



Indian Institute of Information Technology, Allahabad

Department of Information Technology

1. Name of the Course: Principles of Programming Languages

2. LTP structure of the course: 2-1-1

3. Objective of the course:

This course describes the fundamental concepts of programming languages by discussing the design issues of the various language constructs, examining the design choices for these constructs in some of the most common languages, and critically comparing design alternatives.

4. Outcome of the course:

The students are exposed to various constructs of programming languages, their design choices and implementation details. The course increases students capacity to express ideas, improve their background for choosing appropriate programming language, increases ability to learn new languages, provides better understanding of the significance of implementation, and better use of languages that are already known.

5. Course Plan:

Component	Unit	Topics for Coverage	Chapter No.(Optional)
Component 1	Unit 1	Rationale for studying programming languages, criteria used for evaluating programming languages and language constructs, context free grammar, BNF, attribute grammars, semantics: operational, denotational, and axiomatic semantics, various phases of compilers. Design issues for: variables, data types.	1,3,5,6
	Unit 2	Design issues for expressions and assignment statements, control statements, subprograms and their implementation.	7, 8,9,10
Component 2	Unit 3	Data abstraction in-depth discussion of language features that support object-oriented programming (inheritance and dynamic method binding), and exception handling along with a brief discussion of event handling.	11,12,14
	Unit 4	Concurrency, programming paradigms: functional programming with Scheme, brief introductions to ML, Haskell, and F#. introduction to logic programming using Prolog.	13,15,16

6. Text Book: Robert W. Sebesta, Concepts of Programming Languages, Tenth Edition. Pearson.