

Special Subjects of the Department of Materials Structure Science

Field	Subject Code	Subject	Credit	Content of subject	
Synchrotron Radiation Science	20DMSa01	Fundamentals of Synchrotron Radiation	2	Lectures on the foundation of synchrotron radiation production, polarization and coherence of radiation.	
	20DMSa02	Introduction to Synchrotron Radiation Science	2	Introduction to make the best usage of synchrotron radiation for scientific research, including a general review on main analytical approaches and examples of their application.	KIMURA, Masao
	20DMSa03	Fundamentals and applications of detectors	2	Lectures on the radiation detectors for synchrotron radiation experiments and on their advanced uses.	KISHIMOTO, Shunji
	20DMSa05	X-ray Imaging Optics	2	Lectures on the principle, the technique and applications of x-ray imaging optics using synchrotron radiation.	HIRANO, Keiichi
	20DMSa06	Solid State Spectroscopy Using Synchrotron Radiation	2	Lectures on solid state spectroscopy, in particular magnetic properties, using synchrotron radiation.	ONO, Kanta
	20DMSa07	X-ray Absorption Spectroscopy for Materials and Chemistry	2	Lectures on x-ray absorption and x-ray fluorescent spectroscopies (XAFS, XRF) for materials and chemistry.	ABE, Hitoshi
	20DMSa08	Medical Application of Synchrotron Radiation	2	Lectures on the principle and applications of medical imaging and radiation therapy using synchrotron radiation and the outline concerning medical ethics.	HYODO, Kazuyuki
	20DMSa09	Special Guidance to Synchrotron Radiation Science	2	Lectures on synchrotron radiation science for materials and life science, and advanced techniques for synchrotron radiation production and instrumentation.	Synchrotron Radiation Members
	Materials Structure Science based on Synchrotron Radiation	20DMSb01	Fundamentals of Materials Structure Science	2	Lectures on the basics of Materials Structure Science
20DMSb02		Structure Biology I	2	Lectures on synchrotron X-ray crystallographic analysis of bio-macromolecules.	SENDA, Toshiya
20DMSb03		Structure Biology II	2		SENDA, Toshiya
20DMSb04		Molecular Biology I	2	Lectures on molecular biology from genes to cells, which is based on modern biology.	KATO, Ryuichi
20DMSb05		Molecular Biology II	2		KATO, Ryuichi
20DMSb06		Synchrotron Radiation Biophysics	2	Lectures on synchrotron radiation effects on cells, genes, and bio-polymers.	USAMI, Noriko
20DMSb07		Synchrotron Radiation Structural Physics	2	Lectures on semiconductor, dielectrics, magnetic material, and superconductor based on structural science	MURAKAMI, Youichi
20DMSb08		Dynamic Aspects of Materials Structure	2	Lectures on dynamic aspects of materials structure revealed by utilizing pulsed nature of SR.	ADACHI, Shin-ichi
20DMSb09		Synchrotron Radiation Surface Spectroscopy I	2	Lectures on the principle of surface chemistry using synchrotron radiation and its applications.	MASE, Kazuhiko
20DMSb10		Synchrotron Radiation Surface Spectroscopy II	2	Lectures on the basics of soft X-ray spectroscopy with a diffraction grating and its application to atomic and electronic structure analyses of surface.	AMEMIYA, Kenta
20DMSb11		Synchrotron Radiation Surface Spectroscopy III	2	Lectures on methods to study atomic and electronic structures of surfaces adsorbed with organic molecules. Lectures on the basics of nonevaporable getter coating, and its applications.	MASE, Kazuhiko
Neutron and Muon Science	20DMSc01	Neutron Diffraction and Scattering I	2	Lectures on the relation between the microscopic information obtained by neutron diffraction/scattering and the macroscopic properties of the matter.	ENDO, Hitoshi
	20DMSc02	Neutron Diffraction and Scattering II	2	Lectures on the fundamentals and applications of the neutron scattering/diffraction by various materials.	OTOMO, Toshiya
	20DMSc03	Neutron Diffraction and Scattering III	2	Lectures on the magnetic state of materials obtained by the neutron scattering.	ITOH, Shinichi
	20DMSc04	Neutron Crystallography	2	Lectures on the crystallographic research of functional materials using neutron.	KAMIYAMA, Takashi
	20DMSc09	Introduction to Neutron Science I	2	Lectures on neutron science for materials, and advanced techniques for neutron production, transportation, detection and instrumentation.	Neutron Members
	20DMSc10	Introduction to Neutron Science II	2	Lectures on neutron science for materials, and advanced techniques for neutron production, transportation, detection and instrumentation.	Neutron Members
	20DMSc11	Introduction to Neutron Science III	2	Lectures on neutron science for materials, and advanced techniques for neutron production, transportation, detection and instrumentation.	Neutron Members
	20DMSc12	Introduction to Neutron Science IV	2	Lectures on neutron science for materials, and advanced techniques for neutron production, transportation, detection and instrumentation.	Neutron Members

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Neutron and Muon Science	20DMSc13	Introduction to Neutron Science V	2	Lectures on neutron science for materials, and advanced techniques for neutron production, transportation, detection and instrumentation.	Neutron Members
	20DMSc14	Introduction to Neutron Science VI	2	Lectures on neutron science for materials, and advanced techniques for neutron production, transportation, detection and instrumentation.	Neutron Members
	20DMSc05	Fundamentals of Neutron Optics	2	Lectures on the functions of monochromators, mirrors and lenses for neutron instrumentation.	INO, Takashi
	20DMSc07	Muon Science	2	Lectures on the basics of meson physics by muon and pion interaction with matters.	MIYAKE, Yasuhiro
	20DMSc08	Muon-probed condensed matter physics	2	Applications of muon spin rotation, relaxation, resonance to the studies of magnetism and hydrogen-related phenomena is lectured.	KADONO, Ryosuke
Common	20DMSd01	Special Exercise for Materials Structure Science I a	2	Seminars and laboratory exercise to understand the principle and techniques in Materials Structure Science through extensive use of KEK facilities.	All Faculty Members
	20DMSd02	Special Exercise for Materials Structure Science I b	2		
	20DMSd03	Special Exercise for Materials Structure Science II	4		
	90DMSd01	Special Seminar for Materials Structure Science I	4	Research on the specific problems in Materials Structure Science under the guidance of faculty members.	
	90DMSd02	Special Seminar for Materials Structure Science II	4		
	90DMSd03	Special Seminar for Materials Structure Science III	4		
	90DMSd04	Special Seminar for Materials Structure Science IV	4		
	90DMSd05	Special Seminar for Materials Structure Science V	4		