

## GAU, Faculty of Engineering

<b>Course Unit Title</b>	Surveying	
<b>Course Unit Code</b>	CVEN204	
<b>Type of Course Unit</b>	Compulsory, All civil engineering students	
<b>Level of Course Unit</b>	2nd Year BSc	
<b>National Credits</b>	3	
<b>Number of ECTS Credits Allocated</b>	4 ECTS	
<b>Theoretical (hour/week)</b>	2	
<b>Practice (hour/week)</b>	2	
<b>Laboratory (hour/week)</b>	-	
<b>Year of Study</b>	2	
<b>Semester when the course unit is delivered</b>	4	
<b>Mode of Delivery</b>	Face to Face	
<b>Language of Instruction</b>	English	
<b>Prerequisites and co-requisites</b>	-	
<b>Recommended Optional Programme Components</b>	-	
<b>Objectives of the Course:</b>		
The student will be introduced to the basic surveying calculations. The goal is that the student will have a feel for the accuracy, precision and limitations of the survey data and, be able to make a judgment call that the data can be relied on for inclusion into a design and/or that the survey procedures will meet the construction staking requirements.		
<b>Learning Outcomes</b>		
When this course has been completed the student should be able to		Assesment.
1	Coordinate and facilitate the collection, processing, and interpretation of technical data related to civil engineering projects.	1,2,5
2	Execute mathematical operations accurately.	1,2,3,5
3	Locate, select, organize, and document information using appropriate technology and information systems.	1,2,5
Assesment Methods: 1. Written Exam, 2. Assignment 3. Project/Report, 4.Presentation, 5 Lab. Work		
<b>Course's Contribution to Program</b>		
		CL
1	Ability to understand and apply knowledge of mathematics, science, and engineering	5
2	Ability to design and conduct experiments as well as to analyze and interpret data	1
3	Ability to work in multidisciplinary teams while exhibiting professional responsibility and ethical conduct	2
4	Ability to apply systems thinking in problem solving and system design	3
5	Knowledge of contemporary issues while continuing to engage in lifelong learning	1
6	Ability to use the techniques, skills and modern engineering tools necessary for engineering practice	5
7	Ability to express their ideas and findings, in written and oral form	1
8	Ability to design and integrate systems, components or processes to meet desired needs within realistic constraints	3
9	Ability to approach engineering problems and effects of their possible solutions within a well structured, ethically responsible and professional manner	4
10	Ability to manage time and resources effectively and efficiently while carrying out civil engineering projects	3
11	Ability to combine knowledge from different areas of civil engineering for problem solving and system design with an ethical and sustainable approach	3
CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate 4: High, 5:Very High)		

<b>Course Contents</b>			
Week			Exams
1		Introduction to Surveying	
2	Chapter 1	Units, Significant Figures, and Field Notes	
3		Scales	
4	Chapter 2	Theory of Errors in Observations	
5	Chapter 4	Leveling-Theory, Methods, and Equipment	
6		Leveling-field Procedures and Computations	
7	Chapter 5	Distance Measurement-1	
8		Distance Measurement-2	
9	Chapter 6	Introduction to Geographic Information Systems	Midterm
10		Boundary Surveys	
11	Chapter 7	Angles, Azimuths, and Bearings-1	
		Angles, Azimuths, and Bearings-2	
12	Chapter 8	State Plan Coordinates-1	
15		State Plan Coordinates-2	
15		<b>Debugging</b>	Final
<b>Recommended Sources</b>			
<b>Textbook: Elementary</b>			
1. Surveying, Ghilani, Wolf, 13th edition, ISBN 9780132554343			
2. Surveying, Kissam - McGraw Hill Book Company			
3. Surveying, Foote and Davis - McGraw Hill			
<b>Supplementary Material (s):</b> Lecture notes			
<b>Assessment</b>			
Class and site activities	10%		
Fieldwork Report	20%		
Midterm Exam (Written)	30%		
Final Exam (Written)	40%		
Total	100%		
<b>ECTS Allocated Based on the Student Workload</b>			
Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including the Exam week)	15	2	30
Labs and Tutorials	13	2	26
Assignments	-	-	-
Project/Presentation/Report Writing	1	10	10
E-learning Activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	17	17
Final Examination	1	20	20
Self Study	14	2	28
Total Workload			131
Total Workload/30 (h)			4.37
ECTS Credit of the Course			4