國立彰化師範大學智慧車輛學系學士班114學年度入學學生課程架構

最低畢業學分數： 128 學分

114 年 03 月 04 日籌備處課程委員會 中文版通過
114 年 03 月 11 日籌備處課程委員會 英文版通過
114 年 03 年 13 日畢業條件科技學院院務會議 會議通過
114 年 03 月 20 日課程架構科技學院院課程委員會議 會議通過

學年 / 修別		第一學年	學分	學時	第二學年	學分	學時
校必修（28學分）		有關校必修共同課程，請參照本校通識中心相關規定。					
系必修(52學分)	上學期	微積分(一) Calculus I	3	3	工程數學(一) Engineering Mathematics I	3	3
		電路學 Electric Circuits	3	3	感測與介面技術 Sensor and Interface Technology	3	3
		智慧車輛原理 Principles of Intelligent Vehicles	3	3	人工智慧 Artificial Intelligence	3	3
		程式設計(一) Program Design I	3	3	微處理機原理及應用 Principles and Applications of Microprocessors	3	3
	下學期	電子學 Electronics	3	3	電動車機電整合 Electromechanical Integration of Electric Vehicles	3	3
		電動車系統原理 Principles of Electric Vehicle Systems	3	3	嵌入式系統 Embedded Systems	3	3
		程式設計(二) Program Design II	3	3	車載通訊 In-Vehicle Communication	3	3

系共同選修(140學分)	微積分(二) Calculus II	3	3	工程數學(二) Engineering Mathematics II	3	3
	數位邏輯電路 Digital Logic Circuits	3	3	車輛電力儲能管理與設計 Vehicle Energy Storage Management and Design	3	3
	電腦輔助工程設計與分析 Computer-Aided Engineering Analysis and Design	3	3	電機技術 Electrical Technology	3	3
	智慧車輛技術 Intelligent Vehicle Technology	3	3	電動車系統技術 Electric Vehicle Systems Technology	3	3
	電子儀器 Electronic Instruments	3	3	智慧座艙控制 Smart Cockpit Control	3	3
	計算機系統 Computer Systems	3	3	電動車動力系統 Electric Vehicle Power System	3	3
				電動車測試和驗證 Testing and Validation of Electric Vehicles	3	3
				訊號與系統 Signals and Systems	3	3
				網路管理與網路安全 Network Management and Network Security	3	3
				機器與深度學習 Machine and Deep Learning	3	3
				車輛性能測試實驗 Vehicle Performance Testing and Experimentation	3	3
				車輛工程模擬分析 Vehicle Engineering Simulation and Analysis	3	3
				進階程式設計 Advanced Program Design	3	3

學年 修別		第三學年	學分	學時	第四學年	學分	學時
系必修(52學分)	上學期	智慧動態控制 Intelligent Dynamic Control 專題製作(一) Project-Based Learning I	3 2	3 4			
	下學期	電動車資通訊實務 Practical Applications of Information and Communication Technology in Electric Vehicles 專題製作(二) Project-Based Learning II	3 2	3 4			

系共同選修(140學分)	車輛控制系統設計實務 Practical Vehicle Control System Design	3	3	產業實習(一) Industrial Internship I	9	9
				產業實習(二) Industrial Internship II	9	9
	自動駕駛軟體系統與模擬 Autonomous Driving Software and Simulation Systems	3	3	車輛檢驗認證 Vehicle Inspection and Certification	3	3
	電動車熱能管理系統 Electric Vehicle Thermal Energy Management System	3	3	車聯網資訊系統實驗 Internet of Vehicles Information System Experimentation	3	3
	智慧車輛產業管理與行銷 Intelligent Vehicle Industry Management and Marketing	3	3	車聯網安全與隱私保護 Internet of Vehicles Security and Privacy Protection	3	3
	自動駕駛系統 Autonomous Driving System	3	3	智慧車聯網實務 Practical Applications of Intelligent Internet of Vehicles	3	3
	車用光達系統 Vehicle LiDAR System	3	3	電動車行車控制系統 Electric Vehicle Driving Control System	3	3
	感測與介面電路 Sensing and Interface Circuits	3	3	專題製作(三) Project Production III	2	4
	電力電子學 Power Electronics	3	3			
	數位影像處理 Digital Image Processing	3	3			
	車載通訊及大數據分析 In-Vehicle Communication and Big Data Analysis	3	3			
	車聯網系統程式 Internet of Vehicles System Programming	3	3			
	車輛綜合檢測實驗 Comprehensive Vehicle Inspection and Testing	3	3			
	電動車檢測與實驗 Testing and Experimentation of Electric Vehicles	3	3			
	Linux系統程式設計 Linux System Programming	3	3			
	數位訊號處理與應用 Digital Signal Processing and Applications	3	3			

