

國立暨南國際大學土木工程學系學士班必選修科目一覽表

Undergraduate Program Course Catalog of Department of Civil Engineering, National Chi Nan University

本表(109)學年度入學新生適用 Effective for students admitted in Fall,2020

最低畢業學分：**132**學分，全校共同課程**12**學分，通識領域課程**19**學分
系必修**73**學分，選修**28**學分。

Undergraduate requirements: a minimum of **132** required credits, including **12** credits in the school-wide curriculum, **19** credits of General Education courses, **73** credits of Departmental required courses and **28** credits of elective courses.

壹、全校共同課程 1.School-Wide Curriculum

一、共同課程(必修12學分) A. School-Wide Required Courses (12 credits)				
課程代號 Course Code	課程名稱(中文及英文) Course Name (Chinese and English)	學分數 Credits	備	註Notes
	英文一(上) English I(1)	2		自108學年度起，英文能力分班首度試改為依照入學之英文成績作依據，分為三級上課：前10%的同學將分配至「進階班英文」上課；中間80%的同學將分配至原班英文上課；後10%的同學將分配至「精進班英文」上課。 Since the first semester of 108 Academic Year (September 2019), the competence-based class grouping policy of Freshmen English (Course Title: English 1) will be based on registered student's GSAT and JCEE scores; Students will be accordingly divided into three different levels: Advanced English (top 10%), General English (middle 80%) and Basic English (bottom 10%).
	英文一(下) English I(2)	2		
	英文二 English II	2		
	國文(上) Chinese(1)	2	僑外生得以修習「僑外生華語文」抵免國文。(Overseas students take Chinese for Overseas Students)
	國文(下) Chinese(2)	2		
	服務學習(上) Service Learning(1)	0.5	依所屬學系分班上課，無特殊原因不得跨班選課。(Students are divided into groups by their own department, without any proper reasons they cannot change the decision.)
	服務學習(下) Service Learning(2)	0.5		
	大一體育(上)Physical Education (1)	0	上學期依所屬學系分班上課，無特殊原因不得跨班選課。下學期依運動項目分班，自由選課。(Students are divided to take physical Education I by their own department, without any proper seasons they cannot change the decision. Courses are divided based on sports items. Students are free to choose courses they like.)
	大一體育(下)Physical Education (2)	0		
	特色運動 (Featured Sports)	1	大二開始，每學期限修一項，畢業前須完成至少2項特色運動 (Students are limited take one course each semester since Sophomore, At least 2 featured sports courses are required before graduation.)	
	通識講座 General Education lecture program	0	畢業前至少應出席6場。(Students are required to attend at least 6 lectures before graduation.)
二、共同選修課程 (各系依共同選修加列課程) B. School-Wide Elective Courses				
	第二外語 (Second Foreign Language)		含日文、韓文、法文、德文及西班牙文等。(Including Japanese, Korean, French, German and Spanish, etc.)	

	東南亞語言(Southeast Asia Languages)	含泰語、越南語、緬甸語、印尼語及馬來語，可抵特色通識「東南亞」次領域。(Including Thai, Vietnamese, Burmese, Indonesian and Malay. These courses can be credited course credits in Southeast Asia of Topical General Education)
	進階語文(Advanced English)	
	其他選修(Other Elective Course)	

貳、通識領域課程(至少19學分) 2.General Education Courses

主領域 Main Field	次領域 Sub-Field	學分數 Credits	備 註 Notes
人文領域 Humanities	文學與藝術(Literature and Art)	5	每次領域各1門，共至少修習5學分。(Students in the two sub-fields should attend at least one course, and attend a total of at least 5 credits)
	歷史哲學與文化(History, Philosophy and Culture)		
社會領域 Society	法政與教育(Law, Politics and Education)	5	每次領域各1門，共至少修習5學分。(Students in the two sub-fields should attend at least one course, and attend a total of at least 5 credits)
	社經與管理(Society, Economy and Management)		
自然領域 Nature	工程與科技(Engineering and Technology)	5	每次領域各1門，共至少修習5學分。(Students in the two sub-fields should attend at least one course, and attend a total of at least 5 credits)
	生命與科學(Life and Science)		
特色通識領域 Topical General Education	東南亞(Southeast Asia)	4	自由選擇其中兩個次領域各修習一門，共至少修習4學分。(Students should select two sub-fields courses in the main field, and attend a total of at least 4 credits)
	綠概念(Green Concept)		
	在地實踐(Social Practice)		

