CMPE 318 / CMSE 318 - Principles of Programming Languages

Department: Computer Engineering

Instructor Information

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Assistant Information

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Program Name: Computer Engineering / Software Engineering		**Program Code:** 25 / 29
Course Code	**Credits**	**Year / Semester**
CMPE 318 – CMSE 318	4	2025 – 2026 Summer

☒ Required Course ☐ Elective Course

Prerequisite(s)

CMPE 211 / CMSE 211 – Object-oriented Programming

Catalog Description

Formal specification of programming languages: syntax, analysis, and semantics; evolution of programming languages and concepts; names and scope; data representation; evaluation sequence at expression, statement, and subprogram levels; Object Orientation implementation issues; abstraction, inheritance, polymorphism, concurrency, and exception handling; sampling of other paradigms such as functional, logical, scripting, high-performance, etc. as time permits. Weekly homework and lab work are assigned in parallel to lectures.

Course Web Page: https://staff.emu.edu.tr/tanselsarihan/en/teaching/cmpe-cmse-318-principles-of-programming-languages

Textbook(s)

SEBESTA, Robert W.: Concepts of Programming Languages, 11th Edition, Pearson Intl (Addison Wesley), 2016. ISBN: 0-321-50968-4.

Schedule and Classrooms

Monday	08:30 – 10:20	CMPE 137
Tuesday	08:30 – 10:20	CMPE 137
Wednesday	08:30 – 10:20	CMPE 137
Thursday	08:30 – 10:20	CMPE 137
Thursday	12:30 – 14:20	CMPE 137 (Lab)
Friday	08:30 – 10:20	CMPE 137

Topics Covered and Class Schedule (10 hours of lectures per week)	
Week	**Topic**
July 15 – 17	Introduction
July 21 – 22	History
July 23 – 24	Describing Syntax and Semantics
July 27 – 28	Lexical and Syntax Analysis
July 31 – August 3	Names, Bindings, Type Checking, Scopes, Data Types
August 4 – 5	Expressions and Assignment Statements
August 6 – 7	Control Structures
Midterm Exam (August 10)	
August 11 – 12	Subprograms
August 13 – 14	Implementing Subprograms
August 17 – 18	Tutorial and Problem Session
Final Exams (August 20 – 22)	
Lab Schedule	
Week	**Topic**
July 23	Warm-up with Python
August 6	Lexical Analysis
August 16	Syntax Analysis
Course Learning Outcomes	

Upon successful completion of the course, students are expected to have the following competencies:
1. Draw an annotated parse tree for a given input and attribute grammar (SO 1)
2. Have knowledge of various programming languages, their features, history and category (SO 1)
3. Use LR parsing tables for bottom up parsing of a given input (SO 1)
4. Work effectively with context free grammars (SO 1)
5. Draw a parse tree for a sentence in a language, given its grammar (SO 1)
6. Derive a sentence in a language, given its grammar (SO 1)
7. Demonstrate that a specific grammar is ambiguous (SO 1)
8. Write a simple lexical analyzer (SO 1)
9. Write a simple top-down parser (SO 1)
10. Show the contents of the system stack after several function calls (SO 1)
11. Differentiate between static and dynamic scope (SO 1)
12. Trace output of programs with various parameter passing methods (SO 1)
13. Be familiar with the implementation techniques of object-oriented constructs (SO 1)
14. Write and trace simple programs in the Haskell Functional Programming Language (SO 1)

	Method	Number	Percentage
Assesment	Midterm Exam	1	35%
	Final Exam	1	45%
	Lab Works	3	20%
	Attendance	Every lecture	0%

Policy on Makeup

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.

Policy on the NG Grade

NG grade will be given in case of missing both midterm and final exams without official excuse.

Policy on Attendance

Attendance will be taken in every lecture but will not be graded.

Policy on Missed Labs

There will be ***no makeup*** for missed labs. If you cannot attend a lab for some reason, you should contact the assistant beforehand so that you can present your work in advance.

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.

Relationship of the course to ABET Student Outcomes

The course has been designed to contribute to the following student outcomes:
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

Prepared by: Tansel Sarıhan	**Date:** 14 July 2026