

<<Last Updated:2023/02/21>>

Course Schedule Information

Course Code	88A521
Semester	Fall and Winter Term
Day and Period	Other
Course Name (Japanese)	国際交流特別講義 3 (産業科学特論)
Room	
Course Name	International Exchange Special Lecture 3(Advanced Lectures from Science to Industry)
Capacity	0
Course Numbering Code	88INES9U105
Required/Optional	バーチャル留学プログラム科目 産研_C50602
Credits	2.0
Student Year	1,2,3,4,5,6
Field	
Instructor	Hosokai Tomonao
Course of Media Class	Not Applicable

※About Course of Media Class

"Course of Media Class" are classes in which more than half of the classes are held in places other than classrooms by making advanced use of various media.

Undergraduate students can include up to 60 credits in media class course as requirements for graduation. Even if this is not the case, we may hold classes using the media.

Detailed Syllabus Information

Course Subtitle	Advanced Lectures from Science to Industry
Language of the Course	English
Type of Class	Lecture Subject
Course Objective	SANKEN at Osaka University has been conducting top-level research works in the wide range of information, quantum, advanced materials, beam, biological, molecular, nanotechnology, and AI science. In this lecture, we will not only introduce the latest research results in these fields, but also explain the future trends in research and development. Moreover, from our lecture, you will be received the proposals how to connect the research knowledge to industrial technology.
Learning Goals	Students who take the course will achieve the following three goals. 1. Gain knowledge about the advanced research in SANKEN 2. Understand the procedure on how to implement the results of basic research in society 3. Acquire a thinking skill of connecting the dots to form a line
Requirement / Prerequisite	For undergraduate students / Online lecture
Class Plan	Oct 5 (THU) 5th period Opening remarks by SANKEN director "Advanced Ceramics and Nanostructured Materials for Future Society" by Prof. Sekino "Nanocellulose and its application" by Prof. Nogi Oct 5 (THU) 6th period "Liquid electrolyte materials for battery innovation" by Prof. Yamada Oct 6 (FRI) 5th period "Real-time Forecasting of IoT Time-series Data" by Prof. Sakurai "Particle acceleration by plasma and extremely intense light" by Prof. Hosokai

Oct 6 (FRI) 6th period
 "An introduction to beam material chemistry: fundamental study and its application to industry" by Assoc. Prof. Muroya

Oct 12 (THU) 5th period
 "Artificial intelligence that talks by listening to human speech" by Prof. Komatani
 "Emotion-driven Evolutionary Music Composition based on Physiological Sensors" by Prof. Numao

Oct 12 (THU) 6th period
 "Advanced Sensing Technologies using Artificial Intelligence" by Prof. Washio
 "What is Gait Recognition?" by Prof. Yagi

Oct 13 (FRI) 5th period
 "Recent advances in spintronics" by Prof. Chiba
 "Flexible and stretchable electronics" by Prof. Araki

Oct 13 (FRI) 6th period
 "Quantum technologies using semiconductor quantum dots" by Prof. Oiwa

Oct 19 (THU) 5th period
 "Photochemistry for novel materials" by Prof. Fujitsuka/ Assoc. Prof. Osakada
 "Sustainable approaches to fine chemical synthesis" by Assoc. Prof. Takizawa

Oct 19 (THU) 6th period
 "Synthetic molecules that control nucleic acids' structure and function" by Assoc. Prof. Dohno
 "Chemical control of epigenetics" by Prof. Suzuki

Oct 20 (FRI) 5th period
 "Lipids are functioning as intercellular signaling molecules" by Assoc. Prof. Nishi
 "Endocytosis: a mechanism implicating in the versatile regulatory function in the cells" by Assoc. Prof. Wada

Oct 20 (FRI) 6th period
 "What can fluorescent/bioluminescent proteins do for life science researches? " by Prof. Nagai
 "Bizarrely and mazing application of the luminescent protein technology for sustainable society " by Prof. Nagai

Oct 26 (THU) 5th period
 "Novel quantum materials for Beyond CMOS technology" by Prof. Tanaka
 "Ultrafast electron microscopy" by Assoc. Prof. Yang

Oct 26 (THU) 6th period
 "Fundamentals and Applications of Computational Materials Science" by Prof. Minamitani
 "Solid-state nanopores: Biosensing and beyond" by Assoc. Prof. Tsutsui

Oct 27 (FRI) 5th period
 "Organic Materials for Electronic Application " by Prof. Ie
 "Three dimensional nanostructure material science " by Assoc. Prof. Hattori

Oct 27 (FRI) 6th period
 "Single molecule detection by Nano-devices Towards Medical Application " by Prof. Oshiro
 "Advanced electron microscopy and novel low-dimensional materials " by Prof. Suganuma

Independent Study Outside of Class	Preparing reports for homework
Textbooks	Supporting materials will be distributed during the classes
Reference	It will be shown during the classes if needed
Grading Policy	Participation 50 % and reports 50 %
Attendance and Student Conduct Policy*	
Other Remarks	
Special Note	· Any student with a disability who needs special accommodations, please inform the office in your department well in advance of the term start and get in contact with the instructor as early in the term as possible, so that we can discuss your specific needs.
Office Hour	

Keywords	
Messages to Prospective Students	
Course conducted by instructors with practical experience	

Instructor(s)

Instructor Name	Name (hiragana)	Affiliation, Title, Course	Office	Extension	E-mail
Tomonao HOSOKAI			F362	8485	hosokai@sanken.osaka-u.ac.jp

Cautions for Students

※出欠席及び受講に関するルール：令和5年度以降のシラバス項目 / *Attendance and Student Conduct Policy: field available from FY2023