activities you actually completed in "Academic activities in the month" column.

- In the "Targets" column, please copy and paste the targets you entered in the column of the " Targets set at the beginning of the month ".
- In the "What has achieved/not achieved, and to what extent" column, please fill in as objectively as possible the achievement of each target set at the beginning of the month, including the parts you achieved, did not achieved, and the degree of exceeding or deviating from the target.
- Although it is important to analyze the reasons for current status, first, you should calmly examine how much progress you have actually made in achieving your targets.

- There are 5 blank rows in the standard form, but there is no need to narrow down your contents according to these rows. You can add as many rows as necessary.
- Also, the description of each section does not have to be contained in one row.
- The table may spread over pages, and the total number of pages may be increased by adding rows or changing the row height.

4. Tasks at the end of the month

In this column, please fill in the problems and improvement needed at the end of the month based on the "Current status".

- This column is divided into the following categories: Subject fulfillment, Thesis Studies, and other studies. However, you can add new categories as necessary according to the actual conditions of your academic activities.
- Divide the tasks into categories and provide a brief description in the "Academic tasks and contents" column.
- In the "Solution strategy and timing" column, briefly describe how and when each problem will be addressed.
- There are 4 blank rows in the standard form, but there is no need to narrow down your contents to fit in these rows. You can add as many rows as necessary.
- Also, the description of each section does not have to be contained in one row.
- The table may spread over pages, and the total number of pages may be increased by adding rows or changing the row height.
- In most cases, to make improvements and progress, these month-end problems should be included in the next month's targets. Once you have identified and organized your month-end problem, fill out the "Targets set at the beginning of the month" for the next month's student portfolio.

How to Record and Store Academic Evidence

Academic evidence is a record or outcome that shows the content of all activities and experiences related to your academic activities. You should save and file your academic evidence so that a third party can understand and check the full content of academic activities. Academic evidence will be evidence of the quality and quantity of a student's academic activities.

- Academic activities and experiences include not only those related to your course assignments and research but also those related to Seminar in R2E, Group Project Based Learning in R2E, independent seminars, seminars both on and off-campus, TA/RA work, internships, volunteer work for social contribution and other activities can enhance your abilities and qualifications as a master's or doctoral student.
- Regardless of the form of evidence, such as notes, resumes, conference materials, memos, records of experiments and investigations, manuscripts of papers, slides, posters, photographs, certificates and awards, records and results are acceptable if they show the content of activities and experiences.
- You are expected to record your academic activities and experiences in your monthly "Student Portfolio" and to keep the records and outcomes in paper-based files.
- Using file folders to make it easy to organize. You can add in or move out any part of the evidence, and can label the contents by inserting index card.

Not all the opportunities to participate in academic activities are planned or scheduled in advance. Whether planned or unplanned, remember to keep and save evidence of any activity or experience related to your academic life.

3. Preparation of Achievement Assessment Materials

(When creating the PDF version, replace the "Specialized competence Point Table" sheet with the PDF version of the page.

(When creating the PDF version, replace the "Specialized competence Point Graph" sheet with the PDF version of the page.

(When the PDF version is created, it will be replaced with the PDF version of the "Achievement Assessment Self-Evaluation Sheet")

(When creating the PDF version, replace the "Record of Achievement Assessment implementation" sheet with the PDF version of the page)

(When creating the PDF version, replace the "[Reference] Estimated Points by Course Credits (Master's Course)" sheet with the PDF version of the page.

How to Fill Out the Specialized Competence Point Table

(1) Header Section

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Student	(Student's Name)	(Grade ..)	(Student's ID)		Chair of ALAC	(Chair's Name)			Date of revision	20YY/MM/DD		Certificate of INFOSS	Not Certified	Not Confirmed
2															
3	Round	(Round of the Assessment Meeting ..)	Obtained Credits	1) Fundamentals of Engineering		2) Knowledge of Basic Theories and Related Skills		3) Knowledge of Issues in the Real World		4) Broad Perspective Overlooking		5) Abilities of Problem Setting and Solving		6) Global Communication Ability	
4	Obtained Points	1st Assessment Meeting	0	0		0		0		0		0		0	
5		2nd Assessment Meeting	0	0		0		0		0		0		0	
6		3rd Assessment Meeting	0	0		0		0		0		0		0	
7		4th Assessment Meeting	0	0		0		0		0		0		0	
8		Total	0	0		0		0		0		0		0	
9		Standard Points		680		580		260		260		160		300	
10		Differences from Standard Points		-680		-580		-260		-260		-160		-300	

In the header section, enter information in the yellow cells. When you enter information in each cell, the background color will be substituted with white.

