Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Genetics and Bioengineering Department
2024-2025 Spring Semester
SYLLABUS

Code/Name	GBM 102 / Introduction to Scientific Programming
Type	Required
Credit/ECTS	4/4
Hour per Week	4 (2+2+0)
Level/Year	Undergraduate/1
Semester	Spring
Classroom	WBA
Content	Numbering systems. Basic computer hardware. Programming with C, C++ or another appropriate programming language. Logic statements, constants, variables, expressions, loops, arrays, selective structures, functions and recursive programming. Pointers and computer interfacing.
Prerequisites	NA
Textbooks	*Primary* C Pozrikidis, *Introduction to C++ Programming and Graphics*, 1st edition, Springer, 2007. *Supplementary* GE Karniadakis, RM Kirby, *Parallel Scientific Computing in C++ and MPI*, 1st edition, Cambridge University Press, 2003.
Objectives	• To learn the C++ interface and built-in functions • To develop fundamental programs with loops • Make engineering applications including numerical methods and computational error
Course Outcomes	In this course you will be able to: CO1 Use a programming software effectively CO2 Organize data plotting and some basic operations in C++ software CO3 Organize built-in functions and arrays in C++ software CO4 Demonstrate the use of loops in programming CO5 Evaluate engineering applications including numerical methods

Weekly Schedule of Topics

W	Topic
1	Introduction to Programming: What Does It Mean "To Program"?
2	The C# Language and the .NET Platform
3	Primitive Types and Variables
4	Operators and Expressions
5	Console Input and Output
6	Conditional Statements
7	Loops: While Loops, Do-While Loops, For Loops, Foreach Loops, Nested Loops
8	Arrays: What Is an "Array"?
9	Numeral Systems: Representation of Numbers
10	Methods: Subroutines in Programming
11	Recursion: Example of Recursion, Direct and Indirect Recursion
12	Creating and Using Objects
13	Exception Handling
14	Strings and Text Processing

	Professional Contribution	Understand the place and importance of computer software and programming in mechanical engineering

Contribution to Program Outcomes*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	5	5	5	5	4	3	3	2	2	4	4
CO2	5	5	5	5	4	3	3	2	2	4	4
CO3	5	5	5	5	4	3	3	2	2	4	4
CO4	5	5	5	5	4	3	3	2	2	4	4
CO5	5	5	5	5	4	3	3	2	2	4	4

* Contribution Level | 0: None | 1: Very Low | 2: Low | 3: Medium | 4: High | 5: Very High

Special Conditions	The consequence of violation of the attendance rule is to receive a grade of **NA.**
Requirements	NA
Evaluation	Midterm Exam 40% Final Exam 60% Total 100%
Rubric	NA
Course Policy	1. You must attend at least 70% of the sessions including add-drop period. 2. Be in the class on time. 3. English should always be used to communicate with one another. 4. Mobile phone should be switched off and put away during the class. 5. You cannot talk to your friends during class no matter what the subject is.
Cheating & Plagiarism	• Copying or letting someone to copy your work on exams, assignments, or reports is cheating. • Cutting and pasting text, figures and tables from the web sources or any other electronic source is plagiarism. • The consequence of academic dishonesty is to receive a grade of **F** for the course.

Instructor

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Room	WBA	Office Hours	WBA