

National Kaohsiung University of Applied Sciences  
 Mechanical Engineering Department, College of Engineering  
 Curriculum of Four-Year Program(General group) in Academic Year 2018

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		3 <sup>rd</sup> academic year		4 <sup>th</sup> academic year	
Semester	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
University required common courses (29/51)	Physical education (1) 0/2 Chinese (1) 2/2 Practical English 2/2 Service learning (1) 0/2.5 Core curriculum (1) 2/2 The Goal of University Education 0/1	Physical education (2) 0/2 Chinese (2) 2/2 Advanced Practical English 2/2 Service learning (2) 0/2.5 Core curriculum (2) 2/2	Physical education (3) 0/2 English Listening and speaking Training (1) 1/2 Core curriculum (3) 2/2	Physical education (4) 0/2 English Listening and Speaking Training (2) 1/2 Core curriculum (4) 2/2 Applied Literature and Writing Practice 2/2	Physical education (5) 0/2 English Training 0/2 Core curriculum (5) 2/2	Physical education (6) 0/2 Extended General Education 2/2 Professional ethics 1/1	Extended General Education 2/2 Extended General Education 2/2	
Total	6/11.5	6/10.5	3/6	5/8	2/6	3/5	4/4	
College required common courses (6/6)	Physics(1) 3/3 Calculus (1) 3/3							
Total	6/6							
Department required professional courses (73/93)	Physics lab (1) 1/3 Computer Programming 2/3 Computer aided mechanical drawing 2/3 Metrology engineering and experiment 2/3 Chemistry 3/3	Physics(2) 3/3 Physics lab (2) 1/3 Calculus (2) 3/3 Engineering Mechanics-Statics 3/3 Precision manufacturing 3/3 Mechanical manufacture practice 1/3 Engineering materials 3/3	Engineering mathematics (1) 3/3 Dynamics 3/3 Thermodynamics 3/3 Mechanics of materials 3/3 Electromechanics 3/3	Engineering mathematics (2) 3/3 Fluid mechanics 3/3 Mechanisms 3/3 Materials Testing 1/3 Electrical Experiment. 1/3 Computer numerical control and practice 2/3 Off-Campus Practicum 2/320 hr	Mechanical design 3/3 Heat transfer 3/3 Automatic control systems 3/3 Applied electronics 3/3 Practical project (1) 1/3	Practical project (2) 1/3 Electronic circuit practice 1/3 Thermofluid experiment 1/3		
Total	10/15	17/21	15/15	15/18	13/15	3/9		

Department elective professional courses (27)	Track of 18	Engineering Graphics 2/3 Introduction of mechanical engineering 2/2	Advanced computer aided mechanical drawing 2/3	Introduction to engineering design 3/3 Casting 3/3	Computer Aided Solid Geometric Design 3/3 Cutting principle 3/3 Applied Mechanics of Materials 3/3 Applied thermodynamics 3/3 Industrial Safety and Sanitation 3/3 Ergonomics / human Factors 3/3 Machine tools 3/3	Dynamics of Machines 3/3 Computer Aided Mechanism Design 3/3 Metal Forming 3/3 Computer aided Manufacture 3/3 Heat Engines 3/3 Numerical analysis 3/3 Manufacturing process analysis and design 3/3 Nondestructive Examination 3/3 Introduction to Productivity 4.0 3/3	3D computer graphics programming 3/3 Application of mechanical design 3/3 Creative Mechanism Design 3/3 Non-traditional machining processes 3/3 Energy Application 3/3 Internal Combustion Engine 3/3 Creative Design Methods 3/3 Optoelectronic engineering 3/3 Heat Exchanger Design and Its Application 3/3 Metal Forming Process Design and Analysis 3/3 Taguchi quality design 3/3 Principles and Applications of Microprocessor 3/3 Intelligent Manufacturing 3/3	Finite Element Analysis 3/3 Power plant 3/3 Plastics injection molding 3/3 Patent analysis 3/3 Factory management 3/3 Fabrication and Inspection of Pressure Vessel 3/3 Semester Off-Campus Practicum(1) 9/9	Laser Machining 3/3 Refrigeration & air conditioning 3/3 Die & mold design 3/3 Reverse Engineering 3/3 Introduction to LCD fabrication technology 3/3 Precision Machinery Calibration and Compensation 3/3 Labor safety and health law 2/2 Semester Off-Campus Practicum(2) 9/9 Design of Pressure Vessel 3/3

### I. 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. Courses of inter-disciplinary programs offered by other departments shall be regarded as elective professional courses of the department.
4. Military Education has become elective courses since Academic Year 2011. The credits are not counted to meet graduation requirements. The courses shall be offered based on practical needs.
5. The course of English Training shall be handled in accordance with the regulations governing undergraduate students’ exemption of English training courses of the University.
6. Elective courses: the courses listed in the table are planned courses, which will be offered based on practical needs.
7. For other instruction on course selection, students must follow “Course Selection Guidelines” of the University.

