

Model No. ١٣
Program Specification (٢٠١٨/٢٠١٩)
Civil Engineering (Construction) Department

٣) Matrix of Teaching and Learning Methods & Program ILOs

٣/١ Knowledge and Understanding:

Intended Learning Outcomes (ILOs) of the program	Teaching and Learning Methods										
	lectures	Tutorial	Laboratory	Class and homework Assignments	Self – Learning	projects	Research and Reports	cooperative work	(site visit)	Brain storm	Movies Presentation and Modeling and Simulation
k ^١	Summarize the concepts and theories of mathematic in proportion to discipline.	√	√		√					√	
K ^٢	Define the theories of sciences in proportion to discipline.	√	√		√						√
k ^٣	Explain the Basics of Information and Communication Technology (ICT)	√	√		√						
k ^٤	Determine the characteristics of engineering materials related to discipline.	√	√	√	√		√		√		
k ^٥	Formulate design principles including design of elements, process and / or system associated with specific disciplines.	√	√		√		√			√	
k ^٦	Explain how to collect and interpret data	√		√	√		√				
k ^٧	Detail methodologies for solving engineering problems	√	√		√						
k ^٨	Determine quality assurance systems, codes of practice, standards, health and safety requirements and environmental issues.	√	√	√	√				√		
k ^٩	List the Classification engineering-related work and management principles.	√			√		√				
k ^{١٠}	Illustrate current engineering techniques related to disciplines.	√	√		√		√				
k ^{١١}	Outline topics related to human interests and ethical issues.	√	√		√				√		
k ^{١٢}	Write and Adjust engineering reports with suitable technical language.	√	√		√		√	√			
k ^{١٣}	Relate ethics of engineering on society and the environment	√			√		√				

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k١٤	List contemporary engineering topics.	√			√			√					
k١٥	Recognize the principles of architectural design.	√	√		√								
k١٦	Recognize the principles of building technologies, structure & construction methods, technical installations.	√	√		√					√			
k١٧	Process the spatial change in the built and natural environments;	√	√		√					√			
k١٨	Relate with the significance of urban spaces	√	√		√						√		
k١٩	Interact between human behavior, built environment and natural environment.	√	√		√				√				
K٢٠	Explain theories and histories of architecture.	√			√				√				
K٢١	Plan urban design and other related disciplines.	√	√	√	√			√				√	
K٢٢	List the principles of sustainable design.	√	√		√								
K٢٣	Deal with the basics of design and analysis of communication systems, network data systems, GSM mobile system, and optical fiber.	√	√	√	√								√
K٢٤	Define the essential construction techniques of earthworks used for construction engineering	√	√		√							√	
K٢٥	Describe properties, behavior & fabrication of construction materials.	√	√	√	√			√			√		
K٢٦	Describe the essential construction engineering technologies of structures	√	√		√			√	√		√		
K٢٧	Describe the Principles of construction and building engineering sciences as applied to civil engineering principles:	√			√	√						√	
K٢٨	Define principles of design of buildings and construction.	√	√		√								
K٢٩	Identify plan, schedule techniques, contract procedures and bidding.	√	√		√						√		
K٣٠	Describe finance of the project and cost estimators in construction projects management.	√			√	√		√					
K٣١	Describe quality systems in Projects management.	√	√	√	√							√	
K٣٢	List the different analytical and computer methods that can be applied to the various areas of construction and building engineering.	√	√	√				√					



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٣/٢ Intellectual Skills:

Intended Learning Outcomes (ILOs) of the program	Teaching and Learning Methods										
	lectures	Tutorial	Laboratory	Class and homework Assignments	Self – Learning	projects	Research and Reports	cooperative work	(site visit)	Brain storm Movies Presentation and	Modeling and Simulation
I ^١	√	√	√	√			√				√
I ^٢	√		√	√			√	√		√	√
I ^٣	√	√		√		√	√	√	√	√	
I ^٤	√			√		√					√
I ^٥	√	√		√		√	√		√	√	√
I ^٦	√			√		√	√		√	√	√
I ^٧	√	√		√							
I ^٨		√	√	√							
I ^٩	√			√							
I ^{١٠}		√		√		√				√	√
I ^{١١}	√	√									
I ^{١٢}	√	√		√							√
I ^{١٣}	√		√	√			√	√			√

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114	Evaluate systematic and methodical approaches when dealing with new and advanced technology	√	√	√	√				√		√		
110	Integrate different forms of knowledge, ideas from other disciplines,	√	√		√								
116	Think three-dimensionally and engage images of places & times with innovation	√			√							√	
117	Create in the exploration of design.	√	√		√							√	
118	Predict possible consequences, by-products of design alternatives.	√			√							√	
119	Reconcile conflicting objectives to reach optimum solutions.		√		√							√	
120	Integrate relationship of structure, building materials, and construction elements into design process.	√	√		√			√					
121	Appraise the spatial, aesthetic, technical and social qualities of a design within the scope and scale of a wider environment	√			√								
122	Integrate community design parameters into design projects.	√	√		√			√					
123	Combine, exchange, and assess different ideas, views, and knowledge from a range of sources for communications and Electronics Engineering		√		√			√				√	
124	create innovative solutions for environmental and socioeconomic problems.	√	√						√			√	
120	Evaluate & Suggest solutions and designs on a conceptual level and in detail that consider sustainability and other issues of importance	√						√		√			
126	Evaluate different solutions for a single construction engineering problem.	√	√		√							√	
127	Judge applicability of a unique solution for several construction engineering problems.		√		√							√	
128	Determine levels, types and systems of building foundations based on geotechnical techniques and codes of practice.	√	√		√			√		√			√
129	Evaluate and integrate information and processes through individual and	√			√			√	√			√	√

