

Curriculum for the Construction Engineering Program (Undergraduate courses) (for academic year of 2023)

112年3月21日111學年度第3次系課程委員會議修正通過

Discipline				Freshman year						
				Fall semester			Spring semester			
				Course name	Credit hour	Teaching Hour	Course name	Credit hour	Teaching Hour	
Professional courses	Required courses	Construction engineering division	54 credit hours (Required)	Physics(I)	3	3	Physics(II)	3	3	
				Physics Laboratory	1	3	Calculus(II)	3	3	
				Calculus(I)	3	3	Engineering Statics	3	3	
				The Concept of Construction Engineering and Project	2	2	Engineering Drawing and Laboratory	3	4	
							Computer Programming and Applications	3	3	
					* Calculus(I)	3	3			
		Architectural engineering division	49 credit hours (Required)	Physics(I)	3	3	Engineering Statics	3	3	
				Physics Laboratory	1	3	Architectural Planning and Design Practice	1	3	
				Calculus(I)	3	3	Engineering Drawing and Laboratory	3	4	
				The Concept of Construction Engineering and Project	2	2	Building Physical Environment	2	2	
				3	3	* Calculus(I)	3	3		
	Elective courses	Construction engineering division (Elective core courses)	17 credit hours (Required)	Construction English	3	3				
				Computer Programming	3	3				
							* Construction English	3	3	
		Architectural engineering division (Elective core courses)	22 credit hours (Required)	Construction English	3	3	Computer Programming and Applications	3	3	
				Computer Programming	3	3				
		Professional selective courses						Fundamental Mathematics	3	3

Discipline				Sophomore year						
				Fall semester			Spring semester			
				Course name	Credit hour	Teaching Hour	Course name	Credit hour	Teaching Hour	
Professional courses	Required courses	Construction engineering division	54 credit hours (Required)	Strenght of Materials	3	3	Structure Analysis ( I )	3	3	
					3	3	Reinforced Concrete I	3	3	
							Occupational Safety and Health Law and Regulations			
							* Occupational Safety and Health Law and Regulations			
							* Engineering Statics	3	3	* Strenght of Materials
					* Calculus( II )	3	3		3	3
		Architectural engineering division	49 credit hours (Required)	Architectural Design ( I )	3	3	Architectural Desig ( II )	3	3	
				Building Structure and Composition	3	3	Architecture Environmental Control	2	2	
							Occupational Safety and Health Law and Regulations	3	3	
						* Occupational Safety and Health Law and Regulations				
				* Engineering Statics	3	3				
	Elective courses	Construction engineering division (Elective core courses)	17 credit hours (Required)	Engineering Mathematics	3	3	Fluid Mechanics	3	3	
				Construction material and laboratory	3	4	Concrete material and laboratory	3	4	
				Statistics	3	3				
		Architectural engineering division (Elective core courses)	22 credit hours (Required)	Strength of Materials	3	3	Reinforced Concrete I	3	3	
				Construction material and laboratory	3	4	Introduction of Architectural Details	3	3	
				Experimental Material Mechanical Behavior	3	3	Concrete material and laboratory	3	4	
		Professional selective courses	Required courses for construction engineering division: 46 credit hours (including core courses: 17 credit hours) ; Required courses for architectural engineering division: 51 credit hours (including core courses: 22 credit hours)	Conduction Laws	3	3	Engineering Mathematics ( II )	3	3	
				Masonry Pratic Workshop	1	1	Engineering Mechanics Kinetics	3	3	
				Painting Pratic Workshop	1	1	Electromechanical Working Processes	3	3	
							Construction Contract and Specification	3	3	
							Management Science	2	2	
				Micro Course in Construction Engineering Practice (I)	1	1	Micro Course in Construction Engineering Practice (II)	1	1	
				Micro Course in Building Engineering Practice (I)	1	1	Micro Course in Building Engineering Practice (II)	1	1	