However, the background color substitute is only a reminder to prevent omissions and does not identify the correctness of the information entered. Please enter the correct information for each item.

Input Contents of Each Cell

① **Cell B1**: In the "Student's Name" column, enter your name. The information entered here will also be automatically displayed in the name column of the Achievement Assessment self-evaluation sheet (Master's course version: evaluation tables (1)-(4), Doctoral course version: evaluation tables (1)-(6)) and the Achievement Assessment record sheet.

② **Cell C1**: In the "Grade" column, select the grade from the pull-down menu. Please do not forget to update it when you advance to the next grade.

③ **Cell D1**: In the "Student's ID" column, enter your student ID number. The information you enter here will also be displayed in the "Student's ID" column of the self-evaluation sheet.

④ **Cell G1:** In the "Chair's Name" column, enter the name of the chairperson of the Achieve Level Evaluation Committee (in most cases, your supervisor).

⑤ **Cell K1:** In the "Date of revision" column, enter the latest date when you entered and updated the information in this table of specialized competence points.

⑥ **Cell N1:** In the " Certificate of INFOSS" column, after taking and passing the e-learning course "INFOSS Information Ethics", select "Certified" from the pull-down menu (You only need to take INFOSS once when you are in college.)

The "Not Confirmed/Unconfirmed" column on the right side is inoperable for students, the Achievement Level Evaluation Committee Chair will update it.

⑦ **Cell B3:** In the "Round of Assessment Meeting" column, please select the round from the pull-

down menu. If this is not set appropriately, the "Obtained Points" column and the "Specialized competence Point Graph" sheet will not be output correctly.

In the header section, students are required to enter only the above seven places.

(2) Grade Input Section

12	Item Code	Name of Item	Credit	Offer	Compulsory /Elective	1)	2)	3)	4)	5)	6)	Marks at 1st	Marks at 2nd	Marks at 3rd	Marks at 4th
13	0AH0204	Introduction to R2	1	GSST	Compulsory	30	10	20	20						
14	0ALC000	Fundamentals of R2	1	MPR2	Compulsory	30	10	20	20						
15	0ALC500	Group Project Based Learning in R2E	3	MPR2	Compulsory	60			60	60	60				
16	0ALC501	Seminar in R2E I	2	MPR2	Compulsory	40	40				80				
17	0ALC502	Seminar in R2E II	2	MPR2	Compulsory	40	40				80				
18	0ALC503	Research in R2E I	2	MPR2	Compulsory	40	40	20		40	20				
19	0ALC504	Project Research in R2E	3	MPR2	Elective	40	40	40		60	60				
20	0ALC505	Research in R2E II	3	MPR2	Elective	40	40	40		60	60				
21	0ALC506	Academic Reading in R2E I	1	MPR2	Elective	10	30	20	20						
22	0ALC507	Academic Reading in R2E II	1	MPR2	Elective	10	30	20	20						
23	0ALC508	Internship A in R2E in MP	1	MPR2	Elective	10	10	20	20	20					
24	0ALC509	Internship B in R2E in MP	2	MPR2	Elective	20	20	40	40	40					
25	0AL0300	Introduction to Soft Computing	2	DPSIE	Elective	80	40	20	20						
26	0AL0301	Data Mining	2	DPSIE	Elective	80	40	20	20						

(This figure omitted the subsequent rows after "0AL0301 Data Mining".)

In the grade input section, please transcribe the grade of each course disclosed on TWINS accurately.

How to Enter Grades

① If you set the B3 cell in the header part (the "Round of Assessment Meeting"), the corresponding meeting round in the L12 to O12 cells will be highlighted (the above figure shows the "1st assessment meeting" as an example).

② For courses that have been newly disclosed before this meeting round, please select their grades from the pull-down menu in the appropriate column.

③ You can clear input errors by pressing "Delete" key.

④ For a same course, if you enter more than one grades of "C" or higher in the same column, the "Obtained Points" column and the "Specialized competence Point Graph" will be invalid. In this case, when a warning message "Double!!" displays outside of the column, please clear the duplicate entries.

⑤ When the grades are entered, the results will be automatically calculated in the "Obtained Points" column in the header section, and the graph of the competence points will be automatically drawn. If these are not displayed properly, first check whether the "Round of Assessment Meeting" is set correctly in the header section.

