

Course Title	Introduction to System-inspired Material Science
Registration Code	L100090001
Number of Credits	2
Years of Eligible Graduate Students	1-2
Semester	1st
Period	Monday 5th
Room	A6-332 (Nakamozu, OPU) and B115 (OCU: distant lecture)
Instructors	Atsushi Ashida, Yong-Gu Shim, Yuko Hosokoshi, Ikuo Fujii and Hidenori Fujiwara
Office hours	Ashida: 9:30-11:00, Tuesday, A6-323 (need appointment)
Goals of the course	The abilities to overview the systems by taking in knowledge and ideas from different fields are needed for the students who have basic knowledge of system sciences to create developing systems and new systems by using their abilities. For example, great development of the systems can be expected by adding the ideas of material sciences. In this class, we select the cases that materials affect systems and analyze the elements divided into the fields. Through the analysis, we learn the actual cases how materials are used and developed in some systems. The goal of this class is to understand and acquire the knowledge of the basic system necessary for the integration of systematic thinking and material science ideas.
Textbooks	
Books of reference	
Allied subject	
Homework (Preparing for the classwork)	
Course outline	Learn practical examples and the basis of material science necessary for those who have completed the undergraduate course of system science to learn material science programs. In the first half, we explain about the utility form of materials in various system developments and the situation of material development for specific systems with actual examples. In the latter half, we lecture on the basis of various fields of study necessary for the development and practical use of materials plainly for participants who have learned the basis of system science, through the ways of thinking of quantum mechanics, solid state physics and material science.
Class schedule	1st Utilizing materials in information networks (1) : Ashida 4/10
	2nd Utilizing materials in information networks (2) : Ashida 4/17
	3rd Material development in smart energy systms (1) : Shim 4/24
	4th Material development in smart energy systms (1) : Shim 5/1
	5th Material development in life science/medical field (1): Fujii 5/8
	6th Material development in life science/medical field (2): Fujii 5/15
	7th Basic quantum mechanics (1): Ashida 5/22
	8th Basic quantum mechanics (2): Ashida 5/29
	9th Basic quantum mechanics (3): Ashida 6/5
	10th Basic solid state physics (1): Hosokoshi 6/12
	11th Basic solid state physics (2): Hosokoshi 6/19
	12th Basic solid state physics (3): Hosokoshi 6/26
	13th Basic material science (1): Fujiwara 7/3
	14th Basic material science (2): Fujiwara 7/10
	15th Basic material science (3): Fujiwara 7/24
	Optional extra day 7/31
Evaluation	Synthetically evaluated from regular exams, reports and reports by each faculty in charge.
Remarks	About once a month, distant lecture may not be possible. We will contact the students about the correspondence separately.