Identification	**Subject**	Principles of Programming Languages -8ECTS
	Department	Computer Science
	Program	Master
	Term	Spring, 2017
	Instructor	Nijat Suleymanov
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	Phone:	00994557596877
	Classroom/hours	41 Mehseti street (Neftchilar campus),
Prerequisites	None	
Language	English	
Compulsory/Elective	Compulsory	
Required textbooks and course materials	***Core Textbooks:*** **1.** Robert W. Sebesta, Concepts of Programming Languages, 10th Ed. Pearson	
Course website	None	
Course outline	Studies basic concepts of programming languages. Topics: History of Programming Languages; design principles; syntax and semantics; implementation; compilation; interpretation; Evaluation of major programming languages: binding, scope, type casting, data abstraction, parameter passing, exception handling, I/O, etc.; Programming paradigms; procedural, object oriented, functional, logical. Requires extensive programming.	
Course objectives	The objective of this course is to increase programming design abilities. The basic principles and the design philosophy behind new programming languages do not change. The course introduces the basic principles and behavior of different classes of programming languages. No specific programming language will be used, but examples will be written by using the syntax of a known programming language of a specific class to which the examples apply.	
Learning outcomes	• acquire the appropriate terminology related to the syntax and the semantics of programming languages; • increase the capacity of using different constructs in writing programs; • be able to describe the syntax and the semantics of programming languages in a formal manner; • be able to analyze a programming language with respect to its capabilities and limitations for the solution of a particular class of problems; • be able to approach the task of learning a new programming language in an effective manner; • be able to specify and identify desirable characteristics in a language.	
Course Policy	• Class work shall be given to the students and the solution will be discussed in the following week.	
Teaching methods	**Lecture**	x
	Group discussion	x
	Experiential exercise	
	Simulation	
	Case analysis	
	Course paper	
	Others(Tutorials, Quiz, Threaded discussions etc.)	x
Evaluation	**Methods**	**Date/deadlines**	**Percentage (%)**
	Midterm Exam		15
	Case studies		
	Class Participation	70% mandatory	

	Assignment and quizzes		15
	Project		20
	Laboratory work		
	Final Exam		50
	Others		
	Total		100

Policy

- **Preparation for class**

  The structure of this course makes your individual study and preparation outside the class extremely important. The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and having some familiarity with them before class will greatly assist your understanding of the lecture. After the lecture, you should study your notes and work relevant problems and cases from the end of the chapter and sample exam questions.
  Throughout the semester we will also have a large number of review sessions. These review sessions will take place during the regularly scheduled class periods.

- **Withdrawal (pass/fail)**

  This course strictly follows grading policy of the School of Engineering and Applied Science. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year.

- **Cheating/plagiarism**

  Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations.

- **Professional behavior guidelines**

  The students shall behave in a way to create favorable academic and professional environment during the lecture hours. Unauthorized discussions and unethical behavior are discouraged.

- **Ethics**

  Students should not arrive in late to class.
  All cell phonesmust be turned off and stowed away before entering class.
  Use of any electronic devices is not allowed when the class is in progress.

Tentative Schedule

Week	**Date/Day (tentative)**	**Topics**	**Textbook/ Assignments**
1		Syllabus, **Introduction**(Ch1) Evolution of major programming languages (Ch2)	
2		**Describing Syntax and Semantics (3.1, 3.2, 3.3)**	
3		Attribute Grammars, dynamic semantics (3.4, 3.5)	

4		**Names, Bindings, Scope:** Names, Variables, Concept of Binding (5.1, 5.2, 5.3, 5.4)	
5		Scope, scope and lifetime, referencing environment, named constants(5.5, 5.6, 5.7, 5.8)	
6		**Data Types:** Primitive types, character String types, User Defined Ordinal types, Array Types (6.1, 6.2, 6.3, 6.4, 6.5)	
7		Associative Arrays, Record, Tuple, List, Union, Pointer and reference, Type Checking, Strong Type Checking. (6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12)	
8		**Expressions and Assignment Statements:** Arithmetic expressions, overloaded operators, type conversions, relational and Boolean expressions (7.1, 7.2, 7.3, 7.4, 7.5)	
9		**Midterm**	
10		**Subprograms** Call-my-method, parameter passing methods, design consideration, generic subprograms, polymorphism (Chapter 9)	
11		**Concurrency** Subprogram-Level Concurrency, Semaphores, Monitors Message Passing, Ada Support for Concurrency, Java Threads C# Threads (Chapter 13)	
12		**Exception handling and Event Handling** Exception handing in ADA/C++/Java, event handling in Java (Chapter 14) **Project Announcement**	
13		**Functional Programming Languages** Lisp, Scheme, Primitive & Predicate Functions, Lambda, List, EQV(Chapter 15)	
14		**Logic Programming Languages** Predicate calculus, Prolog, Facts and rules (Chapter 16)	
15		**Summary, question answering, project delivery.**	
	TBA	**Final Exam**	

This syllabus is a guide for the course and any modifications to it will be announced in advance.