Output of the Specialized Competence Point Graph

You do not need to enter anything in the "Specialized competence Point Graph" sheet. In conjunction with the data entered in the "Specialized competence Point Table" sheet, name, student ID, grade, INFOSS Information Ethics course confirmation, date, and obtained points are displayed and the graph is drawn automatically based on the data.

Specialized competence Points are accumulated by multiplying the standard points for each subject by a factor corresponding to the grade in that subject. The factor is 1.2 if the grade is A+/A, 1.0 if the grade is B, and 0.8 if the grade is C.

If the graph is not drawn properly, first check whether the "Round of Assessment Meeting" is set correctly in the header section in competence points table.

How to Fill Out the Self-Assessment Sheet

(1) Header Section

	A	B	C	D	E	F	G	H	I	J
1	1st	20YY/MM/DD		Student ID :		(Enter in SCPointTable)			Name:	(Enter in SCPointTable)

Cell B1: In the "Date" column, enter the date of the meeting of the Achievement Level Evaluation Committee. (It can be different from the date of the "Date of revision" in the "Specialized competence Point Table" sheet.)

Cells F1, J1: The "Student ID" and "Name" columns are linked to the information entered in the "Specialized competence Point Table" sheet. (It is not possible to edit directly on this sheet.)

(2) Self-Evaluation Form for Each Competence

Please fill in the self-evaluation of your own academic activities conditions from the viewpoint of six kinds of specialized competence.

Specialized Competences

1) Fundamentals of Engineering

2) Knowledge of Basic Theories and Related Skills (Master's course) / Knowledge of Theoretical Foundation and Related Skills (Doctoral course)

3) Knowledge of Issues in the Real World

4) Broad Perspective Overlooking Circumstance

5) Abilities of Problem Setting and Solving

6) Global Communication Ability

	A	B	C	D	E	F	G	H	I	J
2	**1) Fundamentals of Engineering**					S.P.	0	2nd		Evaluation & Comments
3	If adequate basic knowledge and scholastic abilities for a highly specialized professional in the fie					680	3rd	4th		(A, B, C, D : select from the list)
4	Main study items									
5	State of progress & evidence									
6	Future works									
7	Comprehensiv									

Contents of Each Cell

① In the "Points" column to the right of each competence item name, the points obtained at each round of meeting, which are automatically calculated in the "Competence Points Table" sheet, are automatically displayed.

② For each competence item, please describe the necessary information in the columns of "Main study items", "State of progress and evidence", "Future works", and "Comprehensive".

- Main study items: Briefly describe the study items that correspond to each specialized competence without omission, according to "2. Academic activities in the month" of the student portfolio and the study evidence, etc.
- State of progress and evidence: Provide a specific and concise description of the academic progress and supporting evidence related to each specialized competence, according to "3. Current status" in the past student portfolio, records of academic evidence, etc.
- Future works: Describe the learning conditions and issues from the viewpoint of each specialized competence during the last six months, according to "1. Targets set at the beginning of the month" and "4. Tasks at the end of the month" in the portfolio. Then describe the corresponding policies and methods to improve or solve the problems as the goal for the next session.
- Comprehensive self-evaluation: Based on the above description, please self-evaluate the degree to which you have acquired knowledge, abilities, and the results of your studies related to each specialized competence. Please reconfirm the intermediate goals that you should have achieved for each competence at each point in time over the entire two- or three-year period of your course of study before obtaining your degree, and check and describe your actual progress and degree of achievement toward these goals.

Note: When describing each of the above items, do not narrow down the contents to fit in the default frame. Fill in all the necessary facts, data, and considerations, and adjust the height of the columns appropriately so that all the content is displayed on the printed page,

③ The "Evaluation and Comments" column will be added by the Chair of the Achieve Level Evaluation Committee after the meeting, so it is not necessary for students to fill it in.

[Reference] How to Use the Estimated Points Table

The "Estimated Points Table" in "Planning Table" sheet is a simple tool to help you consider your course plan during the master's course. It estimates the points for each specialized competence according to the courses that you are planning to earn credits.

You may use this table arbitrary for your own course planning. You do not need to submit it to the Achievement Level Evaluation Committee. Note that there is no doctoral course version of the point estimation table.

