



**AMERICAN UNIVERSITY
OF CYPRUS**

Course Code
MSE 361

Course Name
Compilers

ECTS Credit
7.5

Pre-Requisite
CSC102

Course Type
Major Elective

Language of Instruction
English

Year of Study
3rd / 6th

Level of Course
BSc/1st Cycle

Mode of Delivery
On Campus

Course Objectives:

The aim of this course is to offer students the opportunity to complete their knowledge about computer organization, operating systems, theory of automata and languages, data structures and programming.

Learning Outcomes

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

- describe the role of a compiler and distinguish differences, phases, and relationships with other related software such as the pre-processor, interpreter, debugger, linker, loader, etc.
- describe the grammar of a programming language using regular expressions and productive rules
- recognize the importance of the grammar for the development of a compiler
- describe finite states automata
- recognize their role as recognition machines
- design syntactic trees
- describe the operating steps of a downstream and an upstream syntactic analyzer
- describe the role of the table of symbols and be able to choose the appropriate structure and organization in order to create it
- recognize the characteristics of a final code and its execution environment
- create regular expressions and production rules for the development of analyzers
- production of final code and optimization of the code

evaluate the assignments of their colleagues with stable evaluation criteria

Teaching Methodology:

Lectures 42 hours

Labs 30 hours

Course Content

Introduction to compilers, basic structure of a compiler, independent grammar, regular expressions, finite automata, verbal analysis, verbal analyzers (Flex), syntax analysis, production rules, vague grammars predictive downstream analysis and iterative analysis, analyzers (Bison), semantic analysis, type checking, creation and optimization of intermediate code and creation of low-level code.

Assessment Methods:

Final Exam

Mid-Term/Lab Exams

Assignment

Required Textbooks/Reading:

Title	Author(s)	Publisher	Year
Compilers: Principles, Techniques, and Tools	M.S.Lam, R. Sethi, A.V. Aho	Pearson Education	2013
Modern Compiler Design	D. Grune, k. Reeuwijk, H. Bal, C.J.H. Jacobs, K. Langendoen		2012