### II. Requirement for graduation:

1. The minimal credit number for graduation is 135: (1) 29 credits of University required common courses (including General Education Core and Entention courses) (2) 6 credits of College required common courses (3) 73 credits of department required professional courses (4) at least 27 credits of department elective professional courses (A maximum of 3 credits of from elective professional courses offered by other departments will be recognized.)
2. Students are required to complete the courses of at least one program at the University. (Students may also fulfill the requirement by completing the courses of a module or a track and obtaining a certificate at the department.)
3. Students admitted since Academic Year 2013 are required to complete at least one long-distance course in order to graduate.
4. General Education Core I to V do not have to be taken in sequence. Two to three courses are offered for each core. Students may take a course in each category and acquire 10 credits in total. Courses offered are as follows :
  - General Education Core I : Reading of Humanistic Masterpieces; Introduction to Artistic Creativity
  - General Education Core II: Sociology and Contemporary Society; Management and Knowledge Economics
  - General Education Core III: The Laureates of Nobel Prizes; Modern Issues of Technology
  - General Education Core IV: Taiwan Society and Culture; History of Modern Western Civilization; Introduction to Philosophy
  - General Education Core V: Democracy and Law; Modern Civil Consciousness
5. General Education Extension are separated into three categories—society, humanities, and technology. Students must take three courses for 6 credits.
6. Physical Education is a required course in the first year. The credits are not counted to meet graduation requirements. Students who fail in the course are not allowed to graduate.
7. Students admitted since Academic Year 2013 must obtain a certificate of English proficiency equivalent to TOEIC 400 for graduation.
8. Practicum outside the campus is a University required course and shall be handled in accordance with “National Kaohsiung University of Applied Sciences Regulations Governing Students' Practicum outside the Campus.”

National Kaohsiung University of Applied Sciences  
 Mechanical Engineering Department, College of Engineering  
 Curriculum of Four-Year Program(Mechatronic group) in Academic Year 2018

Passed at Department Curriculum Committee Meeting on 15 03, 25  
 Passed at Department Affairs Meeting on 14 02, 17  
 Passed at College Curriculum Committee Meeting on 14 04, 07  
 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		3 <sup>rd</sup> academic year		4 <sup>th</sup> academic year	
Semester	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
University required common courses (29/51)	Physical education (1) 0/2 Chinese (1) 2/2 Practical English 2/2 Service learning (1) 0/2.5 Core curriculum (1) 2/2 The Goal of University Education 0/1	Physical education (2) 0/2 Chinese (2) 2/2 Advanced Practical English 2/2 Service learning (2) 0/2.5 Core curriculum (2) 2/2	Physical education (3) 0/2 English Listening and Speaking Training (1) 1/2 Core curriculum (3) 2/2	Physical education (4) 0/2 English Listening and Speaking Training (2) 1/2 Core curriculum (4) 2/2 Applied Literature and Writing Practice 2/2	Physical education (5) 0/2 Core curriculum (5) 2/2 English Training 0/2	Physical education (6) 0/2 Extended General Education 2/2 Professional ethics 1/1	Extended General Education 2/2 Extended General Education 2/2	
Total	6/11.5	6/10.5	3/6	5/8	2/6	3/5	4/4	
College required common courses (6/6)	Physics(1) 3/3 Calculus (1) 3/3							
Total	6/6							
Department required professional courses (74/99)	Physics lab (1)1/3 Computer Programming 2/3 Computer aided mechanical drawing1/3 Metrology engineering and experiment1/3 Chemistry 3/3	Physics(2) 3/3 Physics lab (2) 1/3 Calculus (2) 3/3 Engineering Mechanics-Statics 3/3 Engineering materials 3/3 Electromechanics 3/3 Mechanical manufacture practice 2/4	Engineering mathematics (1) 3/3 Dynamics 3/3 Thermodynamics 3/3 Mechanics of materials 3/3 Photo-electric inspection3/3 Electrical Experiment. 1/3	Engineering mathematics (2) 3/3 Fluid mechanics 3/3 Mechanisms 3/3 Materials Testing 1/3 The principles and applications of sequential control 3/3 Off-Campus Practicum 2/320 hr Photo-Electric Engineering&Practice 2/4	Mechanical design 3/3 Automatic control systems 3/3 Applied electronics 3/3 Principles and Applications of Microprocessor 2/4 Practical project (1) 1/3	Practical project (2) 1/3 Electronic circuit practice 1/3 Thermofluid experiment 1/3		
Total	8/15	18/22	16/18	17/19	12/16	3/9		

