機械工程學系
Department of Mechanical Engineering
114 學年度(Academic Year 114)

專業科目 Professional courses
一、必修課程 Required courses

科目名稱 Subjects	規定學分 Required Number of Credits	第一學年 1st Grade		第二學年 2nd Grade		第三學年 3rd Grade		第四學年 4th Grade		備註 Note
		上 1st Semester	下 2nd Semester	上 1st Semester	下 2nd Semester	上 1st Semester	下 2nd Semester	上 1st Semester	下 2nd Semester	
微積分 Calculus	8	4	4							
物理 General Physics	10	5	5							含物理實驗二學分 Including 2 credits of Physics Labs.
化學 General Chemistry	4	4								含實驗一學分 Including 1 credit of Labs.
圖學 Graphics	1	1								
學術倫理 Academic Ethics	0									本課程採網路教學方式實施 This course is conducted through online teaching.
服務學習(一) Service Learning I	0	0								
服務學習(二) Service Learning II	0		0							
應用力學 Applied Mechanics	6		3		3					
工程數學 Engineering Mathematics	6			3	3					
工程材料 Engineering Materials	3		3							
機動學 Mechanism	3			3						
熱力學(一) Thermodynamics (I)	3			3						
材料力學 Mechanics of Materials	3			3						
工場實習 Workshop Practice	2				2					
機械製造	3				3					

Mechanical Manufacturing										
電工學 Electrical Circuit Theory	4				3	1				包括電工實驗 Including Electrical Engineering Labs.
計算機程式 Computer Programming	3					3				
機械設計原理 Principles of Mechanical Design	3					3				
流體力學 Fluid Mechanics	3					3				
機械工程實驗(一) Mechanical Engineering Labs. (I)	1					1				
自動控制(一) Automatic Control (I)	3					3				
機械實作 Mechanical Practice	3						3			
機械工程實驗(二) Mechanical Engineering Labs. (II)	1						1			
熱傳學 Heat Transfer	3						3			
合計 Sum	76	14	15	12	14	14	7	0	0	
本系最低畢業學分為 131 學分， The minimum credits for graduation are 131 credits.										

快樂機械人(一)(一上、0 學分、2 小時)、快樂機械人（二） (一下、0 學分、2 小時)、計算機概論(一上、3 學分、3 小時)，每位學生都要修習一次，以上三門課程如未通過無需重修 。

Happy Mechanical Engineers (I) (the 1st semester of the 1st academic year, 0 credit and 2 hours), Happy Mechanical Engineers (II) (the 2nd semester of the 1st academic year, 0 credit and 2 hours) and Introduction of Computer Science (the 1st semester of the 1st academic year, 3 credit and 3 hours) are obligatory for each student to take for once. If a student fails to pass the three courses, he or she does not have to retake the three courses.

二、選修課程 Elective courses

大學部學生於畢業前需修畢系上選修課程至少 6 門，其中核心領域課程至少選修三項領域，其中一項領域至少修畢 2 門課程，另二項領域至少各修畢 1 門課程。修畢大學部專題(一)與大學部專題(二)者，可合併列計為一門課程。上表新增之科目及備註說明，得溯及既往。(上述未及備載之科目，得經由系主任簽核認定為該領域之科目)

Note: Undergraduate students need to have completed at least six elective courses before graduation. At least three of the four core fields must be selected, in which at least two courses must be completed in one of the three fields and at least one course must be completed in each of the other two fields. Students who have passed both Supervised Independent Study (I) and Supervised Independent Study (II) can combine them as one elective course. The notes and subjects newly added to the table of courses can be recognized retrospectively.

(Subjects that are not listed in the table of courses can be reviewed, recognized and approved for particular fields by the department chair.)

機械工程學系四項核心選修課程領域
The Four Fields of the Core Elective Curricula of the Department of Mechanical Engineering

領域名稱 Fields	核心選修科目 Core Elective Curricula
能源與熱流 Energy and Heat Flow	低溫電漿原理與應用、流體力學實驗方法、黏性流體力學、熱力學(二)、能源科技、冷凍空調、中等流體力學、計算流體力學、熱傳導與熱輻射、基礎推進系統介紹、熱交換器設計、**渦輪機械設計**、燃燒學概論、大學部專題(一)&(二) Fundamentals and Applications of Low-temperature Plasmas, Experimental Methods in Fluid Mechanics, Viscous Fluid Dynamics, Thermodynamics (II), Energy Technology, Refrigeration and Air-Conditioning Engineering, Intermediate Fluid Mechanics, Computational Fluid Mechanics, Heat Conduction and Radiation, Introduction to Propulsion, Heat Exchanger Design, **Turbomachinery Design**, Combustion Fundamentals, Supervised Independent Study (I) & (II)
機械與生物力學 Machine and Biomechanics	中等材料力學、振動學、應用生物力學、生物流體力學、有限元素法、大學部專題(一)&(二) Intermediate Mechanics of Materials, Vibration, Occupational Biomechanics, Biofluid Mechanics, Finite Element Method, Supervised Independent Study (I) & (II)
感測與控制系統 Sensing and Control Systems	自動控制（二)、電動機械、微處理機、應用電子學、感測器原理與量測系統、訊號與系統、大學部專題(一)&(二) Automatic Control (II), Electromechanical Device, Microprocessor, Applied Electrics, Principles of Sensors and Measurement Systems, Signals and Systems, Supervised Independent Study (I) & (II)
機械設計與製造技術 Machine Design and Manufacturing Techniques	微流體系統與應用、合金製作原理與應用、微機電技術導論、精密工程基礎、機電系統設計與實務、數值控制工具機之程式教學及實作、智慧型材料與奈微米元件、雷射精密加工與應用、大學部專題(一)&(二) Microfluidic System and Applications, Formation Principle and Applications of Alloys, Introduction of MEMS Technology, Fundamentals of Precision Engineering, Mechatronics Design and Practice, CNC Machine Exercising, Smart Materials and Micro/Nano Device, Laser Precision Machining and Applications, Supervised Independent Study (I) & (II)

機械工程學系輔系科目表
Table of Minor Subjects of the Department of Mechanical Engineering
114 學年度(Academic Year 114)

科目名稱 Subjects	學分數 Number of Credits	科目名稱 Subjects	學分數 Number of Credits
應用力學 Applied Mechanics	6	熱力學(一) Thermodynamics (I)	3
材料力學 Mechanics of Materials	3	流體力學 Fluid Mechanics	3
圖學 Graphics	1	機械製造 Mechanical Manufacturing	3
工程材料 Engineering Materials	3	機動學 Mechanism	3
		機械設計原理 Principles of Mechanical Design	3
輔系最低應修學分為 28 學分 The required minimum credits for minor subjects are 28 credits.			
如上列之必修課已為原系之必修課，則在本系專業課程中補足。			

If the compulsory subjects listed above are also the compulsory ones in the original department of the student who minors in Mechanical Engineering, then the compulsory subjects shall be selected and completed from the professional courses provided by Department of Mechanical Engineering.