	電動車輛設計 Electric Vehicle Design	3	3			
畢業條件	1. 本系最低畢業學分為128學分，包含校必修28學分、系必修52學分、系選修至少48學分，其中不含軍訓、體育、教育學程；校必修科目請參閱學校通識、軍訓及體育課程架構，並請依規定修習。 2. 本系以對應「智慧車輛產業」及「智車測試與研究」兩大主軸，故規劃系分流選修課程，對應「智慧車輛產業」分流選修36學分；對應「智車測試與研究」分流選修59學分，學生可依照其興趣、性向及其專業背景，考量職涯發展進行選修。 3. 本系學生應職涯發展有其專業學習需求者，除「系必修及系共同選修」外，其餘選修課程得於科技學院及工學院各系跨院系選修，學生須事先提出申請，經系課程委員會審核通過後方可修習；凡修習本系開設之課程，均採認畢業學分；修習外系課程（非教育專業學程科目及通識課程）至多16學分並列入畢業選修學分。 4. 大四產業實習(一)(二)主要為「智慧車輛產業」及「智車測試與研究」相關產業之校外實習課程，學生可依照其學習需求，於大三下學期預先提出申請，以利進行校外實習產業媒合。 5. 系必修及系開設之選修課程：第一次修課同學（經核定可跨院系選修以外）以本系開設之課程為限，重修者則以科技學院各系之科目為原則，經審查同意後，方得以列入畢業學分。					

Graduation Requirements	1. The minimum graduation requirement for this department is 128 credits, including 28 credits of university-required courses, 52 credits of department-required courses, and at least 48 credits of department elective courses. This excludes military training, physical education, and education program courses. Students should refer to the university's general education, military training, and physical education curriculum structure and complete the required courses accordingly. 2. The department's curriculum is designed to align with two major focus areas: "Intelligent Vehicle Industry" and "Intelligent Vehicle Testing and Research." Therefore, specialized elective courses are offered in two tracks: 36 credits for the Intelligent Vehicle Industry track and 59 credits for the Intelligent Vehicle Testing and Research track. Students may select courses based on their interests, aptitudes, professional backgrounds, and career development plans. 3. Students in this department who have specific professional learning needs for their career development may take elective courses beyond the department-required and common elective courses. They are allowed to enroll in cross-disciplinary elective courses offered by various departments within the College of Science and Technology and the College of Engineering. However, students must submit a prior application and obtain approval from the Department Curriculum Committee before enrolling in such courses. All courses offered by this department are fully recognized for graduation credits. Up to 16 credits from courses offered by other departments (excluding courses from teacher education programs and general education courses) may be counted as elective credits toward graduation. 4. Industry Internship I & II in the senior year primarily focus on the Intelligent Vehicle Industry and Intelligent Vehicle Testing and Research through off-campus internship programs. Students may apply in advance during the second semester of their junior year based on their learning needs to facilitate industry matching for off-campus internships. 5. Department-Required and Department-Offered Elective Courses: First-time course takers (except those approved for cross-college elective courses) are required to take courses offered by the department. Students retaking courses should prioritize courses offered by other departments within the College of Science and Technology. These courses must undergo a review process and be approved before they can be counted toward graduation credits.