

# Mechanical Engineering Curriculum for the Class of 2023

May 23, 2023 Passed by the Departmental Curriculum Committee at its 3<sup>rd</sup> meeting, Spring semester, Academic Year 2022-23

May 23, 2023 Passed by the Departmental Affairs Meeting at its 4<sup>th</sup> meeting, Spring semester, Academic Year 2022-23

Approved at the 3<sup>rd</sup> College Curriculum Meeting of academic year 111, on May 31, 2023

Approved at the 4<sup>th</sup> University Curriculum Meeting of academic year 111, on Jun 14, 2023

	Freshman				Sophomore				Junior				Senior				
	Fall		Spring		Fall		Spring		Fall		Spring		Fall		Spring		
Common Required Courses (6 credits)	physical education (I)	0/2	physical education (II)	0/2													
	Freshman English(I)	2/2	Freshman English(II)	2/2	Freshman English(III)	1/2	Freshman English(IV)	1/2									
General Education Courses (22 credits)	Core course	2/2	Core course	2/2	Core course	2/2	Elective course	2/2	Elective course	2/2	Elective course	2/2					
	Core course	2/2	Core course	2/2	Core course	2/2	Elective course	2/2	Elective course	2/2							
Required Courses (50 credits)	Engineering Graphics and Computer Practice	1/3	Computer Aided Drawing Practice	1/3	Engineering Materials and Manufacturing Processes	3/3	Experiments on Electrical and Mechanical Engineering	1/3	Machine Design	3/3	Mechatronics	3/3					
	Experimental Physics ( I )	1/3	Statics and Mechanics of Materials	3/3	Dynamics	2/2	Thermal Fluid Engineering (I)	2/2	Project of Mechanical Engineering Design	3/3	Senior Projects★	1/3					
	Language Programming★	3/3	Experimental Physics ( II )	1/3	Electrical Engineering	3/3	Engineering Statistics★	3/3	Thermal Fluid Engineering (II)	2/2							
			Calculus★	4/4	Programmable Logic Controller★	2/2											
			Physics	3/3	Theory of Mechanisms	2/2											
					Engineering Mathematics★	3/3											
Required Elective Courses (7 credits)	Creativity Engineering	2/2					Introduction to Smart Automation★	2/2									
	3D Printer Technology★	3/3															
Professional Elective Courses  (Adjustments will be made based on the actual start of classes)							Micro-processor	3/3	Sensor Principle and Application	2/2	Machine Vision and Inspection	2/2	Tolerance Design	2/2	Principle and Application of Laser	3/3	
							Introduction of machining tools	3/3	Automatic Control Systems	2/2	Intelligent robot★	2/2	Computer Numerical Control Machine Tools	3/3	Signal Processing	3/3	
							Introduction of precision machines	2/2	Opto-Mechanical Design	3/3	Design of Opto-Mechatronic Systems	2/2	Non-traditional Machining	2/2	Quality Control and Reliability Engineering	3/3	
							Introduction to Unmanned Aerial Vehicles	3/3	Fundamental Optics	3/3	Human-Computer Interaction Design	3/3	Intelligent Factory	3/3	Business Experience★	3/3	
							An Introduction to Aeronautical Engineering	2/2	Software Engineering	3/3	Servo Control System	3/3	Manufacturing Practice	3/3	Factory Practice★	3/3	
									Precision Machining	2/2	Computer Aided Engineering	3/3	Employment Ethics	3/3	Work Ethics	3/3	
									Computer-Aided Manufacturing	3/3	Precision Measurement	2/2	Internships★	3/3	Overseas Professional Internship	2/2	
									Flight Principles and Simulator Implementation	2/2	Principles & Applications of Precision Machine Design	3/3					
											Airplane Structure and Processing of Composite Material	2/2					
											Aircraft Engines and Gas Turbines	2/2					

Required Credits : 78 (Including 50 Credits of Professional Required Courses, 6 Credits of English Course and 22 Credits of General Education Courses which include 12 Credits of Core General Education Courses and 10 Credits of Elective General Education Courses.)

Elective Credits : 50 (Including 7 Credits of Department Required Courses, 34 Credits of Department Elective Course and 9 Credits in Other Department)

Graduation Credits : 128 Credits

**Compulsory notices for schools and colleges :**

1. Students of this department eligible for graduation must study and pass English and multiple general education courses (GEC) according to "Chung Hua University (CHU) English courses", "internal and external certification exam", and "workplace English coursework essentials" and " CHU GEC regulations".  
There are 22 credits of GEC required in the regulation.  
(1) 12 credits of core GEC divided into three categories, such as "social care" (containing "humanistic cultivation" and "social observation"), "innovation and creativity" (containing "artistic perception" and "scientific inquiry"), and "health promotion" (containing "self-exploration" and "biomedicine and health care"), at least passing two core GEC of each category & contain at least 4 dimensions.  
(2) 10 credits of multiple elective courses.
2. In order to achieve the "Communication and Expression Ability" in the Basic Competency Index of CHU students, students of this department must complete and pass the English language test and the Chinese language test in accordance with the "Regulations for the Implementation of the English Language Test for CHU Students" within the period of study to be eligible for graduation.
3. In order to achieve the "Information Application Ability" in the Basic Competency Index of CHU students, in accordance with the "Regulations for the Implementation of Information Application Ability Testing at CHU", and complete the required credits. The course is designed for students who have completed the required credits and passed the information application test.
4. In order to achieve the "Innovation and Creativity" in the basic competency index of CUH students, students must pass the assessment criteria and take the "Creativity Engineering" course and the "Senior Projects" courses, which are required for the department's major, within the period of study. The student is eligible for graduation.
5. In order to achieve the "Social Care Ability" in the basic competency index of CHU students, students of this department must complete the required hours of service according to the "Implementation Guidelines for CUH Volunteer Campus Culture Promotion" within the term of study in order to be eligible for graduation.
6. In order to achieve the "Health and Fitness Ability" in the Basic Competency Index of CHU students, students must complete the required credits and pass the swimming ability and physical fitness tests in accordance with the "Regulations for Physical Education Courses at CHU" within the period of study to be eligible for graduation.
7. Total 6 elective courses are related to enterprise practice in this department: "Employment Ethics", "Manufacturing Practice", "Internships", "Factory Practice", "Business Experience", and "Work Ethics", according to "Implementation measures for off-campus internships in the department of Mechanical Engineering".
8. The core curriculum of the institute is to ★ be noted. ("3D Printer Technology" is recognized as an introduction to computers, "Programming Language" is recognized as programming, "Introduction to Smart Automation" and "Intelligent robot" are recognized as an introduction to artificial intelligence, "Calculus", "Engineering Mathematics", and "Engineering Statistics" are recognized as mathematics, "Senior Projects" is recognized as a topic, and "Internships", "Business Experience", and "Factory Practice" are recognized as an internship).
9. In order to cultivate and enhance students' AI and metaverse application capabilities of the latest technologies, so that students in the first year have the latest technical knowledge, students of this school are requested to complete the "AI Experience 2.0 Course" in their first year, and the credits obtained can be recognized within 9 credits of the external department.
10. Description of "Exploring the Science Park" course: In order to cultivate students' independent learning ability, understand SDGs issues, and start freshman independent exploration and learning, students of our school must complete the "Exploring the Science Park" course in freshman year, and the credits obtained can be recognized within 9 credits of external departments.
11. The elective credits for graduation from this department must be 9 credits from other departments, including "Exploring the Science Park" and "AI Experience 2.0", (Transfer students and foreign students are exempt from taking the course) but excluding general education.