



Call for Participation

The 4th CIRP School

“How to Design a Design Course”

Monday, 23 March–Friday, 27 March 2026

International Professional University of Technology in Tokyo



Organised by



*STC Design of The International Academy for
Production Engineering*

Administrated by



*The Design and Systems Division of the Japan
Society of Mechanical Engineers*



Design & Systems

Hosted by

**IPUT
TOKYO**

*The International Professional University of
Technology in Tokyo*

Purpose

Founded in 1951, CIRP (the International Academy for Production Engineering) aims at advancing production science and technology by developing the highest-level international network of eminent researchers and industrialists. The STC Dn (Scientific Technical Committee on Design) of CIRP deals with design theory and methodology, digital design support techniques and tools, and engineering design practices.

CIRP Schools are recently established as an instrument to disseminate the most recent production engineering knowledge through lectures, hands-on sessions, discussions, etc., for PhD students, early-stage researchers and engineers. While often such courses deal with knowledge to conduct research activities, this course focuses on practical pedagogical techniques and theoretical insights in teaching engineering design that might be required when they find academic positions.

Target Participants

- PhD students, researchers and engineers in engineering design, production engineering, PSS, or LCE.
- Organised in the week following the 36th CIRP Design Conference in Tokyo (16-18 March 2026) and the 33rd CIRP LCE Conference in Kamakura (11-13 March 2026), Japan.
- Entry level (i.e., BSc level) knowledge about engineering design is assumed. Advanced knowledge on design theory and methodology, product architecture, PSS, DfA, and DfM are welcome but not mandatory.
- Strong interests in teaching engineering design are required although teaching experiences are not mandatory.

Course Programme and Format

This is a one-week course based on theoretical learning and practical exercises. The principal course tutor is Professor Tetsuo Tomiyama (IPUT Tokyo, former CIRP STC Dn Chair) who has rich experiences in teaching such introductory freshman courses (typically, “Introduction to design engineering”). The course will deal with three interrelated topics chosen from an existing curriculum. At the end of the course, the participants are requested to design their own course in the form of syllabus that will be presented and shared with others.

Learning Outcomes

After successful completion of the course, students will obtain the following capabilities and be able to achieve the following objectives.

- Engineering design is a typically multi-disciplinary discipline that requires good understanding of various interrelated subjects. This is different from many of scientific and engineering disciplines in which the depth of knowledge is much appreciated. The students will be able to explain the differences from experiences of hands-on sessions on printer dissection and PSS design.
- The students will be able to explain the concepts and roles of function modelling, product architecture, and design methodology in product design, PSS design, and Design for Environment.
- The students will be able to define a teaching module on engineering design and to synthesize a syllabus.

Programme

Mon, 23 March 2026	
Morning 10:00-12:30	<ul style="list-style-type: none"> • Introduction of the school (Lecture) • Learning Outcomes of the Programme (Lecture)
Lunch 12:30-13:30	
Afternoon (1) 13:30-15:30	<ul style="list-style-type: none"> • Function Modelling (including exercise, taking printers as an example) <ul style="list-style-type: none"> ➢ Structure, State, Behaviours, and Function ➢ Role of function modelling in design
Afternoon (2) 16:00-18:00	<ul style="list-style-type: none"> • Product Architecture (Lecture taking printers as an example) <ul style="list-style-type: none"> ➢ Different types of product architecture ➢ How a business model influences on the product architecture
Tue, 24 March 2026	
Morning 10:00-12:30	<ul style="list-style-type: none"> • Dissection of a desktop home inkjet printer (Practice) <ul style="list-style-type: none"> ➢ Through dissection of a printer, the students should analyse its product architecture, control architecture, DfA features, and DfM features. ➢ They also analyse the relationship between product architecture and business models from the viewpoint of PSS design.
Lunch 12:30-13:30	
Afternoon (1) 13:30-15:30	<ul style="list-style-type: none"> • Dissection of a desktop home inkjet printer (Practice, Continued)
Afternoon (2) 16:00-18:00	<ul style="list-style-type: none"> • Dissection of a desktop home inkjet printer (Practice, Continued)
Wed, 25 March 2026	
Morning 10:00-12:30	<ul style="list-style-type: none"> • Innovation and Design (Lecture) <ul style="list-style-type: none"> ➢ Definitions of innovation ➢ How does design influence innovation? ➢ Design methods for innovative products (e.g., a design method for innovative design called ACRREx is introduced)
Lunch 12:30-13:30	
Afternoon (1) 13:30-15:30	<ul style="list-style-type: none"> • Designing a Recycling Box (Practice) <ul style="list-style-type: none"> ➢ Using ACRREx, students will try to design a recycling box (trash bin) that prevents trash from not entering the bin but being scattered around the bin.
Afternoon (2) 16:00-18:00	<ul style="list-style-type: none"> • Designing a Recycling Box (Practice, Continued)
Thu, 26 March 2026	
Morning 10:00-12:30	<ul style="list-style-type: none"> • PSS Design (Lecture) <ul style="list-style-type: none"> ➢ Definition and models of services ➢ Product-service system design
Lunch 12:30-13:30	
Afternoon (1) 13:30-15:30	<ul style="list-style-type: none"> • PSS with IoT and CPS (Practice) <ul style="list-style-type: none"> ➢ The students will design PSS for a CPS that involves IoT technologies. ➢ Students will conduct and present a conceptual design of such a system taking a CPS system of their choice (such as machine tools, manufacturing systems, construction machinery, etc.)
Afternoon (2) 16:00-18:00	<ul style="list-style-type: none"> • PSS with IoT and CPS (Practice, Continued)
Fri, 27 March 2026	
Morning 10:00-12:30	<ul style="list-style-type: none"> • Designing a Syllabus (Lecture) <ul style="list-style-type: none"> ➢ The role and elements of syllabi ➢ Bloom's taxonomy in pedagogy
Lunch 12:30-13:30	
Afternoon (1) 13:30-15:30	<ul style="list-style-type: none"> • Describing learning outcomes (Practice) • Designing a design course syllabus (Practice)
Afternoon (2) 16:00-18:00	<ul style="list-style-type: none"> • Reflection • Summary

Fee, Venue, Inquiry.

- The course is limited to maximum 10 who look for academic positions in future.
- The course fee is ¥40,000 for a week including lunch and refreshments.
- The venue is the International Professional University of Technology in Tokyo (Located in Shinjuku).
- Please contact cirpschool2026@jsme.or.jp for further information and inquiry.