Department elective professional courses (26)	Track of 15	Engineering Graphics 2/3	Introduction to micro-system 3/3	Electromagnetics 3/3	Electric Machinery 3/3	Dynamics of Machines 3/3	Vibrations 3/3	Robotics 3/3	Optimum Design 3/3
		Introduction of mechanical engineering 2/2	Object-oriented Programming 3/3	Hydraulic Engineering 3/3	Pneumatic Engineering and Practice 2/4	Computer Aided Mechanism Design 3/3	Automatic mechanism design 3/3	Manufacturing processes and equipments of semiconductor 3/3	Servo control 3/3
				Machine tools 3/3	Thermodynamics 3/3	Software Engineering 3/3	Logic Design 3/3	Image Processing and Measurement 3/3	Dynamics of Mechatronic System 3/3
				Principles of sensors and practice 1/3	Pneumatic Engineering and Practice 2/4	Intelligent Materials 3/3	Control System Design and Simulation 3/3	Factory management 3/3	Remote Control Project 3/3
						Micro-system manufacturing process 3/3	Micro-System Technology and Application 3/3	Introduction to Modern Optical Engineering 3/3	Display Technologies 3/3
						Virtual reality technology and application 3/3	Mechatronics 3/3	Operations Management 3/3	Advanced Modern Optical Engineering 3/3
						Introduction to Productivity 4.0 3/3	Creative Mechanism Design 3/3	The Industrial Japanese 3/3	Quality Management 3/3
							Intelligent Manufacturing 3/3	Automatic Control and Practice 1/3	Integration and Introduction to E&M of Transit System 3/3
								Fabrication and Inspection of Pressure Vessel 3/3	PC-Based Control & Practice 2/4
								Programmable Logic Controller and Practice 2/4	Semester Off-Campus Practicum(4) 9/9
								Semester Off-Campus Practicum(1) 9/9	Design of Pressure Vessel 3/3
								Electric Vehicle Technology 3/3	

### I. 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. Courses of inter-disciplinary programs offered by other departments shall be regarded as elective professional courses of the department.
4. Military Education has become elective courses since Academic Year 2011. The credits are not counted to meet graduation requirements. The courses shall be offered based on practical needs.
5. The course of English Training shall be handled in accordance with the regulations governing undergraduate students’ exemption of English training courses of the University.
6. Elective courses: the courses listed in the table are planned courses, which will be offered based on practical needs.
7. For other instruction on course selection, students must follow “Course Selection Guidelines” of the University.

### II. Requirement for graduation:

1. The minimal credit number for graduation is 135: (1) 29 credits of University required common courses (including General Education Core and Extension courses) (2) 6 credits of College required common courses (3) 74 credits of department required professional courses (4) at least 26 credits of department elective professional courses (A maximum of 3 credits of from elective professional courses offered by other departments will be recognized.)
2. Students are required to complete the courses of at least one program at the University. (Students may also fulfill the requirement by completing the courses of a module or a track and obtaining a certificate at the department.)
3. Students admitted since Academic Year 2013 are required to complete at least one long-distance course in order to graduate.
4. General Education Core I to V do not have to be taken in sequence. Two to three courses are offered for each core. Students may take a course in each category and acquire 10 credits in total. Courses offered are as follows :  
 General Education Core I : Reading of Humanistic Masterpieces; Introduction to Artistic Creativity  
 General Education Core II: Sociology and Contemporary Society; Management and Knowledge Economics  
 General Education Core III: The Laureates of Nobel Prizes; Modern Issues of Technology  
 General Education Core IV: Taiwan Society and Culture; History of Modern Western Civilization; Introduction to Philosophy  
 General Education Core V: Democracy and Law; Modern Civil Consciousness
5. General Education Extension are separated into three categories—society, humanities, and technology. Students must take three courses for 6 credits.
6. Physical Education is a required course in the first year. The credits are not counted to meet graduation requirements. Students who fail in the course are not allowed to graduate.
7. Students admitted since Academic Year 2013 must obtain a certificate of English proficiency equivalent to TOEIC 400 for graduation.
8. Practicum outside the campus is a University required course and shall be handled in accordance with “National Kaohsiung University of Applied Sciences Regulations Governing Students’ Practicum outside the Campus.”

