

Course Title	Special Seminar for Strategic Reasoning and Thinking
Registration Code	L100180001
Number of Credits	2
Years of Eligible Graduate Students	1-2
Semester	throughout the year
Period	generally Thursday 5th~6th (except camp, final presentation)
Room	B4-East-K-102 (Nakamozu Campus, OPU)
Instructors	Norifumi Fujimura, Toshihiko Sakai, Nozomu Kogiso, Yosuke Nambu, Atsushi Ashida
Office hours	
Goals of the course	<p>This is the most important workshop seminar in the Graduate Course for SiMS, which is a workshop seminar to develop "systems thinking" to take a holistic view of complex things and "design thinking" to create innovative ideas. You can acquire a grounding to create innovative technology through systems thinking and to observe theories of material science based on the creation of tangible things. We aim to acquire ways of thinking of ideas by communicating with students in various other fields in group discussions and workshop camps and by through dialogue with specialists and leaders in the industry. We not only train system-inspired researchers, but also promote the ideation ability necessary for the industrialization of technologies and technology management.</p>
Textbooks	
Books of reference	
Allied subject	
Homework (Preparing for the classwork)	
Course outline	<p>The first objective is to link the results of academic research to the applications demanded by society, although this workshop starts with supposing specific target systems (equipment). Secondly, we analyze the systems to resolve and analyze components/elemental technologies, think about applications and understand the role of the target systems. In addition, we think about how to realize the development and drastic improvement of the systems based on an understanding of their roles, the importance and technical possibilities of possible improvements for the systems, and your research contents to determine possibilities. In this step, we carry out interviews of business persons concerning the systems, the correction of analysis results and research contents, and research and analysis of the improvement goals of the systems and the relationship with social demands.</p> <p>The workshop is carried out by groups of four or five people and a mentor from an enterprise supports each group. In discussions, we carry out brainstorming workshops and learn the basis of logical thinking for utilization in research and analysis. After discussions in groups and interviews with business persons, we carry out an interim report through workshops in the form of a camp to discuss the issues more deeply, and finally we carry out presentations of research and analyze the results reports by group, with the participation of everyone.</p>

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Class schedule	1st	Systems thinking and design thinking (seminar overview/Fujimura 15m) & how to use systems modeling software (Nambu 165m) 4/13 5&6th
	2nd	System design procedures and heirarchy of system functions (lecture)(Kogiso 180m) 4/20 5&6th
	3rd	System analysis from the viewpoint of "function" (to identify and compare the function of the two types of ballpoint pens (exercise) (Nambu 180m) 4/27 5&6th
	4th	Modelization and mapping of the system from the viewpoint of "operation", "function" and "physics" from the viewpoint of "operation", (to reflect and compare the fetures of the two types of ballpoint pen from the viewpoint of "operation", "function" and "physics") (Nambu 180m) 5/11 5&6th
	5th	Positioning of ideas (modeling ballpoint pen considered innovative and investigatig the innovative point) (Nambu 180m) 5/18 5&6th
	6th	System selection and discussion by groups (systems analysis) 5/25 5&6th
	7th	Group discussions (systems analysis) 6/1 5&6th
	8th	Group discussions (systems analysis) 6/8 5&6th
	9th	Camp 13:00-14:00 Invited lecture (Mr. Tatsuro Tsushima), 14:00-16:00 Ideation workshop (i-WS) 6/15 13:00-16:00
	10th	Camp 9:00-12:00, 13:00-15:00 Lecture/exercise for i-WS by technology base 6/16 9:00-15:00
	11th	Setting of technology base theme by group 6/22 5&6th
	12th	System analysis and extraction of issues for technology base theme by group 6/29 5&6th
	13th	System analysis and extraction of issues for technology base theme by group 7/6 5&6th
	14th	Practice of presentation for technology base theme by group (pre-i-WS) 8/10 5&6th
	15th	Presentation of technology base theme by group (i-WS) 8/24 13:00-15:00
Evaluation		A rubric will be used to assess students' participation in group discussions and ideation workshops, response to corporate guests, and their final presentations.