AMERICAN UNIVERSITY
OF CYPRUS

Course Code CSC106	**Course Name** Programming Principles 2	**ECTS Credit** 7.5
Pre-Requisite CSC102	**Course Type** Compulsory	**Language of Instruction** English
Year of Study 1st / 2nd	**Level of Course** BSc/1st Cycle	**Mode of Delivery** On Campus

Course Objectives:

The aim of the course is for students to gain experience in the creation of object-oriented programming programs, through work and lectures.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

- Define objects with manufacturers and access methods
- Design pro / base-classes and under/generated-class classes
- Create abstract classes and interfaces
- Create basic GUIs and handle events (as appropriate)
- Apply operator overload (as appropriate)
- Apply error checking techniques
- Apply sequential and random access to files
- Use font manipulation methods

Teaching Methodology:

Lectures 42 hours

Labs 30 hours

Course Content

Objects:

Introduction to objects and object-oriented design, classes, manufacturers, manufacturers overload, access methods, class composition, constants and variables at class level, class scope, data removal, and encapsulation.

Inheritance, polymorphism, encapsulation and abstraction:

Ultra/Basic classes, sub-generated classes, inheritance, polymorphism, dynamic allocation of methods, abstract classes and methods, final methods and classes, interfaces.

Files, overload (as appropriate)

File methods and file classes, operator overload, tables, and classes.

GUI (as appropriate):

Introduction to GUI design, basic GUI application such as labels, text boxes, compound frames, buttons, selection buttons, check boxes.

Events (as appropriate):

Event handling, internal classes, nested classes, handle of events, and event listeners.

Exception handling:

Error control and error handling techniques, error throwing and catching.

Files:

What is a file, streams, sequential and random access to files, storing objects in files, class files, functions / methods for accessing and exiting files.

Assessment Methods:

Final Exam

Mid-Term/Lab Exam

Assignment

Required Textbooks/Reading:

Title	**Author(s)**	**Publisher**	**Year**
Java How to Program, Early Objects	P.J. Deitel, H. Deitel	Pearson	2017
PROBLEM SOLVING WITH JAVA	Elliot B. Koffman and Ursula Wolz	Addison Wesley	