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	group project work.												
I30	Analyze a wide range of building construction problems.	√	√		√		√						
I31	Innovate solutions for wide range of problems related to design of public engineering projects.	√			√	√		√		√	√		
I32	Analyze and interpret financial information.	√	√		√		√						

3/3 Practical and Professional Skills

Intended Learning Outcomes (ILOs) of the program	Teaching and Learning Methods												
	lectures	Tutorial	Laboratory	Class and homework Assignments	Self – Learning	projects	Research and Reports	cooperative work	(site visit)	Brain storm	Movies and Presentation	Modeling and Simulation	
p1	Combine knowledge of mathematics, science, IT, design, business context and engineering practice in an integrated manner to solve engineering problems.	√		√	√		√	√	√		√	√	√
p2	Perform the Connection between engineering knowledge with understanding and feedback to improve design and / or products and / or services.	√		√	√			√					√
p3	Prepare a process, component or system and implements specialized engineering designs.	√	√		√			√		√			
p4	Combines precision and beauty of practice in design and approach.	√			√								
p5	Perform experiments, collects and analyzes results using computational techniques, measurement tools, workshops and laboratory equipment.	√	√	√	√		√	√					√
p6	perform tests to a wide range of analytical tools, techniques, equipment and software packages related to specialization in the development of required software.	√		√	√		√			√	√		√
p7	perform numerical modeling methods to engineering problems.	√	√	√	√		√				√	√	

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p ^٨	Prepare a safe work system and monitors appropriate risk management steps.	√		√	√							
p ^٩	use basic organizational and project management skills.	√		√	√			√		√		
p ^{١٠}	Perform procedures of quality assurance and control	√	√		√					√		
p ^{١١}	Apply codes and standards requirements for quality	√		√			√		√	√	√	
p ^{١٢}	Conduct knowledge and skills between the engineering community and industry.	√	√	√	√		√					
p ^{١٣}	Prepares and submit technical reports.	√	√	√	√		√					
p ^{١٤}	perform and follow-up of recommendations of technical reports.	√	√	√	√	√						
p ^{١٥}	Produce and present architectural, urban design, and planning projects .	√	√					√	√		√	
p ^{١٦}	Participate professionally in managing construction processes.				√	√						
p ^{١٧}	Conduct professional competence in developing innovative and appropriate solutions of architectural and urban problems.	√		√					√	√		
p ^{١٨}	Preform leadership and education to sustain design principles.							√	√		√	
p ^{١٩}	Perform effectively to the broad constituency of interests with consideration of social and ethical concerns.	√	√	√	√		√					
p ^{٢٠}	Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve Communications and Electronics problems in construction Engineering	√		√		√					√	√
p ^{٢١}	Use laboratory and field equipment competently and safely.	√		√		√		√		√		
p ^{٢٢}	Observe record and analyze data in laboratory as well as in the field.	√	√	√	√	√				√		
p ^{٢٣}	Prepare technical drafts and finished drawings both manually and using CAD.			√		√	√		√	√		
p ^{٢٤}	Design and undertake individual construction engineering projects.	√			√	√				√		
p ^{٢٥}	Use appropriate computer-based	√		√		√						

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o	support tools and software packages for problem-solving and analysis of results.												
p٢٦	Prepare quantity surveying reports for various projects.	√		√	√			√	√	√			
p٢٧	Conduct cost estimates for different tasks	√				√		√			√		
p٢٨	Prepare and evaluate construction schedules.	√	√		√	√		√					
p٢٩	Administer and design contracts and control time, cost and quality of projects.	√	√		√	√		√					

٣/٤ General and Transferable Skills:

Intended Learning Outcomes (ILOs) of the program	Teaching and Learning Methods												
	lectures	Tutorial	Laboratory	Class and homework Assignments	Self – Learning	projects	Research and Reports	cooperative work	(site visit)	Brain storm	Moives and Presentation	Modeling and Simulation	
٥٤١	Collaborate effectively within multidisciplinary work team.			√	√		√		√	√		√	
٥٤٢	Work in stressful environment and within constraints	√		√	√		√		√	√	√	√	
٥٤٣	Communicates effectively with the team.		√	√	√		√	√	√	√	√		√
٥٤٤	Use IT capabilities for effective utilization.		√	√	√	√	√	√	√		√	√	
٥٤٥	lead groups and motivates individuals.			√		√				√			
٥٤٦	Write reports to manages tasks, time and resources.	√				√	√	√	√	√	√		
٥٤٧	Believe in community linked thinking, information and engage in lifelong self learning discipline.	√			√		√	√	√			√	
٥٤٨	Achieve entrepreneurial and counsel skills.	√	√						√			√	
٥٤٩	Refer to relevant literatures.	√	√				√	√	√		√	√	√