Discipline				Junior year					
				all semester			Spring semester		
				Course name	Credit hour	Teaching Hour	Course name	Credit hour	Teaching Hour
Professional courses	Required courses	Construction engineering division 54 credit hours (Required)	Survey Engineering	3	3	Foundation Engineering	3	3	
			Engineering Planning and Control	3	3	Special Topic ( I )	2	2	
			Soil Mechanics Laboratory	1	3	Surveying Laboratory	1	3	
			Soil Mechanics ( I )	3	3				
		Architectural engineering division 49 credit hours (Required)	Building Construction	3	3	Special Topic(I)	2	2	
			Building Construction Design Practice	3	3	Construction Technology Practical Training and Innovating	3	3	
	Survey Engineering		3	3					
	Elective courses	Construction engineering division (Elective core courses) 17 credit hours (Required)	Construction Equipment and Method ( I )	2	2	Construction Equipment and Method ( II )	2	2	
			Design of steel structures	3	3	Estimating Construction Costs	3	3	
		Architectural engineering division (Elective core courses) 22 credit hours (Required)	AEC Engineering Drawing Practice	1	3	Application of Building Information Modeling	3	3	
			Building Information Modeling Technology	3	3	Architectural Engineering Drawing Practice	3	3	
						Structural Systems	3	3	
		Professional selective courses	Required courses for construction engineering division: 46 credit hours (including core courses: 17 credit hours) ; Required courses for architectural engineering division: 51 credit hours (including core courses: 22 credit hours)	Fire Protection Engineering	3	3	Engineering Geology	3	3
				Structural Analysis ( II )	3	3	Air Condition and Ventilation Engineering	3	3
				Reinforced Concrete II	2	2	Engineering Quality Control	3	3
				Materials for Ecological Engineering	3	3	Matrix Structural Analysis	3	3
				Eoological Hydrology	3	3	Soil Mechanics (II)	3	3
				Introduction to Construction Management	3	3	Introduction to Sustainable Building	3	3
				★Special Internship on Construction Engineering	2	3	Mitigation and Prevention for Typhoon and Flood Hazards	2	2
				Green energy and sustainable engineering	3	3	Urban Geotechnical Engineering	3	3
						Construction Japanese	3	3	
					Experimental practices for nondestructive test of structures	1	3		
					★Summer Internship on Construction Engineering	2	3		
					★Special Internship on Construction Engineering	2	3		
			BIM-Electromechanical system modeling	3	3				
			Transportation Facility Engineering	3	3				

Discipline				Senior year						
				Fall semester			Spring semester			
				Course name	Credit hour	Teaching Hour	Course name	Credit hour	Teaching Hour	
Professional courses	Required courses	Construction engineering division 54 credit hours (Required)	Special Topic ( II )	2	2					
						* Special Topic ( II )			2	2
	Architectural engineering division 49 credit hours (Required)	Special Topic ( II )	2	2						
		Integration Design of Sustainable Architecture	1	1						
							* Special Topic ( II )	2	2	
	Elective courses	Construction engineering division (Elective core courses) 17 credit hours (Required)								
		Architectural engineering division (Elective core courses) 22 credit hours (Required)								
		Professional selective courses	Required courses for construction engineering division: 46 credit hours (including core courses: 17 credit hours) ; Required courses for architectural engineering division: 51 credit hours (including core courses: 22 credit hours)	Building Structure Design	3	3	Bridge Engineering	3	3	
				Pre-stressed Concrete	3	3	Site Investigation	3	3	
				◎Advanced Mechanics of Materials	3	3	◎Building Health Diagnosis	3	3	
Estate Assessment				3	3	Earthquake Engineering	3	3		
Practice on Construction and Site Supervision				3	3	Construction Drawing Practice	3	3		
◎Systems Thinking and Learning Organization				3	3	Real Estate Appraisers Practice	3	3		
Application of Numerical Analysis				3	3	Overseas Project-Based Study for Undergraduate Courses(II)	2	2		
Advanced Structural Analysis				3	3	Mechanical and Electrical Engineering Building Information Modeling Practice	1	3		
Introduction to Rock Mechanics				3	3	Structural Engineering Information Modeling Practice	1	3		
Overseas Project-Based Study for Undergraduate Courses(I)				2	2	Practical Practice of BIM Model Geotech- Engineering	1	3		
◎Design,repair,rehabilitation and retrofit of bridge structures				3	3	BIM Model Practice in Engineering Management Practice	1	3		
Operation Research for Construction Engineering				3	3	Selection and Application of Ecological Engineering Materials	3	3		
◎Structural Dynamics				3	3	◎Advance Steel Structure	3	3		
◎Evaluation,Rehabilitation and Retrofit of Bridges				3	3	★Semester Internship on Construction Engineering(II)	9	9		
★Semester Internship on Construction Engineering(I)	9	9	★Special Internship on Construction Engineering	2	3					
★Special Internship on Construction Engineering	2	3	Construction of Steel structures	3	3					
Seismic design of offshore wind turbine foundation	3	3	Offshore Site Investigation	3	3					
◎Design of Wood Structures	3	3	◎Selection and Application of Building Materials	3	3					
◎BIM 3D Engineering Calculation	3	3	◎Bidding and selection for the most advantageous tender	3	3					