(1) Header Section

1	Student	(Enter name in SCPointTable)	Select in SCPoint Table)	(Enter ID in SCPointTable)	Chair	(Enter in SCPointTable)		Date of Revision	(Enter in SCPointTable)	Note: It is not necessarily essential to submit this table as the Record of the Achievement Level Assessment.			
2													
3		Estimated Credits :	0	1) Fundamentals of Engineering	2) Knowledge of Basic Theories and Related Skills	3) Knowledge of Issues in the Real World		4) Broad Perspective Overlooking		5) Abilities of Problem Setting and Solving		6) Global Communication Ability	
4	Estimated Points	If all marks were "A" or "A+":		0	0	0		0		0		0	
5		Differences from ths S.P.		-680	-580	-260		-260		-160		-300	
6		If all marks were "B":		0	0	0		0		0		0	
7		Differences from ths S.P.		-680	-580	-260		-260		-160		-300	
8		If all marks were "C":		0	0	0		0		0		0	
9		Differences from ths S.P.		-680	-580	-260		-260		-160		-300	
10		Standard Points		680	580	260		260		160		300	

In the header section, you do not need to enter anything. All entries are linked or automatically calculated with the entries in other parts of the "Specialized competence Points" sheet or other parts of this "Planning Table" sheet.

(2) Scheduled Credits Input Section

	Item Code	Name of Item	Credits	Offer	Compulsory /Elective	1)	2)	3)	4)	5)	6)	Spring M1	Autumn M1	Spring M2	Autumn M2
13	0AH0204	Introduction to R2	1	GSST	Compulsory	30	10	20	20						
14	0ALC000	Fundamentals of R2	1	MPR2	Compulsory	30	10	20	20						
15	0ALC500	Group Project Based Learning in R2E	3	MPR2	Compulsory	60			60	60	60				
16	0ALC501	Seminar in R2E I	2	MPR2	Compulsory	40	40				80				
17	0ALC502	Seminar in R2E II	2	MPR2	Compulsory	40	40				80				
18	0ALC503	Research in R2E I	2	MPR2	Compulsory	40	40	20		40	20				
19	0ALC504	Project Research in R2E	3	MPR2	Elective	40	40	40		60	60				
20	0ALC505	Research in R2E II	3	MPR2	Elective	40	40	40		60	60				
21	0ALC506	Academic Reading in R2E I	1	MPR2	Elective	10	30	20	20						
22	0ALC507	Academic Reading in R2E II	1	MPR2	Elective	10	30	20	20						
23	0ALC508	Internship A in R2E in MP	1	MPR2	Elective	10	10	20	20	20					
24	0ALC509	Internship B in R2E in MP	2	MPR2	Elective	20	20	40	40	40					

① For the courses you plan to take, select "to get" from the pull-down menu in the column of " Semester/Academic year".

② You can clear input errors by pressing "Delete" key or using the pull-down menu.

③ When you set the credit acquisition schedule, the estimated credits will appear in the header. Meanwhile, the estimated points and the differences from the standard points will be displayed, assuming the grades to be are A+/A (×1.2) ,B (×1.0), and C (×0.8), respectively.

4. Holding Achieve Level Evaluation Committee Meetings

Summary of Achieve Level Evaluation Committee Meetings

(Common to both the master's and doctoral courses)

(1) Notification of the date and time of the meeting — **Achieve Level Evaluation Committee Chair**

1) The date and time of each student's Achieve Level Evaluation Committee meeting will be coordinated and set by the Achieve Level Evaluation Committee Chair, who will then notify the student and the other Committee members.

2) Make sure to report to the GP core mailing list risk-gp-core@risk.tsukuba.ac.jp.

(2) Preparation of students — **Students**

1) Output the "Grade Inquiry" page from TWINS.

Note: Credited Auditors who have taken Graduate Student courses before entering the Graduate school should prepare the grades of those courses but not the results of pass or fail.

2) Input the data into the "Achievement Assessment" Excel file and submit the electronic file to the Achieve Level Evaluation Committee Chair by e-mail in advance. See other chapters for the input methods.

3) Prepare and submit the materials listed in the following table to the Chair in advance.

Table 1 Materials to be submitted to the Achieve Level Evaluation Committee

File Name	Number of Copies
• Hard copy of the TWINS "Grade Inquiry" page	Number of members of the Achieve Level Evaluation Committee
• Student Portfolio Evidence File	One
• Specialized competence Point Table	Number of members of the Committee
• Specialized competence Point Graph	Number of members of the Committee
• Achievement Assessment Self-Evaluation Sheet ※	Number of members of the Committee

※ The height of each row of the self-assessment sheet should be adjusted appropriately so that all the information can be read on the printed page.

