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GA40703 Basics of Design and Development of Business System II

2.0 Credits, 3, 4 Year, Sum Vac Intensive

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Course Overview

In this project, students will form teams to engage in PBL (Project-Based Learning) focused on product development aimed at solving familiar social issues through the use of ICT. Initially, participants will learn methodologies for appropriate problem definition and solution proposal to determine a specific development theme for each team. Subsequently, under the guidance of external instructors (Agile Coaches), students will acquire fundamental skills in incremental development using Agile methodologies, specifically the Scrum framework. Students will also develop the ability to lead team management and product development through the development process.

Remarks

"enPiT-Related Course. Specific periods and details will be announced on the bulletin board. Students will develop problem-solving skills through practical learning in which they study data analysis methods and the use of AI, and plan, implement, and evaluate utilization strategies according to specific problems. In this course, students will develop web applications and similar products. It is highly recommended that students independently acquire basic knowledge and skills prior to the start of the course. Due to equipment availability, enrollment may be restricted. Important instructions regarding enrollment, including pre-registration for headcounts, will be provided during the individual orientation session in April. Prospective students must attend this session. (If you are unable to attend the orientation, please contact the instructor in charge.)"

9/9,10,11,14,15,16,17

face-to-face(partially online)

Course Type

practical training, experiments, skills practice

Relation to Degree Program Competences

Knowledge Communication Ability: The capacity to effectively transfer and communicate knowledge to others.

Course Objectives(Learning Outcomes)

Students will learn how to proactively plan, manage, and advance a project as a team. This course aims to equip students with the skills to drive practical development projects and acquire effective development methodologies.

Course Keywords

[Agile Development Methodologies](#), [Practical Applications of Mathematical](#), [Data Science and AI Techniques](#)

Class Schedule

Guidance will be held in early April to inform students of the outline of the course and points to consider when enrolling in the course. Details of the guidance will be announced at the orientation for the degree program and on the mailing list for students. Students who wish to enroll in the course must attend the guidance.

In the 2026 academic year, in addition to the conventional curriculum focused on software development (Course A: enPiT Course), a new curriculum (Course B: Inter-University Exchange Project (Japan-India) course) will be offered in parallel as part of the Inter-University Exchange Project (Japan-India).

<Week 1 (3 days, scheduled for mid-September)>

Course A (enPiT Course): Problem Identification and Project Theme Selection

In a three-day session (tentative), students will identify problems to be solved based on issues encountered in their daily lives and conduct exercises to propose possible solutions. During the exercises, students will practice methods commonly used in startup ventures for launching new businesses, such as the Lean Canvas and user interviews. Based on these activities, each team will determine the project theme that will be 1) developed during the period described in (2).

Course B (Inter-University Exchange Project (Japan-India) course): Problem Identification and Project Theme Selection

This three-day (tentative) intensive course involves exercises to identify unsolved needs in clinical settings, healthcare delivery, public health, or digital health, considering diverse factors such as social systems, cultural backgrounds, and technological implementation. Students will practice startup methodologies (e.g., Lean Canvas, user interviews), determine the theme for Phase 2, and make an interim presentation.

<Week 2 (4 days, scheduled for late September)>

Course A (enPiT Course): Learning Agile Development Methods

In a four-day session (tentative), students will conduct hands-on product development based on the project themes proposed in (1).

Under the guidance of an agile coach (external instructor), students will

learn fundamental skills for conducting development using agile methodologies (Scrum), gradually improving both the product and the development process. In addition, students will develop the ability to

2) lead team management and product development through hands-on development activities.

Course B (Inter-University Exchange Project (Japan-India) course):Prototyping Methods & Business Planning Mastery

In this four-day (tentative) intensive course, students will learn how to develop prototypes, consider validation methods, and formulate business plans based on the themes proposed in Phase 1. At last, we have a final presentation session.

Notes

- The actual schedule and content of both 1) and 2) are subject to change. Detailed information will be provided during the course guidance/orientation.
- Course A and Course B will be conducted jointly during the first half of Day 1 in 1). After that, the two courses will proceed separately.

Course Prerequisites

For Course A: This course involves developing web applications or software projects. Students are encouraged to acquire basic knowledge and skills in advance.

For Course B: There are no specific prerequisites or prior requirements.

Grading Philosophy

Grades will be evaluated based on students' participation and contributions to team activities.

Course Hours Breakdown and Out-of-Class Learning

On-demand learning materials related to agile development will be provided to prepare students for team development. Additionally, reference materials will be made available for students with no prior experience in application development to acquire fundamental knowledge. Students are encouraged to engage in self-study according to their skill level.

Textbooks, References,and Supplementary Materials

On-demand learning materials and handouts will be provided.

Office Hours and Contact Information

Please make an appointment via email.

Ikkaku Kawaguchi Please make an appointment via email.
kawaguchi@cs.tsukuba.ac.jp

For Course B: Inter-University Exchange Project (Japan-India) Office, Tsukuba

interuniv-india-jp@un.tsukuba.ac.jp

Other(Behavioral expectations and points to note for students during coursework)

This course is part of the enPiT program (<http://enpit.coins.tsukuba.ac.jp/>). enPiT is a project-based learning (PBL) program where students form teams and autonomously work on realizing their themes. Through team-based product development, students experience project management and explore techniques to identify users' true needs. For further details, please refer to the URL above.

For inquiries, please contact enpit-office@cs.tsukuba.ac.jp.

If the number of applicants exceeds the capacity, enrollment may be restricted. A guidance session will be held in April to confirm the number of applicants and provide information on the selection process in case of over-enrollment. Students who wish to take this course must attend the guidance session. If enrollment restrictions are implemented, priority will be given to students in the Information Science and Engineering degree program. Students should refer to the Guidelines for the Use of Generative AI in Education (For Students) and use generative AI appropriately. As AI-generated suggestions and answers are not always accurate, students must critically evaluate the information obtained and take responsibility for verifying its accuracy.

Relation to Other Courses

TF/TA