

明志科技大學四技部112學年度入學 機械工程系車輛組 課程總表

114/3/4	校課程委員會審議通過
114/1/3	院課程委員會審議通過
113/11/27	系課程委員會審議通過

		科 名 稱	一上		一下		二上		二下		三上		三下		四上		四下		每班人數		備註				
			學分	時數	學分	時數	學分	時數	學分	時數	學分	時數	學分	時數	學分	時數	學分	時數	上	下					
必修 (41學分)	基礎課程	全民國防教育軍事訓練(一)(二)			0	2	0	2																	
		體育(一)(四)(Physical Education)			1	2	1	2	1	2	1	2													
		永續發展與社會實踐(Sustainable Development and Social Practice)			1	1																			
		文學鑑賞與情意表達(Appreciation of Literature and Emotional Expression)			2	2																			
		文藝活動與社會參與(Art Literacy and Social Participation)			1	1																			
		生活與職業英文(一)(二)(English for Life and Business)			3	3	3	3																	
		英語聽講(一)(二)(Aural-Oral English)							1	2	1	2													
		英文實務(一)(二)(Practical English)													1	2	1	2							
		社會哲學領域(Social Philosophy)							3	3											(「憲政與法治」、「歷史與鄉土」課程)				
		合 計			7	10	6	9	5	7	2	4	0	0	0	0	1	2	1	2		22			
		必修 (41學分)	核心課程	大學之道(The Goal of University Education)			1	2																	
				設計思考(Design Thinking)					1	1															
勤勞教育(一)(二)(Labor Education)					0	0.5	0	0.5																	
合 計					1	2.5	1	1.5	0	0	0	0	0	0	0	0	0	0	0	0					
必修 (41學分)	共同課程			實習前職場素養訓練(Professionalism Prior to Curricular Practical Training)									1	1											
				工讀實務實習(一)(四)(Curricular Practical Training I-IV)												16									
				合 計			0	0	0	0	0	0	0	0	1	1	16	0	0	0	0	0			
				必修 (41學分)	院系必修	實習前技術訓練(Hands-on Courses Prior to Curricular Practical Training)									1	2									
						普通物理(一)(General Physics I)			3	3															
						微積分(一)(二)(Calculus I & II)			3	3	3	3													
						工程數學(一)(Engineering Mathematics I)							3	3											
						合 計			6	6	3	3	3	3	0	0	1	2	0	0	0	0	0	0	
		必修 (41學分)	專業必修			普通物理與實驗(General Physics with Laboratory)					2	2	3	4											
						普通化學(General Chemistry)							2	2	3	4									
						電腦輔助機械製圖(Computer-Aided Mechanical Drawing)					3	3													
						計算機程式與實習(Computer Programming and Practice)							3	3											
靜力學(Statics)																									
動力學(Dynamics)											2	2													
工程熱力學(一)(Engineering Thermodynamics I)													3	3											
材料科學與工程實驗(Materials Science and Engineering Laboratory)											3	4									全英語授課English-taught course				
材料力學與實驗(Mechanics of Materials with Laboratory)											3	4													
機械學(Mechanism of Machinery)											3	3													
自動控制(一)(Automatic Control I)													3	3											
流體力學(Fluid Mechanics)													3	3											
必修 (41學分)	專業必修	專題製作(一)(二)(Special Project I, II)													1	3	1	3							
		機械元件設計(一)(X)(Design of Machine Elements I)														3	3								
		工程倫理與專業實務講義(Lectures in Engineering Ethics and Practice)														1	2								
		合 計			5	5	8	9	9	11	6	6	6	6	0	0	5	8	1	3		40			
		必修 (41學分)	通識選修	一、開課清單請參考「通識課程彙總表」。																					
				二、通識五類型課程「語言與全球化、人文藝術、社會研究與未來趨勢、自然科學與環境永續、自主學習」。																					
				任選四類型各修畢2學分且合計至少8學分。																					
				院專業選修(一)																					
				跨領域(一)石專題(一)(Interdisciplinary capstone course(I))									1	3									跨領域專題Interdisciplinary capstone		
				跨領域(二)石專題(二)(Interdisciplinary capstone course(II))											1	3							跨領域專題Interdisciplinary capstone		
				跨領域(三)石專題(三)(Interdisciplinary capstone course(III))													1	3					跨領域專題Interdisciplinary capstone		
				跨領域(四)石專題(四)(Interdisciplinary capstone course(IV))															1	3			跨領域專題Interdisciplinary capstone		
科技英文閱讀與聽力訓練(一)(Technical English: Reading and Listening I)				0	1																	榮譽學分學程課程Honors credit			
科技英文閱讀與聽力訓練(二)(Technical English: Reading and Listening II)						0	1															榮譽學分學程課程Honors credit			
科技英文閱讀與聽力訓練(三)(Technical English: Reading and Listening III)								0	1													榮譽學分學程課程Honors credit			
科技英文閱讀與聽力訓練(四)(Technical English: Reading and Listening IV)										0	1											榮譽學分學程課程Honors credit			
科技英文閱讀與聽力訓練(五)(Technical English: Reading and Listening V)										1	1									榮譽學分學程課程Honors credit					
科技英文專題報告(一)(Scientific Presentation in English(I))														2	2	2	2			榮譽學分學程課程Honors credit					
