Course Code : **CC 711**

Course Title : **Advanced Programming Languages**

Credit Hours : **3**

Course Description

Evolution of the major programming languages, Describing syntax and semantics, Lexical and Syntax Analysis, Names, Binding , Type checking , and scopes, Data Types, Expressions and assignment statements, Statement level control structures, Subprograms, Implementing subprograms, Abstract Data Types and Encapsulation constructs, Support for object oriented programming, Concurrency, Exception handling and event handling, Functional Programming Languages, Logic Programming .

Course Objectives

A concise introduction to the essentials of programming languages, focusing on principles rather than specifics. Fundamental issues in language design. Overview of programming paradigms. Type systems: Data types; type constructors, type compatibility, type conversions. Models of execution control: Order of evaluation of sub-expressions; conditional execution; iteration; exceptions and exception handling; parallel composition.

Course Topics

Week no. 1:	Evolution of the major programming languages
Week no. 2:	Describing syntax and semantics
Week no. 3:	Lexical and Syntax Analysis
Week no. 4:	Names, Binding , Type checking , and scopes
Week no. 5:	Data Types
Week no. 6:	Expressions and assignment statements
Week no. 7:	Statement level control structures / 7th week evaluation.
Week no. 8:	Subprograms
Week no. 9:	Implementing subprograms
Week no. 10:	Abstract Data Types and Encapsulation constructs
Week no. 11:	Support for object oriented programming
Week no. 12:	Concurrency / 12th week evaluation
Week no. 13:	Exception handling and event handling
Week no. 14:	Functional Programming Languages
Week no. 15:	Logic Programming Languages
Week no. 16:	Final Exam and Project Evaluation

References

- Doris Appleby, Programming Languages: paradigm and practice, McGrawHill Publishers.