

National Kaohsiung University of Applied Sciences  
 Division of Continuing and Extension Education  
 Mechanical Engineering Department, College of Engineering  
 Curriculum of Part-time Master's Program

Passed at Department Curriculum Committee Meeting on 16 03, 22  
 Passed at Department Affairs Meeting on 14 02, 17  
 Passed at College Curriculum Committee Meeting on 16 03, 30  
 Passed at University Curriculum Committee Meeting on 14 04, 25  
 Passed at Academic Affairs Meeting on 14 05, 21

Year	1 <sup>st</sup> academic year		2 <sup>nd</sup> academic year	
Semester	Semester 1	Semester 2	Semester 1	Semester 2
Required courses	Seminar 2/2	Research Methodology and Technical Thesis Writing(3/3)		Master thesis 6/6
Elective courses (Design and solid mechanics group)	The mechanics of Elasticity 3/3 Theory and design of mechanisms 3/3 Computer graphics 3/3 Finite Element Method - Theory and Application 3/3 Computer aided engineering analysis 3/3 Design and analysis of robot mechanisms 3/3	Advanced Mechanism Design 3/3 Advanced Dynamics 3/3 Theory and design of gearing 3/3 Reliability Engineering 3/3 Taguchi quality design method 3/3 Computational dynamics 3/3 Computer Aided Geometric Design 3/3 Continuum mechanics 3/3	Mechanics of vibration 3/3 Optimum Design 3/3	
Elective courses (Precision engineering group)	Manufacturing System Engineering 3/3 Theory of Engineering System 3/3 Remote networked manufacture 3/3 Image processing and machine vision 3/3 Patent Strategy and Practice 3/3	Applied plasticity 3/3 Case-Based Reasoning 3/3 Computer-Integrated Manufacturing 3/3 Manufacturing System and Strategy 3/3 Algorithms for Clustering Data 3/3 Design and analysis for nano-structure 3/3 Special Topics on Virtual Reality Technology Application 3/3 Comparative Study of Patent Dispute Cases 3/3 Special Topics on the Patent Design-Around 3/3 <a href="#">Design Principles of Precision Machine Tools</a> 3/3	Product design and manufacture 3/3	Technology Development and Knowledge Management 3/3
Elective courses (Energy engineering group)	Engineering analysis 3/3 Conductive Heat Transfer 3/3 Computational fluid dynamics 3/3 Solar Engineering 3/3 Quantum Mechanics 3/3 Polymer Processing 3/3 Multiphase flow 3/3	Convective heat transfer 3/3 Turbulent Flow 3/3 Viscous Flow 3/3 Micro Turbulent Theory 3/3 Renewable Energy 3/3 Multiphysics 3/3 Flat panel display technology and manufacturing 3/3 <a href="#">Principles of Refrigeration and Air-conditioning</a> 3/3	Radial Heat Transfer 3/3 Micro Heat Transfer 3/3 Heat Transfer Enhancement 3/3	

<p style="text-align: center;"><b>Elective courses (Opto-Mechatronics and Control group)</b></p>	<p>Optoelectronic engineering 3/3 Linear Systems 3/3 Optimal Control 3/3 Fuzzy System and Control 3/3 Principle of Mechatronics 3/3 Geometric optics 3/3 Special topics on microsystems 2/2 Special topics on microsensors 2/2 Special Topics on Micro Machining 2/2</p>	<p>Photo-electric inspection 3/3 Robust Control 3/3 Nonlinear Control 3/3 Electromagnetics 3/3 Dynamics of Mechatronic System 3/3 Artificial Neural Network 3/3 Vibration control 3/3 Digital Signal Processing 3/3 Digital Control 3/3 Advanced Electronics 3/3 Advanced geometrical optics 3/3</p>	<p>Micro-Sensor 3/3 Variable Structure Control 3/3 Adaptive Control Systems 3/3 Special Topics on Laser Machining 3/3 Principle and Application of Piezoelectric Actuator 3/3</p>	
<p style="text-align: center;"><b>Elective courses (Material and Nanotechnology group)</b></p>	<p>Manufacturing processes and equipments of semiconductor 3/3 Advanced Physical Metallurgy 3/3 Nanomaterials 3/3 Microsystem Engineering 3/3 Instrumental Analysis 3/3 Diffusion Theory 3/3 SEM (1) 3/3 Analysis of SEM 3/3</p>	<p>Lubrication theory 3/3 Micro Mechanics 3/3 Micro Machining Technology 3/3 Electronic Ceramics 3/3 Material of MEMS 3/3 Thermodynamics of Solid State 3/3 SEM (2) 3/3 Nanotechnology 3/3 Semiconductor Device and Material 3/3 Micro &amp; Nano Fabrication and Measurement Technology 3/3 Dangerous Machinery and Equipment 3/3</p>	<p>Machining Process of MEMS 3/3 System design of mems 3/3 Theory of Material Fracture 3/3 Materials for photo-electric applications 3/3 X-Ray Diffraction Analysis 3/3 X-Ray Crystallography 3/3</p>	

**Remarks:**

1. This curriculum is applied to students admitted in Academic Year **2018**
2. Credit hours of each course (or total) are marked with “credit/hour.”
3. The minimal credit number for graduation is 38, including 2 credits of seminars on special topics, 3 credits of Research Methodology and Technical Thesis Writing, 6 credits of Master thesis (based on the semester the thesis is presented), and 27 credits of elective courses.
4. Elective courses: the courses listed in the table are planned courses, which will be offered based on practical needs.
5. For other relevant regulations, please refer to the guidelines on part-time studies for master’s degree established by the department.