

CMPE 260 PRINCIPLES OF PROGRAMMING LANGUAGES

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Intended Learning Outcomes

- Knows the elements of programming languages
- Can choose the most suitable programming paradigm for a project
- Is able to program using different programming paradigms
- Can comprehend the inner workings of code execution

What is out of scope?

This is not a full course on

- Coding
- Software architecture
- System design
- Compiler design

What does the lecturer expect from you?

- Active participation in the lectures
- Timely delivery of assignments
- Attendance of the activities
- Positive attitude



What can you expect from the instructor?

- Interactive teaching mode
- Fast response to questions (e-mail, piazza, meetings)
- As-objective-as-possible grading
- Knowledge of the field
- Eagerness to learn (from you) during the course!

Topics Covered

- Describing syntax and semantics
 - Lexical and syntax analysis
 - Names, bindings, type checking and scopes
 - Data types
 - Expressions and assignment statements
 - Subprograms
 - Statement level control structures
 - Concurrency
- Functional programming
 - Logic programming

Grading

- Individual work
 - *Midterm 25%*
 - *Final 35%*
 - *2 Assignments 2 * 5%*
 - *2 Projects 2 * 15%*

Tentative Schedule

- A1: March 19-26
- Midterm: March 26
- Project 1: April 2- 16
- Project 2: April 30-May 14
- A2: May 14-21
- Final TBA

Assignments

- About the course content
- Problems to solve
- Will be submitted digitally, typed in Latex!

Projects

- Logic programming (Prolog)
- Functional Programming (Scheme)

People

- Instructor: F. Başak Aydemir
 - basak.aydemir@boun.edu.tr
- Teaching Assistants
 - Burak Suyunu burak.suyunu@boun.edu.tr
 - Ozlem Şimşek ozlem.simsek@boun.edu.tr
- Student Assistant
 - Alper Çakan alper.cakan@boun.edu.tr

Website

The course will be entirely managed via Moodle

- Syllabus
- News
- Lecture slides
- Schedule
- Questions & Answer platform Piazza
- Assignment submission and review
- Grades

Material

Book: Concepts of Programming Languages, Robert W. Sebesta

- Comparative Programming Languages, R.G.Clark, Addison Wesley Pub.Co., 2000
- Concepts in Programming Languages, John C. C. Mitchell, Krzysztof Apt, Cambridge University Press, 2002
- Foundations of Programming Languages, Seyed H. H. Roosta, Course Technology, 2002
- Programming Language Design Concepts, David A. Watt, William Findlay, Wiley, John & Sons, 2004
- Programming Language Pragmatics, Michael L. Scott, Elsevier, 2005
- Programming Languages and Methodologies, Robert J. Schalkoff, Jones & Bartlett Pub., 2007
- Programming Languages, Design and Implementation, T.W.Pratt, M.V.Zelkowitz, Prentice Hall, 4th ed., 2001
- Programming Languages: Principles and Paradigms, Allen B. Tucker, Robert Noonan, McGraw-Hill, 2006

Questions & ANSWERS



Lecture

«The ideal programming language has not yet been designed,
and is never likely to be.»

David Watt, 1990

What is this course about?

- Studying general features in all programming languages
- Studying the design issues in language constructs
- Understanding the effect of implementation in language design
- Studying syntax and semantics of programming languages
- Understanding the basic methodologies of today

Why do we want to study programming languages?

- We learn new and better ways to do our tasks
- We choose the most appropriate language for a task
- We learn new languages easily
- We understand how the concepts are implemented
- We design new languages and language like componenets

Application Domains

- Scientific application
- Business application
- Artificial Intelligence problems
- System software applications
- Special applications