National Kaohsiung University of Applied Sciences  
 Mechanical Engineering Department, College of Engineering  
 Curriculum of Four-Year Program (Micro-Nano Technology group) in Academic Year **2018**

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		3 <sup>rd</sup> academic year		4 <sup>th</sup> academic year	
Semester	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
University required common courses (29/51)	Physical education (1)0/2 Chinese (1) 2/2 Practical English 2/2 Service learning (1) 0/2.5 Core curriculum (1) 2/2 The Goal of University Education 0/1	Physical education (2) 0/2 Chinese (2) 2/2 Advanced Practical English 2/2 Service learning (2) 0/2.5 Core curriculum (2) 2/2	Physical education(3)0/2 English Listening and Speaking Training (1)1/2 Core curriculum (3) 2/2	Physical education (4)0/2 English Listening and Speaking Training (2) 1/2 Core curriculum (4) 2/2 Applied Literature and Writing Practice 2/2	Physical education (5)0/2 English Training 0/2 Core curriculum (5) 2/2	Physical education (6)0/2 Extended General Education 2/2 Professional ethics 1/1	Extended General Education 2/2 Extended General Education 2/2	
<b>Total</b>	6/11.5	6/10.5	<b>3/6</b>	<b>5/8</b>	2/6	3/5	4/4	
College required common courses (6/6)	Physics(1) 3/3 Calculus (1) 3/3							
<b>Total</b>	6/6							
Department required professional courses (74/93)	Physics lab (1) 1/3 Computer Programming2/3 Computer aided mechanical drawing 2/3 Metrology engineering and experiment 2/3 Chemistry 3/3	Physics(2) 3/3 Physics lab (2) 1/3 Calculus (2) 3/3 Engineering Mchanics-Statics 3/3 Precision manufacturing3/3 Mechanical manufacture practice 1/3 Engineering materials 3/3	Engineering mathematics (1) 3/3 Dynamics 3/3 Thermodynamics 3/3 Mechanics of Materials 3/3 Electromechanics 3/3	Engineering mathematics (2) 3/3 Fluid mechanics 3/3 Mechanisms 3/3 Materials Testing 1/3 Electrical Experiment. 1/3 Microsystem Engineering Off-Campus Practicum 2/320hr	Mechanical design 3/3 Automatic control systems 3/3 Applied electronics 3/3 Nanomaterials 3/3 Practical project (1) 1/3	Practical project (2) 1/3 Electronic circuit practice 1/3 Thermofluid Experiment 1/3		
<b>Total</b>	10/15	17/21	15/15	16/18	<b>13/15</b>	3/9		

Department elective professional courses (26)	Track of 17	Introduction of mechanical engineering 2/2 Engineering Graphics 2/3	Introduction to micro-system 3/3	Material Science 3/3 Biological Technology 3/3 Patent and Life Application 3/3	Applied Mechanics of Materials 3/3 Mechanical behavior of materials 3/3 Applied thermodynamics 3/3 Green Energy 3/3	Material Design and Selection 3/3 Intelligent Materials 3/3 Heat treatment 3/3 Principles and Applications of Sensors 3/3 Micro Element system Design and Analysis 3/3 Fluid dynamics 3/3 Heat transfer 3/3 The principles and applications of sequential control 3/3	Material instrument and analysis 3/3 Ceramic materials 3/3 Micro-System Packaging 3/3 Powder metallurgy 3/3 Heat Exchanger Design and Its Application 3/3 Manufacturing processes and equipments of semiconductor 3/3 Air Dynamics 3/3	Surface Treatment 3/3 Fuel Cell 3/3 Composite materials 3/3 Micro-System Measurement 3/3 Factory management 3/3 Automobile 3/3 Flat Panel Display 3/3 Plastics injection molding 3/3 Physical Metallurgy 3/3 Injection Molding Machine Design 3/3 Fabrication and Inspection of Pressure Vessel 3/3 Semester Off-Campus Practicum(1) 9/9	Thin-Film Engineering 3/3 Biological Micro-System Technology 3/3 Micro Tribology 3/3 Nanotechnology 3/3 Introduction to LCD fabrication technology 3/3 Fatigue and Fracture of Material 3/3 Semester Off-Campus Practicum(2) 9/9 Design of Pressure Vessel 3/3

### I. 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.”
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 General Education Core III: The Laureates of Nobel Prizes; Modern Issues of Technology  
 General Education Core IV: Taiwan Society and Culture; History of Modern Western Civilization; Introduction to Philosophy  
 General Education Core V: Democracy and Law; Modern Civil Consciousness
5. General Education Extension are separated into three categories—society, humanities, and technology. Students must take three courses for 6 credits.
6. Physical Education is a required course in the first year. The credits are not counted to meet graduation requirements. Students who fail in the course are not allowed to graduate.
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