COT 5930 Programming Languages

Credits: 3 credits

Text book, title, author, and year: Concepts of Programming Languages, 10th Ed, Robert W. Sebesta, Addison-Wesley; (January 16, 2012)

Reference materials: Lecture notes, programming environments, tooling, and other references will be posted on Blackboard

Specific course information:

Catalog description: A comparative study of several higher-level computer languages, including scripting languages such as JavaScript and Perl. Compilers as well as interpreters are discussed. An introduction to formal languages as related to language definition.

Prerequisites: COP 3530 (Data Structures & Algorithm Analysis)

Specific goals for the course:

• Understand a wide range of programming paradigms
• Understand how different programming languages evolved
• Understand the differences in problem domains and language suitability
• Understand the basic features of programming language translation
• Understand implementation techniques for selected language constructs

Brief list of topics to be covered:

1. The criteria for evaluating languages
2. Primary influences on language design
3. Evolution of most of the important languages
4. Formal methods for describing the syntax and semantics of programming languages
5. Lexical and Syntax Analysis
6. Names, Bindings, and Scopes
7. Data Types
8. Expressions and Assignments Statements
9. Statement-level Control Structures
10. Subprograms and their implementation
11. Abstract Data Types and Encapsulation Constructs
12. Support for Object-Oriented Programming
13. Functional Programming Languages
14. Logical Programming Languages