

## GAU, Faculty of Engineering

<b>Course Unit Title</b>	Engineering Economy	
<b>Course Unit Code</b>	ENG304	
<b>Type of Course Unit</b>	Compulsory, All engineering students	
<b>Level of Course Unit</b>	3rd Year BSc	
<b>National Credits</b>	3	
<b>Number of ECTS Credits Allocated</b>	5 ECTS	
<b>Theoretical (hour/week)</b>	3	
<b>Practice (hour/week)</b>	-	
<b>Laboratory (hour/week)</b>	-	
<b>Year of Study</b>	3	
<b>Semester when the course unit is delivered</b>	6	
<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>		
<ul style="list-style-type: none"> <li>➤ Present and Future Value of Money</li> <li>➤ Compound Interest Formulas</li> <li>➤ Present Worth Methods and Rate of Return Analysis</li> <li>➤ Evaluation of Alternative Investment Projects</li> </ul>		
<b>Learning Outcomes</b>		
When this course has been completed the student should be able to		Assesment.
1	Explain the difference between Simple and Compound Interest	1
2	Derive the formulas for the Compound Interest Calculations	1
3	Use the Basic Concepts Of Engineering Economy	1
4	Solve Engineering Economy Problems	1,2
5	Evaluate the Alternative Investment Projects	1,2
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	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	2
5	Knowledge of contemporary issues while continuing to engage in lifelong learning	3
6	Ability to use the techniques, skills and modern engineering tools necessary for engineering practice	4
7	Ability to express their ideas and findings, in written and oral form	3
8	Ability to design and integrate systems, components or processes to meet desired needs within realistic constraints	1
9	Ability to approach engineering problems and effects of their possible solutions within a well structured, ethically responsible and professional manner	4
CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate 4: High, 5:Very High)		

<b>Course Contents</b>			
Week			Exams
1	Chapter 1	Foundations of Engineering Economy	
2	Chapter 2	Single-Payment Factors and Uniform-Series Present worth Factor	
3		Uniform Series Compound Amount Factor and Sinking Fund Factor	
4		Arithmetic Gradient Factors	
5		Geometric Gradient Factors	
6	Chapter 3	Combining Factors	Quiz1
7	Chapter 4	Nominal and Effective Interest Rates, Effective Annual Interest Rates	
8			Midterm
9		Effective Interest Rates for any Time Period and Continuous Comp.	
10	Chapter 5	Present Worth Analysis of Equal-Life Alternatives	HW
11		Present Worth Analysis of Different-Life Alternatives,Capitalized Cost	
12	Chapter 7	Rate of Return Analysis – Single Alternative	
13	Chapter 8	Rate of Return Analysis- Multiple alternatives	HW
14		“	Quiz2
15			Final

### Recommended Sources

**Textbook:** Engineering Economy, Leland Blank and Anthony Tarquin, McGraw-Hill Company, (6th Edition 2008) (Other editions are also useful)

**Supplementary Material (s):** 2) Engineering Economic Principles, H.M.Steiner, Mc Graw Hill Company,1992

### Assessment

Attendance	5%	
Assignment	10%	
Midterm Exam (Written)	30%	
Quiz (Written)	15%	
Final Exam (Written)	40%	
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	2	8	16
Project/Presentation/Report Writing	-	-	-
E-learning Activities	-	-	-
Quizzes	2	8	16
Midterm Examination	1	15	15
Final Examination	1	16	16
Self Study	14	3	42
Total Workload			150
Total Workload/30 (h)			5
ECTS Credit of the Course			5