參、學系專業課程 3.Departmental Courses

課程代號 Course Code	課程名稱(中文及英文) Course Name (Chinese and English)	學分數 Credits	修別 Course type (required/elective)	開課年級 Course availability (freshman/sophomore/junior/senior)	備 註 Notes
220108	微積分(上)Calculus(1)	3	必required	1	
220112	微積分(下)Calculus(2)	3	必required	1	
220142	普通物理General Physics	3	必required	1	
220067	普通物理實驗Laboratory for General Physics	1	必required	1	
220141	土木工程概論Introduction to Civil Engineering	1	必required	1	
220049	計算機程式Computer Program	3	必required	1	
220078	工程圖學Engineering Graphics	1	必required	1	

220033	靜力學Engineering Mechanics-Statics	3	必required	1	
220109	測量學Surveying	2	必required	1	
220110	測量實習Surveying	1	必required	1	
220113	機率與統計Probability and Statistics	3	必required	1	
220017	工程數學(上)Engineering Mathematics(1)	3	必required	2	
220027	工程數學(下)Engineering Mathematics(2)	3	必required	2	
220019	材料力學Mechanics of Materials	3	必required	2	先修課程:靜力學(註二)
220030	流體力學Fluid Mechanics	3	必required	2	
220029	結構學Elementary Structures	3	必required	2	先修課程:材料力學(註二)
220084	運輸工程Transportation Engineering	3	必required	2	
220036	土壤力學Soil Mechanics	3	必required	2	
220090	水處理工程Water and Wastewater Treatment Engineering	3	必required	2	
220099	環境工程Environmental Engineering	3	必required	2	
220085	工程材料Engineering Materials	3	必required	2	
220038	鋼筋混凝土學Design of Concrete Structures	3	必required	3	
220087	基礎工程Principles of Foundation Engineering	3	必required	3	先修課程:土壤力學(註二)
220037	水文學Hydrology	3	必required	3	
220053	水利工程Hydraulic Engineering	3	必required	3	
220145	土木工程設計實作Civil Engineering Capstone Challenge	3	必required	3	

220041	土木工程實驗(一)Civil Engineering Laboratory I	2	必required	3	先修課程:材料力學,結構學(註二)
220079	土木工程實驗(二)Civil Engineering Laboratory II	2	必required	3	先修課程:流體力學,土壤力學(註二)
選修28學分 28 credits of elective courses					
220071	專題研究(一)Special Study 1	1	選elective	2	
220077	專題研究(二)Special Research II	1	選elective	2	
220091	專題研究(三)Special Research III	1	選elective	3	
220097	專題研究(四)Special Research IV	1	選elective	3	
220101	專題研究(五)Special Research V	1	選elective	4	
220106	專題研究(六)Special Research VI	1	選elective	4	
220129	基礎化學General Chemistry	3	選elective	1	
220068	普通化學實驗Laboratory for General Chemistry	1	選elective	1	
220116	電腦程式應用Computer Programming and Application	3	選elective	2	
220018	動力學Dynamics	3	選elective	2	
220111	電腦與工程問題解決導論Introduction to Computers & Problem Solving	3	選elective	2	
220122	管理科學Management Science	3	選elective	3	
225085	電腦數值模擬Numerical Methods for Computational Simulation	3	選elective	3G	
220095	鋼結構設計Design of Steel Structures	3	選elective	4G	
220117	電腦結構設計與實務Practicing Computerized Structural Design	3	選elective	3	
220055	中等土壤力學Advanced Soil Mechanics	3	選elective	3	

220102	工程地質與實習Engineering Geology and Field Training	3	選elective	3	先修課程:土壤力學(註二)
220031	工程經濟Engineering Economics	3	選elective	2	
220118	工程實務專題Civil Engineering Practice	3	選elective	3	
220081	水土保持與植生Soil-Water Conservation and Vegetation	3	選elective	3	
220086	生態工程導論Introduction to Ecological Engineering	3	選elective	2	
220115	專案管理與應用Project Management and Its Applications	3	選elective	1	
225036	環境微生物學Environmental Microbiology	3	選elective	3GP	
225008	有限元素法Finite Element Method	3	選elective	3GP	
225016	明渠水力學Open Channel Flow	3	選elective	3GP	
225017	作業研究Operations Research	3	選elective	3G	
225031	環工物化處理Physical and Chemical Treatment for Environmental Engineering	3	選elective	3GP	
225018	環工生物處理Biological Treatment for Environmental Engineering	3	選elective	3GP	
225019	彈性力學Theory of Elasticity	3	選elective	3GP	
225039	高等運輸規劃Advanced Transportation Planning	3	選elective	3GP	
225051	高等工程數學(一)Advanced Engineering Mathematics (I)	3	選elective	3GP	
225058	土工合成材料之工程應用Engineering Application of Geosynthetics	3	選elective	3GP	
225087	熱傳學概論Introduction to Heat Transfer	3	選elective	4G	
225005	土壤動力學Soil Dynamics	3	選elective	4GP	
225042	應用數學Applied Mathematics	3	選elective	4GP	

