

NEAR EAST UNIVERSITY – FACULTY OF CIVIL AND ENVIRONMENT ENGINEERING							
 Department of Civil Engineering Course Information Sheet & Course Outline							
Course Code	Course Name			Credit	ECTS		
CIV509	Advanced Climate Change and Infrastructure			3	7.5		
Pre-requisite:							
Language: English		Course Type: Elective			Semester: 1		
Weekly Hours	Class Hours	Laboratory	Practicum	Learning Sessions			
	3	-	-	PS	C	R	T
Learning Outcomes	After the completion of this course, the student will be able to ► Ability to use advanced level of fundamental science knowledge as an effective tool for the analysis and/or the design of specified civil engineering problems/projects ► Ability to use advanced level engineering theories on the analysis and/or the design of specified civil engineering problems/projects. ► An ability to apply innovative computational methods in civil engineering to problem-solving ► Ability to correlate advanced level civil engineering concepts and theories within each other ► An ability to design an efficient research methodology and carry out advanced level of research on specific civil engineering topics ► An ability to carry out team-work activities with other specialized civil engineers or participating in team-work activities of multi-disciplinary nature for solution of the targeted problem ► An ability to correlate advanced level civil engineering concepts and theories with each other, as well as with the basic level engineering background received in BSc. Degree education ► An Ability to use advanced level engineering theories on the analysis and/or the design of specified civil engineering problems /projects						
Course Description	Climate change is affecting everyone. This course will help you develop a good understanding of what climate change is and what we can do to mitigate and adapt to climate change. While there are many ways to fight climate change, this course focuses on infrastructure, which uses nature as an infrastructural system to manage climate change and help people prepare for it. In this course, you will learn the practices of some large-scale green infrastructure projects, as well as those of smaller projects at a local level. By the end of the course, I hope you will not only have learned more about climate change and green infrastructure, but also take a step forward and support the adoption of green infrastructure.						
Course Objectives	Student learning objectives include these subject areas: <ul style="list-style-type: none"> • Characterizing urban systems. • Urban Infrastructure and Services • Policy Formulation and Implementation • the potential impact of climate change on the built environment • Green infrastructure and sustainable design for resilient cities 						
Textbooks and/or References	1	Ujang, Z., & Buckley, C. (2002). Water and wastewater in developing countries: present reality and strategy for the future.					
	2	Ujang, Z., & Buckley, C. (2002). Water and wastewater in developing countries: present reality and strategy for the future.					
	3	Ragab, R., & Rodriguez-Clemente, R. (2012). Integrated Water Resources Management in the Mediterranean Region. Springer Netherlands.					
	4	Global Water Partnership, 2000. Integrated Water Resources Management. TAC Background Papers, no 4, 67 pp. www.gwpforum.org/gwp/library/Tacno4.pdf Global Water Partnership, 2002. Toolbox, Integrated Water Resources Management. http://gwpforum.netmasters05.netmasters.nl/en/index.html					
Course Content	Climate Change and Infrastructure, Climate change vulnerability and impact concerns for infrastructures and urban systems, Urban Systems As Place-Based Foci For Infrastructure Interactions: Urban Infrastructure Sectors and Services-Energy, Transportation, Waste and wastewater, Urban Land Use and Planning, Infrastructure Interdependencies And Cascading Impacts						
Methods and Techniques Used in the Course	A combination of lectures, Projects and small group discussions						
WEEKLY OUTLINE							
Week	Date	Topic	Activities				Reference
1			Introduction to Classes				
2			Climate Change Fundamentals and Impact on Infrastructure				
3			Energy-Efficient and Low-Carbon Infrastructure				
4			Urban Heat Islands and Mitigation Strategies				
5			Flood-Resilient Infrastructure and Coastal Protection				
6			Climate-Resilient Transport and Mobility				
7			Circular Economy in Infrastructure Design and Construction				
8			Water Resources Management and Infrastructure				
9			Midterm Exam				
10			Nature-Based Solutions and Ecosystem-Based Approaches				
11			Disaster Risk Reduction and Management in Infrastructure Planning				
12			Risk Assessment and Climate Resilience Engineering				
13			Smart and Green Infrastructure Technologies				
14			Infrastructure's Role in Climate Mitigation and Carbon Reduction				
15			Policy, Governance, and Financial Mechanisms for Climate-Resilient Infrastructure				

16	Final Exams				
Attendance: Minimum 70 %					
Assessment Breakdown	Type		%	Reference/Source	Relevant Competencies
	1	Assignments	10		
	2	Project	20		
	3	Midterm Exam	30		
	4	Final Exam	40		