(3) Confirmation of grade — **Achieve Level Evaluation Committee Chair**

1) The Achieve Level Evaluation Committee Chair will check whether the "Grades" field in the materials submitted by the student has been entered correctly.

(4) Meeting of the Achieve Level Evaluation Committee — **Achieve Level Evaluation Committee, Student**

1) As a general rule, the chairperson and members of the Achieve Level Evaluation Committee (three to four members in total) will meet with students in person, but online participation is also acceptable. The final meeting of the Achieve Level Evaluation Committee immediately before the completion of the course can be held by e-mail. All committee members are required to sign the Achievement Assessment record form, but this may be substituted with a declaration of intent by email or other means.

2) For the evaluation criteria, refer to the "Achievement Assessment Criteria in the Self-Evaluation Report" in the orientation materials.

3) Each committee member fills in the comments on the corresponding "Achievement Assessment Self-Evaluation Sheet" in the "Achievement Assessment" excel file.
   ※ It is allowed to print the self-evaluation sheet onto multiple pages. The height of each row of the self-evaluation sheet should be adjusted appropriately so that all the information can be read on the printed page. Also, make sure that all the contents are displayed when printed.

4) The Chair of the Achieve Level Evaluation Committee, in consultation with other members of the committee, completes the "ALAC's Advice" column.

5) The Chair of the Achieve Level Evaluation Committee prepares the "Meeting Record of the Achievement Assessment" and asks for the signatures of all committee members on the form. However, if it is difficult to sign the form by oneself, it is acceptable to express the intention by e-mail.

(5) Submission of materials — **Achieve Level Evaluation Committee Chair**

1) After the meeting, the chairperson of the Achieve Level Evaluation Committee shall summarize the evaluation comments of each committee member, fill in the "Achievement Assessment Self-Evaluation Sheet", and promptly submit and save the materials shown in the following table.

Table 2 Materials to be submitted and preserved after the completion of the Achieve Level Evaluation Committee meeting

File Name	Media, Saved and Submitted Place
• Hard copy of the TWINS "Grade Inquiry" page	Printed file: Mailbox for submission
• Specialized competence Point Table	Printed file: Mailbox for submission
• Specialized competence Point Graph	Printed file: Mailbox for submission
• Achievement Assessment Self-Evaluation Sheet ※	Printed file: Mailbox for submission
• Meeting Record of the Achievement Assessment Sheet	Printed file: Mailbox for submission
• Achievement Assessment Excel File	Electronic file: stored on GP server
	Electronic file: return to student

