

National Kaohsiung University of Applied Sciences 2014 Academic Year Chemical Engineering and Materials Engineering Master Course

Academic year		First Year		Second Year	
Semester		First Semester	Second Semester	Third Semester	Fourth Semester
Compulsory subjects		Seminar (1)1/2	Seminar (2)1/2 English writing for science and technology3/3		Master thesis6/6
Electives subjects(23/25)	Specialty Chemicals	Specialty Chemicals 3/3 Advanced Organic Chemistry 3/3 Synthesis of Organic Chemistry 3/3 Special Topics in Industrial Chemistry 3/3 Colloid and surface science 3/3	Special Topics of Surface Chemistry 3/3 Analysis of Organic Chemistry 3/3 Specialty chemicals manufacturing process 3/3 Cosmetics Practice 3/3 Interfacial Technology and Application 3/3	Special synthetic resin 3/3 Manufacturing Process of Surfactant 3/3 Sol-Gel Science and Powder Technology 3/3	Optical technology specialty chemicals 3/3 Biomedical specialty chemicals 3/3 Colloid Technology and Applications 3/3
	Materials Technology	Polymer materials 3/3 Physical Chemistry of Polymer 3/3 Polymer structure and physical properties 3/3 X-Ray Diffraction 3/3 Solid State Chemistry 3/3 Ceramic materials 3/3 Diffusion Theory3/3 Crystal chemistry 3/3 Special Topics on Organic Optoelectronic Materials 3/3 Transmission Electron Microscopy3/3	Polymer characterization 3/3 Mechanical Properties of Polymer Materials 3/3 Processing and applications of polymeric materials 3/3 Electronic ceramics 3/3 Special Topics of Ceramic Processing 3/3 Thin Film Materials 3/3 Small Angle X-Ray Diffraction 3/3 Materials of Thin Films 3/3 Microscopy Techniques and Analysis 3/3 Principles of plasma 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 Special Topics in Film manufacturing process 3/3 Special Topics of Optical-Electrical Materials 3/3 Technology of material examination 3/3 Solidification phenomena and principles in materials processing 3/3	Special Topics of Polymer Optoelectronic Materials 3/3 Advanced Composite 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 Plasma processing for IC manufacturing 3/3 Optical Polymer Materials 3/3 Special topics on fabrication of ceramic film 3/3
	Chemical Process	Advanced numerical analysis 3/3 Reactor design 3/3 Advanced Transport Phenomena and Unit Operation 3/3 Advanced Thermodynamics 3/3	Advanced Process Control 3/3 Phase Equilibrium 3/3 Statistics and Experimental Design 3/3 Advanced Chemical Reaction Engineering 3/3	Special Topics on Process Design 3/3 Process integration with computer-aided design 3/3	System Engineering of Manufacturing Process 3/3
	Electrochemical and Energy Technology	Special topics in electrochemistry 3/3 Advanced Electrochemistry 3/3 Special Topics on Energy Technology 3/3 Principle and Application for Panel Display 3/3	Sensor For Electrochemistry 3/3 Energy storage devices 3/3 Synthesis and Analysis For Electrochemistry 3/3	Electrochemical anticorrosive Technology 3/3 Development and fabrication of batteries 3/3 Special Topic of Solar Cells 3/3 Special Topics in Electrochemical Deposition Technology 3/3	Noble metal materials processing technology 3/3 Special topics on fuel cells 3/3
	Environmental Technology	Advanced Environmental Chemistry 3/3 Special Topics on Environmental Engineering 3/3 Special Topics of Nanotechnology for environmental engineering 3/3	Special Topics of Waste-Water Treatment 3/3 Special topics of air pollution control 3/3 Environment Examination 3/3 Special Topics on Pollution Control 3/3	Treatment toxic chemicals 3/3 Environmental Toxicology 3/3 Advanced Water Purification Technology 3/3	Selected Topics on Waste Treatment 3/3 Special Topics in cleaner production 3/3 Special Topics in Environmental Biotechnology 3/3
	Biochemical Technology	Special Topics in Biotechnology 3/3 Industrial Microbial Processes 3/3	Special Topics in Biochemical Engineering 3/3	Bioseparation 3/3	Special Topics in Biosensor 3/3
	other		Off-Campus Practicum 2/	Seminar (3)1/2	Seminar (4)1/2

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