CMPE/CMSE 107/AING107 - Foundations of Computer/Software Engineering

Department: Computer Engineering

Instructors information

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Assistant information

This will be announced later.

Program Name: Computer/Software Engineering Artificial Intelligence Engineering.	**Program Code:** 25/29/2L	
Course Number: CMPE 107/CMSE107/AING107	**Credits:** 4 Cr	**Year/Semester:** 2026-2027 FALL

☒ Required Course Elective Course

Prerequisite(s):

None

Catalog description:

Design of computer algorithms with pseudo-code to solve problems, analyze engineering related problems using computer. Basic elements of a high level computer programming language: Data types, constants and variables, arithmetic and logical operators and expressions. Fundamental components of Python programming language: Storing and manipulating user-input data, design and use of selection structures, design and use of repetition structures, lists and other data structures, functions, modular designs, dictionaries and sets, file input/output.

Course web page:

https://staff.emu.edu.tr/cemergun/en/teaching/cmpe-cmse107

Textbook(s):

Charles Dierbach, Computer Science using Python: A Computational Problem Solving Focus, Wiley,

ISBN 978-0-470-55515-6

Indicative basic reading list:

Eric Matthes, Python Crash Course: A Hands-on Project-based Introduction to Programming,

ISBN-10: 1-59327-603-6

Topics covered and class schedule
(tentative): (4 hours of lectures per week)

Week 1 A closer look at a computer system: Basic software and hardware components.

Week 2-3 Introduction to problem solving techniques, Algorithms and Pseudo Code

Week 4 Introduction to Python programming language: basic data types, constants and variables, basic operators and expressions.

Week 5 Data and Expressions: Writing code to store and manipulate user-input data. Control and repetition structures

Week 8-9 **Midterm**

Week 6-7 Control and repetition structures, (continued) Lists and List comprehensions

Week 10 Lists and List comprehensions (continued) and Functions

Week 11 Functions with List, Dictionaries and Sets

Week 12 File Input/Output

Week 13 File Input/Output (continued) and Solving examples

Laboratory	**(2 hours per week)**
Weeks 1, 2,3	No Lab
LAB 1 and 2	Introduction to Python Programming Environment/ Numbers and Variable Assignment and Strings and Printing formatting
LAB 3	Sequential code structure in Python Programming
LAB 4	Selective code structure in Python Programming
LAB 5	Repetitive code structure in Python Programming
LAB 6	Lists and Other Data Structures to Store Data
LAB 7	Functions and Their Use in a Program / File Input/Output
LAB 8	Dictionaries and Text Files in Python Programming.pdf
	Lab Final Exam

Course learning outcomes:

Upon successful completion of the course, students are expected to have the following competencies:

1. Identify the difference between computer hardware and computer software
2. Construct an algorithm for solving a computational problem
3. Use interactive development environment (IDE) to edit, compile, and execute Python code
4. Write a complete Python program for solving a problem
5. Use of selection and repetition structures within a Python Program
6. Creating lists and other data structures for storing and manipulation of data
7. Using functions and implementing modular programming approach in Python
8. Writing code to display results

Assessment Method (tentative)

		No	Percentage
	Midterm Exam 1	1	40%
	Final Exam	1	45%
	Lab Work	7	15%

Policy on makeups: For eligibility to take a makeup exam, the student should bring (submit) a doctor's ***report within 3 working days*** of the missed exam. You will have only one make-up for midterm or final exams only. Make-up will be organized after final exam period and will cover all the materials covered during the semester.

Attendance to lectures: Attendance will be taken in every lecture but will not be graded.

Attendance to labs: There is no makeup for labs. For a missed lab session, lab grade for that session will be taken as zero. If a student does not attend more than two lab sessions, his/her overall lab grade will be taken as zero.

Policy on cheating and plagiarism: Any student caught cheating in exams or in any other graded course work will automatically fail from the course and may be sent to the disciplinary committee at the discretion of the instructor.

Policy on NG grades: NG grade will be given in case of Missing Midterm and Final without official excuse.

Contribution of course to ABET criterion 5

Credit Hours for:

Mathematics & Basic Science : 0
Engineering Sciences and Design : 4
General Education : 0

Relationship of the course to program outcomes

The course has been designed to contribute to the following program outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

Prepared by: Assoc. Prof. Dr Adnan ACAN
Assist. Prof. Dr. Cem ERGÜN

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