

National Kaohsiung University of Applied Sciences 2014 Academic Year Chemical Engineering and Materials Engineering PhD Courses

Academic year		First Year		Second Year		
Semester		First Semester	Second Semester	Third Semester	Fourth Semester	
Compulsory subjects (19/23)		Seminar (1) 1/2	Seminar (2) 1/2 English writing for science and technology 3/3	Seminar (3) 1/2 Ph.D thesis 6/6	Seminar (4) 1/2 Ph.D thesis 6/6	
Electives subjects (15/15)	Energy Technology	Core subjects	Special Topics on Energy Technology 3/3 Advanced Green Energy Technology 3/3 Solar Energy Engineering 3/3	Energy storage devices 3/3 Special Topics in Energy Engineering 3/3 Advanced Thermodynamics 3/3	Special Topic of Solar Cells 3/3 Special Topics in Biomass Energy 3/3	Technologies and Materials for Carbon Capture & Storage 3/3 Special Topics in renewable energy technologies 3/3
		General subjects	Special topics in electrochemistry 3/3 Special Topics in hydrogen technology 3/3	Sensor For Electrochemistry 3/3 Synthesis and Analysis For Electrochemistry 3/3 Advanced Electrochemistry 3/3	Development and fabrication of batteries 3/3 Electrochemical anticorrosive Technology 3/3 Energy Saving Technology 3/3	Noble metal materials processing technology 3/3 Special topics on fuel cells 3/3 Waste-to-energy technology 3/3
	Chemical materials	Core subjects	Polymer materials 3/3 Physical Chemistry of Polymer 3/3 Ceramic materials 3/3	Thin Film Materials 3/3 Processing and applications of polymeric materials 3/3 Microscopy Techniques and Analysis 3/3	Advanced Composite Materials 3/3 Technology of material examination 3/3 Sol-Gel Science and Powder Technology 3/3	Special Topics of Optical-Electrical Materials 3/3 X-Ray Diffraction 3/3
		General subjects	Advanced Organic Chemistry 3/3 Polymer structure and physical properties 3/3 Synthesis of Organic Chemistry 3/3 Special Topics on Organic Optoelectronic Materials 3/3 Electronic ceramics 3/3 Colloid and surface science 3/3 Solid State Chemistry 3/3 Transmission Electron Microscopy 3/3 Principle and Application for Panel Display 3/3 Specialty Chemicals 3/3	Analysis of Organic Chemistry 3/3 Polymer characterization 3/3 Mechanical Properties of Polymer Materials 3/3 Special Topics of Ceramic Processing 3/3 Materials of Thin Films 3/3 Principles of plasma 3/3 Phase Equilibrium 3/3 Special Topics of Surface Chemistry 3/3 Interfacial Technology and Application 3/3 Small Angle X-Ray Diffraction 3/3	Special synthetic resin 3/3 Polymer morphology 3/3 Polymer Rheology 3/3 Functional polymer materials 3/3 Vacuum film engineering 3/3 Semiconductor Theory and Process 3/3 Surface Science and Analysis 3/3 Manufacturing Process of Surfactant 3/3 Solidification phenomena and principles in materials processing 3/3	Colloid Technology and Applications 3/3 Optical technology specialty chemicals 3/3 Biomedical specialty chemicals 3/3 Special Topics of Polymer Optoelectronic Materials 3/3 Conducting Polymer Materials 3/3 Superconductor material 3/3 Special topics of assembly and fabrication of semiconductor materials 3/3 Special Topics in Nano-materials 3/3 Special Topics on Surface Treatment of Material 3/3 Special topics on fabrication of ceramic film 3/3

*When the number of credits in each subject "credit / hour" mark.