225064	電腦輔助結構工程Computer Aided Structural Engineering	3	選elective	4GP	
225060	污染防治系統規劃與設計Planning and Design for Pollution Control Systems	3	選elective	3GP	
225061	環境化學Environmental Chemistry	3	選elective	3GP	
225068	水利計算模式Hydraulic Models	3	選elective	3GP	
225078	計算流體力學(一)Computational Fluid Dynamics (I)	3	選elective	3GP	
225071	計算流體力學(二)Computational Fluid Dynamics (II)	3	選elective	3GP	
229029	高等工程數學(二)Advanced Engineering Mathematics (II)	3	選elective	3GP	
229032	複合材料力學Mechanics of Composite Materials	3	選elective	3GP	
225027	邊坡穩定設計與分析Analysis and Design of Slope Stability	3	選elective	4GP	
229031	結構動力學Structural Dynamics	3	選elective	4GP	
225034	高等材料力學Advanced Mechanics of Materials	3	選elective	3GP	
229036	地震學Seismography	3	選elective	3GP	
229006	大地地震工程學Geotechnical Earthquake Engineering	3	選elective	4GP	
220073	水土保持工程規劃與設計Planning and Design of Soil-Water Conservation Engineering	3	選elective	2	
225006	水質分析Water and Wastewater Analysis	3	選elective	3GP	
225026	系統工程最佳化System Engineering and Optimization	3	選elective	3G	
225070	環工生物統計Environmental Biostatistics	3	選elective	3GP	
225080	電腦數值模擬Numerical Methods for Computational Simulation	3	選elective	3G	
225089	強地動地震學Strong motion seismology	3	選elective	3G	

225023	中等流體力學Advanced Fluid Mechanics	3	選elective	3GP	
225037	土木工程可靠度分析Reliability Analysis in Civil Engineering	3	選elective	3GP	
225043	高等有限元素法Advanced Finite Element Methods	3	選elective	4GP	
225080	材料機械行為Mechanical Behavior of Materials	3	選elective	4GP	
229039	高等基礎工程學Advanced Foundation Engineering	3	選elective	4GP	
229040	工程與防災風險管理概論Introduction to Risk Management - Engineering and Natural Hazard Application	3	選elective	4GP	
220123	地震與防災Earthquakes、Disasters and Protection	3	選elective	1	
220124	統計學與資料分析於交通工程之應用 Applied statistic and data analysis in transportation engineering	2	選elective	2	
225091	數值分析Numerical Analysis	3	選elective	3G	
225090	網路模式分析Network Modeling Analysis	3	選elective	3GP	
229043	工程監檢測概論Introduction to Engineering Monitoring and Inspection	3	選elective	3GP	
225072	環境力學(一) Mechanics of Continua for Environmental Problems I	3	選elective	4G	
220127	地球的氣候變遷與環境變化The Variation of Earth Climate and Environment	3	選elective	1	
220093	生態工法規劃與設計Planning and Design of Eco-engineering Technology	3	選elective	2	
220128	運輸學Transportation	2	選elective	2	
229045	高等結構學Advanced Structural Analysis	3	選elective	3GP	
229046	實驗力學Experimental Mechanics	3	選elective	3GP	
225059	土壤加勁與改良Soil Reinforcement and Soil Improvement	3	選elective	4GP	
220107	生態工法施工與管理Working、Management and Estimation of Eco-engineering Technology	3	選elective	2	

