Course Code	Course Title
COMP 3031	**Principles of Programming Languages**

Course Description

Comparative studies of programming languages, programming language concepts and constructs. Programming language paradigms: object-oriented, functional, logic, dependent programming. Basic concepts of program translation and interpretation, including storage allocation and runtime management.

List of Topics

1. Course Introduction
2. Functional Programming with ML
3. Continuation-Passing Style, Defunctionalization, Accumulations
4. Monadic Programming
5. Logic Programming
6. Dependent Programming

Textbooks

N/A

Reference books

- Ravi Sethi. Programming languages: concepts and constructs. Addison-Wesley, 2nd edition, 1996. [Library call number: **QA76.7.S48 1996**]
- Robert W. Sebesta. Concepts of programming languages. Addison-Wesley, 9th edition, 2010. [Library call number: **QA76.7.S43 2010**]

Grading Scheme

Three programming assignments (10% each)	30%
Midterm exam	30%
Final exam	40%
Total	100%

Course Intended Learning Outcomes

1. Identify the general constructs and concepts used in implementing programming languages, particularly those in type systems and functional programming
2. Differentiate the alternative programming paradigms of functional, logic, and dependent programming and write programs in a language selected from each of the two paradigms (e.g., SML/OCaml/Haskell and Prolog).
3. Utilize context-free grammars to identify and define the formal syntax of programming languages
4. Learn about declarative and algebraic ways of designing programs

Assessment Rubrics
N/A