科技英文專題報告(二)(Scientific Presentation in English(II))																2	2	2	2	榮譽學分學程課程Honors credit					
特色專題(一)(Senior Capstone Project(I))																2	4			榮譽學分學程課程Honors credit					
特色專題(二)(Senior Capstone Project(II))																		2	4	榮譽學分學程課程Honors credit					
合 計			0	1	0	1	0	1	1	4	2	4	0	0	8	12	6	10			17				
必修 (41學分)	專業必修	車輛工程概論(Introduction of Vehicle Engineering)			3	3															模組(Module) A、B				
		汽車實習(一)(Automobile Workshop I)					3	3													模組(Module) A				
		電腦輔助機械實驗(Electronic Machinery with Laboratory)							3	3											模組(Module) A				
		汽車實習(二)(Automobile Workshop II)									3	3									模組(Module) A				
		電腦輔助工程分析(Computer-Aided Engineering)										3	3							30	模組(Module) A				
		內燃機(Internal Combustion Engines)											3	3							模組(Module) A				
		車輛性能與測試實驗(Vehicle performances and Testings)												3	3						模組(Module) A				
		機械元件設計(二)(Design of Machine Elements II)																3	3		模組(Module) A				
		軌道車輛概論(Railroad Vehicle System)					3	3													模組(Module) B				
		人工智慧與機械概論(Introduction to Artificial Intelligence & Internet of Things)							2	2	2	2										模組(Module) B、EMI課程English-			
		車輛電子學與實驗(Vehicle Electronics with Laboratory)									3	3	4								30	模組(Module) B			
		電動車輛實務(Electric Vehicle Practices)										3	3									模組(Module) B			
汽車感測與控制實務(Vehicle Sensors and Control Practices)											3	3							30	模組(Module) B					
車輛技術與整合實務(Practice of Vehicle Technology and Integration)												3	3							模組(Module) B					
車輛動力學(Vehicle Dynamics)												3	3							模組(Module) B					
電動車輛和(Electric Vehicle Technology)													3	3						模組(Module) B					
車輛系統模擬與分析(Vehicle System Modeling and Analysis)														3	3					模組(Module) B					
車輛元件設計分析(Design and Analysis of Vehicle Components)																			30	模組(Module) B、C					
電動車輛測試實務(Electric Vehicle Test Practice)																3	3			模組(Module) B					
專題初探(Special Project Exploring)			2	2																	模組(Module) C、D				
車輛專業英語(Professional English in Vehicle Engineering)							2	2													模組(Module) C				
製造原理(Manufacturing Principles)							3	3												20	模組(Module) C				
3D 列印實務與應用(3D Printing Practice and Application)									3	3											模組(Module) C				
專題實務(Special Project Practice)							1	1													模組(Module) C、D				
車輛材料(Materials in Vehicle Application)										3	3									20	模組(Module) C、D				
中等材料力學(Intermediate Mechanics of Materials)										3	3										模組(Module) C				
專題設計(一)(Special Project Design I)										1	1										模組(Module) C、D				
專題設計(二)(Special Project Design II)												1	1								模組(Module) C、D				
電腦輔助設計(一)(Computer-Aided Design I)													3	3						25	模組(Module) D				
電腦輔助設計(二)(Computer-Aided Design II)															3	3				25	模組(Module) C				
機構設計(Mechanism Design)																3	3				模組(Module) C				
機械工程概論(Introduction to Mechanical Engineering)			2	2																	模組(Module) D				
機械加工實務(Practical Training of Machining)			3	3																	模組(Module) D				
精密量測與實驗(Precision Measurement and Practice)																					模組(Module) D				
人工智慧概論(Introduction to Artificial Intelligence)					2	2															模組(Module) D				
工程數學(二)(Engineering Mathematics II)									3	3											模組(Module) D				
車輛底盤與實驗(Vehicle Chassis and Experiments)									3	4											模組(Module) D				
電力電子學(Power Electronics)											3	3								30	模組(Module) D				
工程熱力學(二)(Engineering Thermodynamics II)												3									模組(Module) D				
熱傳學(Heat Transfer)													3	3							模組(Module) D				
車廠經營與實務分析(Vehicle Assembly Plant Management)														3	3					30	模組(Module) D				
化工產業之機械實務講義(Lectures on electro-mechanical engineering practice for chemical industry)														3	3						模組(Module) D、化工系開設Offered				
無人載具技術與應用(Technology and Applications of Unmanned Vehicle)																3	3				模組(Module) D				
熱流工程實務(Thermal-Fluid Engineering Practice)																	3	3		25	模組(Module) D、具體照者不能修				