225084	隧道工程地質學Tunneling Geology	3	選elective	3G	
225086	防災經濟學Disaster Economics	3	選elective	3G	
225056	數學規劃Mathematical Programming	3	選elective	3GP	
220130	營建法規construction codes and regulations	3	選elective	1	
225094	鋼結構檢測Non-destructive Evaluation for Steel Structures	3	選elective	3G	
220131	結構矩陣法Structural Matrix Method	3	選elective	3	
229050	政府採購法實務Government Procurement Law practice	3	選elective	3GP	
225095	非破壞檢測技術之應用Application of non-destructive testing technology	3	選elective	3G	
225097	固體廢棄物處理Solid Waste Treatment	3	選elective	3G	
229052	岩石力學Rock Mechanics	3	選elective	4GP	
229054	接觸力學Contact Mechanics	3	選elective	4GP	
220132	施工法Construction Methods	3	選elective	3	
220133	災害防救概論Introduction to Disaster Mitigation	3	選elective	2	
229055	空氣污染防制Air Pollution Control	3	選elective	3G	
220134	營建工程管理Construction Engineering Man	3	選elective	3	
225096	環境規劃與管理Environmental Planning and Management	3	選elective	3G	
229056	水處理工程與設計Water and Wastewater Treatment Engineering and Design	3	選elective	3GP	
229057	地下水污染防治Groundwater Pollution Remediation	3	選elective	3GP	
229034	土壤及地下水污染整治Soil and Groundwater Contamination and Remediation	3	選elective	3GP	

229058	遙感探測理論與實習 Remote Sensing Theory and Practice	3	選elective	4GP	
225098	統計方法應用於交通工程 Statistics applied in traffic engineering	3	選elective	3G	
225099	水土保持工程 Soil and Water Conservation Engineering	3	選elective	3G	
225100	交通工程 Traffic Engineering	3	選elective	3G	
220135	專業實習 Specialized Internship	3	選elective	3	
220136	企業實習 Enterprise Internship	6	選elective	4	
229060	環境工程單元操作 Unit Operation for Environmental Engineering	3	選elective	3GP	
229061	綠色工程、工法與材料 Green engineering、construction and material	3	選elective	4GP	
229062	科技簡報 Technical Presentation	3	選elective	3GP	
229063	浚挖設備與其在工程上之應用 Dredging Equipment and Its Engineering Application	3	選elective	3GP	
229038	地理資訊系統 Geographic Information Systems	3	選elective	3GP	
229065	影像測量學原理與應用 Photogrammetry - Theory and Application	3	選elective	3GP	
225051	運輸組織與管理 Transportation Organization and Mangement	3	選elective	3G	
229066	土砂防災策略與規劃實務 Sediment Disaster Prevention Countermeasure	3	選elective	3GP	
229067	水資源及環境工程設計實務 Water Resources and Environmental	3	選elective	3GP	
229068	運輸與物流管理 Transportation and Logistics Management	3	選elective	3GP	
220139	行動應用程式開發 Developments of Android Apps	3	選elective	2G	
229069	土砂災害警戒系統規劃與設計 Sediment Disaster Warning System Planning and Design	3	選elective	3GP	
229070	土木及大地工程設計實務 Civil and Geotechnical Engineering Design	3	選elective	3GP	

229072	水高級處理及再利用 Advanced Water Treatment and Reuse	3	選elective	3GP	
229073	振動力學Engineering Vibrations	3	選elective	3GP	
225102	地理資訊系統導論 Introduction to Geographic System Science	3	選elective	3G	
225103	遙感探測實務Practical Remote Sensing	3	選elective	3G	
220140	工程估價Construction Estimate	3	選elective	3	
229074	地震工程學特論Special Topics in Earthquake	3	選elective	3GP	
229075	有限元素結構分析Finite Element Method for Structural Analysis	3	選elective	3GP	
229076	結構矩陣法Matrix Methods of Structural Analysis	3	選elective	3GP	
229077	職業安全衛生管理系統職業安全衛生管理系統Occupational Safety and Health Management System	3	選elective	3GP	
220143	智慧運輸系統資料探索Intelligent transportation system data exploration	3	選elective	2	
220144	運輸系統導論Introduction to Transportation Systems	2	選elective	3	
225104	災害管理實務Disaster management practice	3	選elective	3G	
225105	銀髮族運輸安全Safe senior transportation	2	選elective	3G	
225106	運輸規劃軟體應用Transportation Planning Software and Applications	3	選elective	3G	
225107	環境管理與永續發展Environmental Management and Sustainable Development	3	選elective	3GP	
229078	建築資訊模型(BIM)建模基礎實務Building Information Modeling(BIM)	3	選elective	3G	
229079	結構力學特論Special Topics on Structural Mechanics	3	選elective	3GP	
225108	結構力學導論Introduction of Structural Mechanics	3	選elective	3G	

填表人：_____系(所)主管：_____院長：_____填表日期：_____