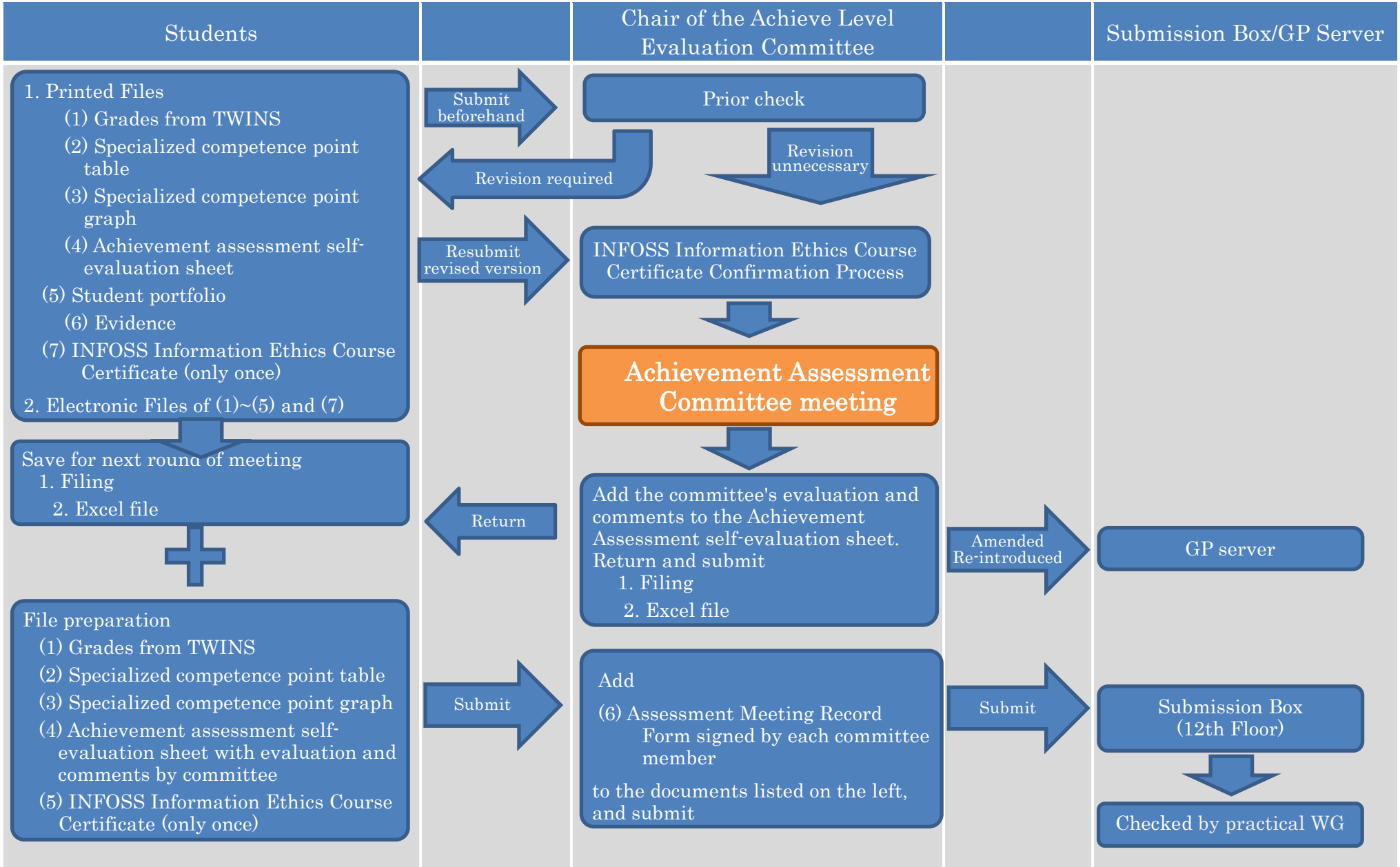
※ Filled in with the evaluation and comments by the Committee.

(6) Inquiries — **Achieve Level Evaluation Committee**

1) Questions and consultations about preparation of materials
   → Contact your nearest GP-TA or the GP-TA mailing list risk-gp-ta@risk.tsukuba.ac.jp.

2) Questions about the operation of the Achieve Level Evaluation Committee:
   → Contact the GP Core mailing list: risk-gp-core@risk.tsukuba.ac.jp.

Flow of various materials submission before and after the Achieve Level Evaluation Committee meeting



5. Basic Principles of the Achievement Assessment System

Agreement on the Achievement Assessment in the Master's Course

1. Achievement Assessment Committee, and implementation and approval of Achievement Assessment

1) Achieve Level Evaluation Committee

An Achieve Level Evaluation Committee will be established designated for each student by the Master's/Doctoral Program for the purpose of conducting the achievement assessment described below.

2) Implementation and approval of achievement assessment

The achievement assessment described below will be carried out by the Achievement Assessment Committee and approved by the Master's/Doctoral Program Leader.

3) Composition of the Achieve Level Evaluation Committee

The committee consists of a chairperson and two to three other members.

2. Position of achievement assessment in the completion of the course

The results of the achievement assessment are part of the final examination, held together with the master's thesis examination. To pass the final examination, students must, in principle, pass all items of the achievement assessment.

3. Judgment of pass/fail at the final examination of the Achievement Assessment

The decision of pass/fail in final exam will be made according to the following section 4, the results of the Master's/Doctoral Program's evaluation of the self-evaluation form.

4. Self-evaluation form and the master's program's evaluation of it

1) The self-evaluation form is for students to report their own academic achievement, which cannot be measured by the number of courses taken. In the self-evaluation form. A student's academic plan based on the subject points (see section 5) must be mentioned with reference to the acquired subject points. In addition, the academic progress must be supported by the following two types of academic evidence.

(a) Materials created during the study, such as study notes, research reports, and thesis drafts.

(b) Student's portfolio summarizing each month's academic progress.

2) The self-evaluation form must be certified by the Achieve Level Evaluation Committee at the time of the final examination that the self-evaluation is at the "Master's Degree Completion Level" for all items.