基礎機械維修車修實務(Scooter Maintenance Practices)											2	2								30	模組(Module) D				
基礎汽車保養實務(Car Maintenance Practices)																		2	2	30	模組(Module) D、具體照者不能修				
合 計			8	8	16	17	14	14	16	18	27	27	0	0	27	27	17	17			12				

- 學業最少應修 148 學分。
- 二、三必必修「實習前職場素養訓練」，三下必修「工讀實務實(一)(四)」，共 17 學分。
- 每學期選課上限為 27 學分，大一至大二選課下限為 16 學分，大三、四選課下限為 9 學分。
- 三上課程採取通漸方式（原一週授課時數三小時的課程變更為一週授課四小時）授課。
- 必修學程(二)、體育(四)，於大二至大四、採異地進項教學。
- 學生應修習一個領域專修課程或是第二專業課程，取得畢業。若選修跨系專業選修「跨領域專題訓練」，可申請替代專業必修之「專題製作」課程。
- 若選修跨系專業選修「跨領域專題訓練」，該段專業學分結算後，該系仍應必修 41 學分，通過課程至少 5 學分五類單，任選四類各 2 學分，院專業必修 13 學分，系專業必修 40 學分，專業選修任選至少 46 學分，合計 148 學分；已修畢之二專業在學程的領域學分學外系學分，按計為系專業選修學分。
- 系專業選修分為主軸課程(課程模組A)、智慧電路車輛的課程模組B、車輛設計課程模組(模組C)、車輛輔助工程課程模組(模組D)。其中車輛核心課程模組(模組A)至少需修習2門課程，其他模組任選一修習機械系其他兩班
- 之專業選修，總量6學分，按計為系專業選修學分。
- 修習本系榮譽學程學分學生，「特色選課(一)(二)」，和「科技英文簡報與表達(一)(二)」和「科技英文閱讀與訓練(一)(二)」為必修，但英文多益成績達標者(700分)可免修「科技英文閱讀與聽力訓練(一)(五)」。
- 依大學學則規程畢業應通過系專業能力專業專門，詳細請見「機械工程專業能力專業門檻及轉要點」。
- Students must obtain at least 148 credits before graduating.
- Students must take "Professional Prior to Practical Training" in the first semester of the third year, and "Curricular Practical Training I-IV" in the second semester, totaling 17 credits.
- Fifty credits per semester, courses taken may not exceed 27 credits. Freshmen (1st year) and sophomores (2nd year) must take with at least 16 credits. Juniors (3rd year) and seniors (4th year) must take courses with at least 9 credits.
- During the first three years of the third year, study period will be condensed (lectures that originally took 3 hours a week will be extended to 4 hours a week).
- The elective courses "Physical Education III" and "Physical Education IV" are offered based on students' interests from sophomore to senior.
- Students must complete either an interdisciplinary program or a second-specialization program as one of the graduation requirements. If taking the "Interdisciplinary capstone course" from college's elective courses, students can apply to replace the "Special Projects" from Department Professional Compulsory courses.
- Minimum Graduation Credits Requirement: For students who have completed the second major credit program/interdisciplinary credit program, the minimum graduation credit structure is adjusted as follows: 41 credits from common compulsory courses, at least 8 credits from general education elective courses (from five categories, selecting any four categories, 2 credits each), 13 credits from college compulsory courses, 40 credits from department compulsory courses, and at least 46 credits from department elective courses.
- making 148 credits in total. Credits obtained from the interdisciplinary or the second-specialization program will be counted as credits from department elective courses.
- The courses are divided into the following categories: Precision Machinery Core Courses Module (Module A), Smart Manufacturing/ Interdisciplinary Credit Program (Module B), Mechanical Design Courses Module (Module C), and 3D Printing Courses Module (Module D). Among these, at least 6 courses must be taken from the Precision Machinery Core Courses Module (Module A), while the other modules can be chosen freely. A maximum of 6 credits from the professional electives of other classes within the Mechanical Engineering Department can be counted as professional elective credits.
- Honor program students who enroll to this department must take the following courses as mandatory courses: "Senior Capstone Project I - II", "Scientific Presentation in English", and "Technical English: Reading and Listening I-V." Those who have gained TOEIC score of 700 or more may skip "Technical English: Reading and Listening I-V."
- According to "Academic Regulations for Undergraduate Studies," students must pass the department's professional competency threshold. For details, please refer to "Graduation Requirements for Professional Ability and Guidelines for Students in Department of Mechanical Engineering."