

Module (Course Syllabus) Catalogue 2023-2024

College/ Institute	Erbil Technical Engineering College	
Department	Highway Engineering Department	
Module Name	Computer Mapping & GIS	
Module Code	CMG803	
Degree	Technical Diploma <input type="checkbox"/>	Bachelor <input checked="" type="checkbox"/>
	High Diploma <input type="checkbox"/> Master <input type="checkbox"/>	PhD <input type="checkbox"/>
Semester	8 th Semester	
Qualification	MSC Civil and Survey Engineering	
Scientific Title	Ass. Lecturer	
ECTS (Credits)	5	
Module type	Prerequisite <input type="checkbox"/>	Core <input checked="" type="checkbox"/> Assist. <input type="checkbox"/>
Weekly hours	3 Hours	
Weekly hours (Theory)	()hr Class	()Total hrs Workload
Weekly hours (Practical)	(3)hr Class	(85)Total hrs Workload
Number of Weeks	12	
Lecturer (Theory)		
E-Mail & Mobile NO.		
Lecturer (Practical)	Razhan Sherwan M.Saleem & Ashna Abdulrahman Kareem Zada	
E-Mail & Mobile NO.	razhan.m.saleem@epu.edu.iq \ ashna.kareem@epu.edu.iq	
Websites	https://moodle.epu.edu.iq/course/view.php?id=696	

Course Book

<p>Course Description</p>	<p>To learn about AutoCAD Civil 3D and how it handles data, first complete the Getting Started tutorials. Then, you will have the basic skills you need to explore the tutorials about AutoCAD Civil 3D features, such as points, surfaces, project management, alignments, profile, corridors, cross sections and materials quantity.</p>				
<p>Course objectives</p>	<ol style="list-style-type: none"> 1. Use the tools of Civil 3D. 2. Combine tools and develop workflows in various design scenarios. 3. Use the tools Civil 3D has to offer, presents you with a number of options and real-world scenarios, and introduces you to the new features in the current version. 				
<p>Student's obligation</p>	<ol style="list-style-type: none"> 1. Class starts on time. NO entry after 15 minutes late. 2. Writing a report every week after practical lecture and submit it next week. 3. Quiz is expectable every week. 4. All student must bring all necessary tools for the lecture. 				
<p>Required Learning Materials</p>	<ol style="list-style-type: none"> 1. All lectures by PowerPoint. 2. Notes and questions are explained on white board. 3. Videos will be Provided and uploaded into Moodle. 4. Direct questions to Students. 				
<p>Evaluation</p>	<p>Task</p>	<p>Weight (Marks)</p>	<p>Due Week</p>	<p>Relevant Learning Outcome</p>	
	<p>Paper Review</p>				
	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Assignments</p>	<p>Homework</p>	<p>10%</p>		
		<p>Class Activity</p>	<p>2%</p>		
		<p>Report</p>	<p>16%</p>		
		<p>Seminar</p>			
		<p>Essay</p>			
		<p>Project</p>			
	<p>Quiz</p>		<p>8%</p>		
	<p>Lab.</p>				
	<p>Midterm Exam</p>		<p>24%</p>		
	<p>Final Exam</p>		<p>40%</p>		
	<p>Total</p>		<p>100%</p>		

Specific learning outcome:	This module will demonstrate the workflows for base map compilation, displaying and editing roadway features in plan and profile views, and creating finished ground terrain models. Roadway alignments, profile views, and digital terrain models are utilized to display and edit the roadway parts during the design process.	
Course References:	<ul style="list-style-type: none"> ➤ Mastering AutoCAD® Civil 3D® 2016 by Cyndy Davenport and Ishka Voiculescu. ➤ Autodesk Civil 3D 2022: Fundamentals Part 1 (Imperial Units): Autodesk Authorized Publisher ➤ AutoCAD Civil 3D 2016 Essentials by Eric Chappell ➤ https://www.udemy.com/course/autocad-civil3d/ ➤ https://knowledge.autodesk.com/support/civil-3d 	
Course topics	Week	Learning Outcome
"Points," introduces AutoCAD Civil 3D points and	1	The various methods of creating them. You will also spend some time exploring the control of AutoCAD Civil 3D points with description keys and groups.
"Surfaces," introduces the various methods of creating surfaces.	2	Using free and low-cost data to perform preliminary surface creation. Then you will investigate the various surface editing and analysis methods.
"Alignments," introduces the basic horizontal layout element.	3	This chapter also examines using layout tools that maintain the relationships between the tangents, curves, and spiral elements that create alignments.
"Profiles and Profile Views,"	4	Examines the vertical aspect of road design from the establishment of the existing profile to the design and editing of the proposed profile. In addition, you will explore how profile views can be customized to meet the required format for your design and plans.
"Assemblies and Subassemblies," AND "Corridors"	5	Introduces the building blocks of AutoCAD Civil 3D cross-sectional design. You will look at the many subassemblies available in the Tool Palettes and look at how to build full design sections for use in any design environment. Also, introduces the basics of corridors full designs from horizontal, vertical, and cross-sectional design elements. You will look at the various components to understand how corridors work before moving to a more complex design set.

“Superelevation,” “Cross Sections” Quantity Take off”	6	Takes a close look at the tools used to add superelevation to roadways and you will have a chance to use the axis of rotation (AOR) subassemblies that can pivot from several designs point. Also, looks at slicing sections from surfaces, corridors and using alignments and the mysterious sample line group. Quantity Take off, you learn how to set material quantity and generate quantity take off table on the cross-section views
Exploring GIS	7	Exploring GIS concepts using ArcGIS <ul style="list-style-type: none"> • What is a Geographic Information System (GIS)? • GIS Components • What can GIS Do? • What are the types of GIS data? • Vector VS Raster. • What are GIS Functions?
Get Started with Arcmap	8	Get Started with Arcmap and work with Vector and Raster data
ArcGIS	9	ArcGIS: Building a Geodatabase <ul style="list-style-type: none"> • Data creation and editing • Creating layers • Editing data geometry • Snapping and tracing • Editing attributes
GIS & Mapping	10	Mapping and exploring the geobrowser with students, as well as demonstrating how to share data in Google Earth. <ul style="list-style-type: none"> • Print layouts • Setting up a layout • Adding and managing elements • Managing templates

Questions Example Design

Exam papers usually contain 4 or 5 questions. The question is about the practical sections applied during the lectures. You will apply an exercise of road design on the Civil 3D software .

Extra notes:

- All students will exam on a specific desktop.
- Personal laptops are not allowed in exams.

External Evaluator

As an Assistant lecturer at Highway Department, I have revised the course-book regarding the subject of Highway Computer Aided Design. I found that the course-book has described well enough the aim and objectives of the subject. Moreover, it covers all the required syllabus and contents of the course and describes satisfactorily the aspects related to the course.



Ali Jamal Nouri

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