

GAU, Faculty of Engineering

Course Unit Title	Structural Analysis II	
Course Unit Code	CVEN304	
Type of Course Unit	Compulsory, All civil engineering students	
Level of Course Unit	3rd Year BSc	
National Credits	3	
Number of ECTS Credits Allocated	5 ECTS	
Theoretical (hour/week)	3	
Practice (hour/week)	-	
Laboratory (hour/week)	-	
Year of Study	3	
Semester when the course unit is delivered	6	
Mode of Delivery	Face to face	
Language of Instruction	English	
Prerequisites and co-requisites	CVEN303	
Recommended Optional Programme Components	Basic background in mathematics and engineering mechanics	
Objectives of the Course:		
<ul style="list-style-type: none"> ➤ Analysis of statically indeterminate structures using various methods ➤ Analysis of indeterminate beams, trusses and frames ➤ Drawing shear and bending moment diagrams of indeterminate structures 		
Learning Outcomes		
When this course has been completed the student should be able to		Assesment.
1	Understand and analyse indeterminate structures	1
2	Analyse statically indeterminate beams and trusses using Force method	1
3	Analyse statically indeterminate beams using Three-Moment method	1
4	Analyse statically indeterminate beams and frames using Slope Deflection method	1
5	Understand behaviour of indeterminate structures	1
6	Draw shear and bending moment diagrams	1
Assesment Methods: 1. Written Exam, 2. Assignment 3. Project/Report, 4.Presentation, 5. Lab. Work		
Course's Contribution to Program		
		CL
1	Ability to understand and apply knowledge of mathematics, science, and engineering	4
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	1
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	2
6	Ability to use the techniques, skills and modern engineering tools necessary for engineering practice	3
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	3
10	Ability to manage time and resources effectively and efficiently while carrying out civil engineering projects	4
11	Ability to combine knowledge from different areas of civil engineering for problem solving and system design with an ethical and sustainable approach	4
CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate 4: High, 5:Very High)		

Course Contents		
Week		Exams
1	Introduction to statically indeterminate structures	

2		Analysis of indeterminate structures	
3		Application of Force method ; continuous beams	
4		Application of Force method; continuous beams	
5		Application of Force method ; trusses	
6		Application of Force method ; trusses	
7		Revision and class exercises.	
8		Application of Three-Moment method ; continuous beams	
9			Mid Term
10		Application of Three-Moment method ; continuous beams	
11		Application of Slope-Deflection method; continuous beams	
12		Application of Slope-Deflection method; frames	
13		Application of Slope-Deflection method; frames	
14		Revision	Quiz
15			Final

Recommended Sources

Textbook: Kassimali, A., Structural Analysis . 6th ed. Cengage Learning, 2011. ISBN-13: 978-0-495-29567-9. ISBN-10: 0-495-29567-1.

Supplementary Material (s): Hibbeler, R.C., Structural Analysis, 8th Edition in SI Units, Pearson.

Assessment

Attendance	-	
Laboratory	-	
Midterm Exam (Written)	35%	
Quiz (Written)	20%	
Final Exam (Written)	45%	
Total	100%	

ECTS Allocated Based on the Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including the Exam week)	15	3	45
Labs and Tutorials	-	-	-
Assignments	-	-	-
Project/Presentation/Report Writing	-	-	-
E-learning Activities	-	-	-
Quizzes	1	8	8
Midterm Examination	1	14	14
Final Examination	1	22	22
Self Study	14	4.5	63
Total Workload			156
Total Workload/30 (h)			5.2
ECTS Credit of the Course			5