



Module (Course Syllabus) Catalogue 2022-2023

College/ Institute	Erbil Technology College	
Department	Surveying and Road Construction	
Module Name	Fundamental of Surveying	
Module Code	FUS105	
Degree	Technical Diploma <input checked="" type="checkbox"/>	Bachler <input type="checkbox"/>
	High Diploma <input type="checkbox"/>	Master <input type="checkbox"/> PhD <input type="checkbox"/>
Semester	First	
Credits	8	
Module type	Prerequisite <input type="checkbox"/>	Core <input checked="" type="checkbox"/> Assist. <input type="checkbox"/>
Weekly hours	3	
Weekly hours (Theory)	(2)hr Class	()hr Workload
Weekly hours (Practical)	(4)hr Class	()hr Workload
Lecturer (Theory)	Ahmed Redha Abdulrahman	
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Lecturer (Practical)	Dlawar Mohammad Karim	
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Course Book

Course Description	<p>The lectures are divided into 6 weekly hours. The subject is taught based on 2 hour of theoretical lecture and 4 hours of laboratory basics. This course gives students an opportunity to improve their experience about setting out any construction projects. The Surveying Department is one of the effective departments of the technology institute; It prepares and sends hundreds of graduates to governmental and non-governmental institutions and private sector agencies.</p> <p>Construction surveying is the transition of construction plans into physical points on the ground that can be used as a basis for the actual construction. The result of construction surveying is seen in almost any urban, suburban, and rural setting. Almost any roadway, building, or other man-made improvement probably had some amount of construction surveying involved. Construction surveying is the transition of construction plans into physical points on the ground that can be used as a basis for the actual construction. Construction surveying is the transition of construction plans into physical points on the ground that can be used as a basis for the actual construction. Construction surveying is the transition of construction plans into physical points on the ground that can be used as a basis for the actual construction. Horizontal and vertical control is developed to create a framework around which other surveys can be adjusted. These control surveys are used for accurate mapping projects in the construction of underground utility systems, roadways, power lines, tunnels, and many other high precision projects. Gresham and Associates, Inc. incorporates a complete range of Global Positioning technology including Static GPS, Real Time Kinematic (RTK) and OPUS control to provide high precision solutions for horizontal and vertical control documentation.</p> <p>Total Station Operations: Total Station Field Techniques (Layout or Setting-Out Positions and Area Computation), Field Procedures for Total Stations in Topographic Surveys, Construction Layout,</p>
Course objectives	<p>The main objectives to be achieved after the completion of this course are summarized below:</p> <ol style="list-style-type: none">1. To emphasize the basic principles and fundamental concepts of surveying.2. To present the different types of surveys and get students3. To present the various types of errors in surveying and the methods to adjust them.4. To introduce mathematical theories of surveying.

	<p>5. To explain the theoretical backgrounds of optical instruments of surveying.</p> <p>6. To discuss the way to construct profiles, cross-sections, mass haul diagram, and contour lines.</p> <p>7. To enlighten students with several methods for the computation of areas and volumes.</p>
Student's obligation	<ul style="list-style-type: none"> • Attendance of students to the lectures • Conducting assignments • Conducting exams
Required Learning Materials	<ul style="list-style-type: none"> - Tutorials are prepared in the form of PowerPoint presentation by using data show. - Using white board to explain examples and offer more details.
Assessment scheme	<p>10% Mid Term (Theory)</p> <p>15% Mid Term (Practical)</p> <p>8% Quiz</p> <p>10% Lab Activity (report, paper, homework, seminar..)</p> <p>12% Class Activity (report, paper, homework, seminar..)</p> <p>5% Homework</p> <p>20% final practical</p> <p>20% final theory</p>
Specific learning outcome:	<p>After completion of this course students are expected to know</p> <ul style="list-style-type: none"> -how to use surveying camera, tape and how to find the height and distance of each point. -Ability to relate and apply fundamental sciences to learning the essential civil engineering concepts and theories of different branches. -Ability to understand the derivation of these concepts and theories by relating them to the real-life engineering cases within the related civil engineering branch. -Ability to define clearly and analyze the engineering problems by applying the introduced civil engineering concepts and theories of the related branch. -Ability to use decision-making skills and perform design calculations correctly for the solution of the defined problem/project by applying the introduced theories of the related civil engineering branch. -Ability to understand and carry out the practical applications of learned civil engineering concepts and theories on site and/or laboratory. -Ability to participate in team-works in a harmonized manner for the solution of the targeted

	<p>problem.</p> <p>-Ability to participate in team-works in a harmonized manner for the solution of the targeted problem.</p> <p>-</p>	
Course References:	<p>VI. Text Book:</p> <p>Fundamentals of Surveying by Milton O. Schmidt and Kam W. Wong</p> <p>VII. References:</p> <ol style="list-style-type: none"> 1. Surveying by Bannister and Raymond 2. Surveying by Bannister and Baker 3. Surveying Practice by Kissam 4. Elementary Surveying by Brinker and Wolf 5. Site Surveying and Leveling by Clancy 6. Surveying for Civil Engineers by Kissam 7. Surveying Theory and Practice by Davis et al. 8. Surveying by Evett 9. Fundamentals of Surveying (in Arabic) by Yousif Syam 	
Course topics (Theory & Practical)	Week	Learning Outcome
Introduction, what is Surveying?	1&2	
History of Surveying, surveyors job	3 to 5	
Type of surveying, scale	6 to 10	
<p>Introduction to surveying instruments</p> <p>Leveling and its errors</p> <p>Leveling and its errors (cont.)</p> <p>Leveling and its errors (cont.)</p> <p>Leveling and its errors (cont.)</p> <p>Profile and cross section</p>	11 & 12	

Profile and cross section (cont.) and excavation and fill Counter line		
Practical Topics	Week	Learning Outcome
Questions Example Design		
Extra notes:		
<p>External Evaluator This course book is reviewed by (Sadiq R. Younes) as he is lecturer in Surveying department in Hawler Institute. He assessed and approved all content of the Computer Essentials subject as he admitted the course book is almost covered the several terms of Computer principals in both theoretical and practical aspects. The course can be presented in the classes for entire curriculum year.</p> <p>Sadiq R. Younes signature</p>		