5. Subject points

It is desirable to obtain the prescribed standard points for each achievement item from common foundation subjects and major subjects as follows. The calculation of points is based on the point table shown in the excel file. However, the point table can be substituted if the Achievement Assessment Committee approves.

1) Points in major subjects

For each major subject, full points are assigned as credits × 80 = total points. The allocation of points is determined by the Master's/Doctoral Program. A grade of "A+" or "A" is calculated as the obtained points × 1.2, B as the points × 1.0, and C as the points × 0.8.

2) Points in common foundation subjects in master's program

The points are for all master's programs in general, as shown in the point table in the excel file. A grade of "A+" or "A" is calculated as the obtained points × 1.2, B as the points × 1.0, and C as the points × 0.8.

3) Standard points for each achievement item

The following points should be obtained by totaling the points in common foundation subjects and major subjects.

(a) Fundamentals of engineering	680 points
(b) Knowledge of basic theories and related skills	580 points
(c) Knowledge of issues in the real world	260 points
(d) Broad perspective overlooking circumstance	260 points
(e) Abilities of problem setting and solving	160 points
(f) Global communication ability	300 points

6. Achievement assessment and additional tasks

Achievement assessments are conducted several times prior to the final examination, at times determined by the master's program. If a student is not expected to reach the level of achievement specified by the master's program in the final examination based solely on obtained points or self-assessment, the Achieve Level Evaluation Committee may assign additional tasks through the supervisor. The student may submit the additional tasks to improve the performance and increase the evaluation points.

7. Special points in achievement assessment

If a student has particularly appreciable achievement, the Master's/Doctoral Program leader may add points corresponding to that achievement in the achievement assessment after reviewing the application submitted by the supervisor and examined by the Achieve Level Evaluation Committee.

8. Use of achievement assessment

The points in the Achievement Assessment can be used in selection for student awards.

Supplementary Rules

1) This agreement applies to students enrolled in or after 2008.
2) Any changes to this agreement will be made after discussion by the Master's/Doctoral Program in Risk and Resilience Engineering Faculty Meeting.

Approved by Risk Engineering Department Faculty Meeting on June 3, 2009.
Amended by Risk Engineering Department Education Council on April 9, 2014.
Amended by Education Council in Master's/Doctoral Program in Risk and Resilience Engineering on December 2, 2020.

Agreement on Achievement Assessment in

Doctoral Course

1. Achievement Assessment Committee, and implementation and approval of Achievement Assessment

1) Achieve Level Evaluation Committee

An Achieve Level Evaluation Committee will be established designated for each student by the Master's/Doctoral Programand for the purpose of conducting the achievement assessment described below.

2) Implementation and approval of achievement assessment

The achievement assessment described below will be carried out by the Achieve Level Evaluation Committee and approved by the Master's/Doctoral Program Leader.

3) Composition of the Achieve Level Evaluation Committee

The committee consists of a chairperson and two to three members.

2. Position of achievement assessment in the completion of the course

The results of the achievement assessment are part of the final examination, held together with the doctoral dissertation examination. To pass the final examination, all items of the Achievement Assessment results must be acceptable in principle.

3. Judgment of pass/fail at the final examination of the Achievement Assessment

The decision of pass/fail in final exam will be made according to the following section 4, the results of the Master's/Doctoral Program's evaluation of the self-evaluation form.

4. Self-evaluation form and the Master's/Doctoral Program's evaluation of it

1) The self-evaluation form is for students to report their own academic achievement, which cannot be measured by the number of courses taken. In the self-evaluation form. A student's academic plan based on the subject points (see section 5) must be mentioned with reference to the acquired subject points. In addition, the academic progress must be supported by the following two types of academic evidence.

(a) Materials created during the study, such as study notes, research reports, and thesis drafts.

(b) Student's portfolio summarizing each month's academic progress. (This can be omitted for G-COE students)

2) The self-evaluation form must be certified by the Achieve Level Evaluation Committee at the time of the final examination that the self-evaluation is at the "Doctoral Degree Completion Level" for all items.

5. Subject points

It is desirable to obtain the prescribed standard points for each achievement item from common foundation subjects and major subjects as follows. The calculation of points is based on the point table shown in the excel file. However, the point table can be substituted if the Achievement Assessment Committee approves.

1) Points in major subjects

For each major subject, full points are assigned as credits × 80 = total points. The allocation of points is determined by the Master's/Doctoral Program. A grade of A+ or A is calculated as the obtained points × 1.2, B as theW points × 1.0, and C as the points × 0.8.

