

CMPE318 – Principles of Programming Languages

Department: Computer Engineering	Program: Computer/Software Engineering	Program Code: 25/29		
Course Code: CMPE318	Credits: 4	Year/Semester: 2024-2025 Spring		
<input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Elective Course				
Prerequisite(s): CMPE211 – Object Oriented Programming				
Course 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/emrerifatyildiz/en/teaching/cmpe318				
Textbook(s): SEBESTA, Robert W.: Concepts of Programming Languages, 10th Edition, Pearson Intl (Addison-Wesley), 2013. ISBN: 0-321-50968-4.				
Supporting Resources: Resources to be distributed during the course.				
Course Topics and Weekly Schedule:				
Week	Date	Topic	Lab	Notes
1	20.02.2025-02.03.2025	Introduction		
2	03.03.2025-09.03.2025	History		
3	10.03.2025-16.03.2025	Describing Syntax and Semantics		
4	17.03.2025-23.03.2025	Lexical and Syntax Analysis	Lab #1	
5	24.03.2025-30.03.2025	Names, Bindings, Type Checking, Scopes, Data Types		
6	31.03.2025-06.04.2025	Expressions and Assignment Statements		
7	07.04.2025-13.04.2025	Control Structures	Lab #2	
8	14.04.2025-20.04.2025	11 -26 April – Midterm Exam Period		
9	21.04.2025-27.04.2025			
10	28.04.2025-04.05.2025	Functional Programming		
11	05.05.2025-11.05.2025	Subprogram and Its Implementations		
12	12.05.2025-18.05.2025	Abstract Data Types and Encapsulation Concepts	Lab #3	
13	19.05.2025-25.05.2025	Support for Object-Oriented Programming		
14	26.05.2025-01.06.2025	Concurrency	Lab #4	
15	02.06.2025-08.06.2025	Exception Mechanism (Time permitting)		
16-18	09.01.2025-29.06.2025	11 -26 June – Final Exam Period		

Lab Schedule

Week 4: Data structures
 Week 7: Lexical analysis
 Week 12: Syntax analysis
 Week: 14: Haskell programming

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	No	Percentage
Assesment	Mid-Term Exam	1	% 35
	Lab Work	4	% 20
	Final Exam	1	% 45
	Attendance	Every Lecture	% 0

Policy on makeups: Based on the regulations of EMU, a make-up exam will be provided for any missed exam. If more than one exam (midterm, final) is missed, only one make-up exam will be provided. For eligibility to take a make-up exam, a legally valid report must be submitted to the course instructor within 3 business days of the exam date.

Policy on the NG grade: If both the midterm and final exams are missed with no valid excuse, the student will be graded as NG.

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.

Important Notes:

All documents related to the course will be shared on the course web page. Visit this address regularly. All announcements in this area are deemed to have been made to all students taking the course and students are deemed responsible for the announcements. All education, teaching activities, explanations and announcements made during the courses are deemed to have been received by all students, whether they attend the course or not.

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

Meeting Times and Places:

Group 1	Group 2	Group 3
Wed, 08:30 – 10:20 (CMPE128)	Tue, 16:30 – 18:20 (Lab)	Tue, 10:30 – 12:20 (CMPE025)
Wed, 14:30 – 16:30 (Lab)	Thu, 12:30 – 14:20 (CMPE127)	Thu, 16:30 – 18:20 (Lab)
Fri, 14:30 – 16:30 (CMPE127)	Fri, 08:30 – 10:20 (CMPE127)	Fri, 12:30 – 14:20 (CMPE227)

Prepared By: Emre Rifat Yıldız

Date Prepared: 14.02.2025

Revision: