

GAU, Faculty of Engineering

Course Unit Title	Object Oriented Programming	
Course Unit Code	CEN305	
Type of Course Unit	Compulsory, computer engineering students	
Level of Course Unit	BSc	
National Credits	3	
Number of ECTS Credits Allocated	6 ECTS	
Theoretical (hour/week)	2	
Practice (hour/week)	-	
Laboratory (hour/week)	2	
Year of Study	3	
Semester when the course unit is delivered	5	
Mode of Delivery	Face to Face, Laboratory Experiments, Web	
Language of Instruction	English	
Prerequisites and co-requisites	ENG203 (Computer Programming II)	
Recommended Optional Programme Components	Structured computer programming skills	
Objectives of the Course		
<ul style="list-style-type: none"> ➤ Conceptual overview of object oriented approach ➤ Teaching basic object oriented programming theories ➤ Application of object oriented approach with an appropriate programming language (C++) 		
Learning Outcomes		
When this course has been completed the student should be able to		Assesment
1	Learn how to design object oriented solutions to algorithmic software problems	1
2	Have a thorough understanding of the code reusability and software design using objects	1,5
3	Understand the importance of class design	1,5
4	Apply inheritance in classes to improve coding time and modularity	1,5
5	Acquire adequate OOP background to support other modern programming platforms	1,5
<i>Assesment Methods: 1. Written Exam, 2. Assignment 3. Project/Report, 4.Presentation, 5.Lab. Work</i>		
Course's Contribution to Program		
		CL
1	Ability to understand and apply knowledge of mathematics, science, and engineering	3
2	Ability to design and conduct experiments as well as to analyze and interpret data	2
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	5
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	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	4
9	Ability to approach engineering problems and effects of their possible solutions within a well structured, ethically responsible and professional manner	2
10	To apply fundamental concepts of software design, database design, data processing and artificial intelligence in the modeling, designing, implementing, testing and deploying software solutions.	5
11	Ability to analyse and design hardware systems by applying the principles of embedded systems, microprocessors, computer networks, distributed systems and data communication.	2
<i>CL (Contribution Level): 1.Very Low, 2.Low, 3.Moderate, 4.High, 5.Very High</i>		

Course Contents			
Week			Exams
1		Introduction	
2		Concept of Object Oriented Programming Approach	
3		Programming Concepts and Functions Revision	
4		Programming Concepts and Structures Revision	Extra Quiz
5		Classes (introduction)	
6		Classes (core concepts)	
7		Classes (core concepts)	Quiz
8			Midterm
9		Classes (final details)	
10		Operator Overloading	
11		Operator Overloading	
12		Inheritance	
13		Inheritance	Quiz
14		Polymorphism	Lab. Exam
15			Final
Recommended Sources			
Textbook: Schaum's Programming with C++, J.R.Hubbard, McGraw-Hill, 2nd Edn., 2000			
Supplementary Material (s): C++ by Dissection, I.Pohl, Addison Wesley, 2002.			
The C++ Programming Language, B.Stroustrup, Addison Wesley Special Edn., 1997			
Assessment			
Attendance & E-learning	10%		
Homeworks	5%		
Laboratory	15%	Lab Grade= ((Lab Exam + Lab Performance) × Lab Attendance)	
Midterm Exam	30%	Written Exam	
Quiz	5%	Written Exam	
Final Exam	35%	Written Exam	
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	2	30
Labs and Tutorials	12	2	24
Assignments	10	3	30
E-Learning Activities	-	-	-
Project/Presentation/Report Writing	-	-	-
Quizzes	2	12	12
Lab Exams	1	12	12
Midterm Examination	1	15	15
Final Examination	1	15	15
Self Study	14	2	28
Total Workload			166
Total Workload/30 (h)			5.53
ECTS Credit of the Course			6