2) Points in common foundation subjects in doctoral program

The points are set for all doctoral programs in general, as shown in the point table in the excel file. A grade of A+ or A is calculated as the obtained points × 1.2, B as the points × 1.0, and C as the points × 0.8.

3) Standard points for each achievement item

(a) Fundamentals of engineering	160 points
(b) Knowledge of theoretical foundation and related skills	160 points
(c) Knowledge of issues in the real world	60 points
(d) Broad perspective overlooking circumstance	40 points
(e) Abilities of problem setting and solving	90 points
(f) Global communication ability	130 points

6. Assessment of achievement and additional tasks

Achievement assessments are conducted several times prior to the final examination at times determined by the doctoral program. If a student is not expected to reach the level of achievement specified by the doctoral program in the final examination based solely on obtained points or self-assessment, the Achieve Level Evaluation Committee may assign additional tasks through the student's academic advisor. The student may improve the performance by implementing and submitting the additional assignments.

7. Special points in Achievement Assessment

If a student has particularly appreciable achievement, the Master's/Doctoral Program leader may add points corresponding to that achievement in the achievement assessment after reviewing the application submitted by the supervisor and examined by Achieve Level Evaluation Committee.

8. Use of achievement assessment

The results of the Achievement Assessment can be used in selection for student awards.

9. Master's/Doctoral Program's evaluation for students in early graduation programs

For students enrolled in the early graduation program in this doctoral program, the achievement assessment conducted by this Master's/Doctoral Program shall be substituted with one by the early graduation program.

Supplementary Rules

1) This agreement applies to students enrolled in or after 2008.
2) Any changes to this agreement will be made after discussion by the Master's/Doctoral Program in Risk and Resilience Engineering Faculty Meeting.
   Approved by Risk Engineering Department Faculty Meeting on June 3, 2009.
   Amended by Risk Engineering Department Education Council on April 9, 2014.
   Amended by Education Council in Master's/Doctoral Program in Risk and Resilience Engineering on December 2, 2020.

Achievement Assessment Standards in Self-Evaluation Forms

Master's/Doctoral Program in Risk and Resilience Engineering

1. Achievement assessment of the master's course in the self-evaluation report

When acquiring the points indicated in the Specialized Competence Points Table for Master's Program of Risk and Resilience Engineering, students are to comprehensively self-assess against each achievement item using the content and evidence they have learned. In addition, knowledge learned through self-study may be added.

The criteria for achievement at the master's program level are as follows.

a) There exists evidence of academic contents for each item.
b) A study plan based on subject points is accomplished, and the accomplishments mentioned in the self-evaluation report while comparing with the standard points.

For each item of achievement, it is desirable to conduct a self-evaluation comprehensively by considering related items even if they are in different subjects.

2. Achievement assessment of the doctoral course in the self-evaluation report

When acquiring the points indicated in the Specialized Competence Points Table for Doctoral Program in Risk and Resilience Engineering, students will comprehensively self-assess against each achievement item using the content and evidence they have learned. In addition, knowledge learned through self-study may be added.

The criteria for achievement at the doctoral program level are as follows.

a) There exists evidence of academic content for each item.
b) A study plan based on subject points is accomplished, and the accomplishment is mentioned in the self-evaluation report while comparing with the standard points.

In addition to the criteria mentioned above, followings are required for each achievement assessment item.

1) "Fundamentals of engineering" are judged on the basis of meeting the number of published papers which are specified as the standard for dissertation preparation, and of having the relevant skills to do so.
2) "Knowledge of theoretical foundations and related skills" is judged mainly based on the evidence of studying each subject, for which points are set in the specialized competence

table.

3) "Knowledge of issues in the real world", "Broad perspective overlooking circumstance", and "Abilities of problem setting and solving" will be judged based on the possession of the relevant abilities and knowledge as in 2).

4) Regarding "Global Communication Ability", students will be judged based on the evidence of their study in each subject according to points set in the specialized competence table. In case when the count of research presentation or presentation in foreign language reaches three times in three years, the Communication Abilities can also judged by discussion process in courses including Project Research in R2E. The number of foreign language presentations may be substituted by the equivalent international experience.

5) When reporting 2) to 4), experience as TA/RA experience, as a teaching assistant for group seminar, and as a student teaching assistant in laboratory can be included.

Prepared by Department of Risk Engineering on April 6, 2010

Revised: Master's/Doctoral Program in Risk and Resilience Engineering on December 2, 2020

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