Syllabus for The International Summer School 2019

(Please fill in the form. Thank you very much.)			
課程名稱 Course name_ at least in English, additionally in Chinese preferred	（中）：半導體中的缺陷與雜質		
	（English）: Defects and Impurities in Semiconductors		
授課老師所屬單位 Offering dept. and university			
開課時段 Session	(　) Session 1 (July 3rd ~July 14th) (　) Session 2 (July17th~ July 28th) (○) Session 3 (July30th ~August 3rd) (　) Session 4 (August 14st ~August 25th)	■ 5 days /3 hours a day (6 hr for August 3rd) ☐ 3 days /6 hours a day	
開課日期 *Teaching Dates (18hours)	Dates : July30th ~August 3rd	■ Morning (9:00~12:00) ☐ Afternoon (14:00~17:00)	
課程開辦系所 Hosting Department	Graduate Institute of Optoelectronic Engineering		
授課教師資料 Offering teacher's information	Name: Naoki Fukata Tel. / mobile phone number: +81-80-3082-1802 Email: FUKATA.Naoki@nims.go.jp Website: https://samurai.nims.go.jp/profiles/fukata_naoki		
學經歷 Curriculum vitae	Education: PhD in 1998		
	Professional appointment: 2018-present: Principal Investigator, International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS) 2011-present: Group Leader, National Institute for Materials Science (NIMS) 2005-20010: Senior Researcher, National Institute for Materials Science (NIMS) 2002-2005: Lecturer, University of Tsukuba 1998-2002: Assistant Professor, Tohoku University		
	Other qualification:		
學分數 Credit(s)	1	**授課對象 Target audience**	Postgraduate
課程目標 Goal of this course description within 150 words	The goal of this course is to understand properties of defects and impurities in semiconductors.		
課程簡述 Course description description within 350 words	This course provides an overview of basis of crystal structures, energy band diagrams, defects, impurities, and novel properties in semiconductor bulk and nanomaterials. The characterization of semiconductor properties and device application will be also introduced.		
課程內容 / 授課大綱 Course content / outline	1. Introduction 2. What are semiconductors? 3. Crystal structures 4. Defects & impurities in crystals ・Classification of defects		

	• Generation of defects • Diffusion of defects & impurities • Defect properties • Doping • Impurities in Si 5. Characterization 6. Device application using experimental examples
學習評量方式 **Assessment / grading policy**	The assessment will be done by a small test.
課程目標之教學方法 **Teaching methods for this course**	A projector and ppt slides will be used in this course.
教科書＆參考書目 **Textbook & other reference**	Properties of Group-IV, III-V and II-VI Semiconductors, Wiley Dopants and Defects in Semiconductors, CRC Press