MANIPAL INSTITUTE OF TECHNOLOGY

(A constituent college of Manipal University, Manipal)
Manipal Karnataka 576 104

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE PLAN

Department : **Computer Science & Engineering**

Subject Name and Code : **Design and Implementation of Programming Languages (CSE301)**

Semester & branch : **V sem CS&E**

Name of the faculty : **B Kishore, Prakash Kalingrao Aithal, Roopashri Shetty, Josephine Veena**

No of contact hours/week : **4hours/week**

Assignment portion	
Assignment no.	**Topics**
1	**L1-L10**
2	**L11-L20**
3	**L21-L30**
4	**L31-L39**
5	**L40-L48**
Test portion	
Test no.	**Topics**
1	**L1-L20**
2	**L21-L40**

Submitted by: B Kishore

(Signature of the faculty)
Date: 25/7/2014

Approved by:

MIT/GEN/F-05/R0

(Signature of HOD)
Date:

Lecture no.	Topics to be covered
1	What is a Programming Language?, Abstractions in Programming Languages
2	Computational Paradigms
3	Language Definition, Language Translation
4	History and Design Criteria, Efficiency
5	Regularity, Further Language Design Principles
6	Lexical Structure of Programming Languages, Context-Free Grammars
7	BNFs Parse Trees and Abstract Syntax Trees
8	BNFs Parse Trees and Abstract Syntax Trees
9	Ambiguity, Associativity, and Precedence
10	EBNFs and Syntax Diagrams, Parsing Techniques and Tools
11	Lexics Versus Syntax Versus Semantics
12	Attributes, Binding, and Semantic Functions,
13	Declarations, Blocks, and Scope
14	The Symbol Table
15	The Symbol Table
16	Name Resolution and Overloading,
17	Allocation, Lifetimes, and the Environment
18	Variables and Constants
19	Aliases, Dangling References, and Garbage
20	Data Types and Type Information
21	Simple Types, Type Constructors

22	Expressions
23	Conditional Statements and Guards
24	Loops and Variation on WHILE
25	The GOTO Controversy, Exception Handling
26	Software Reuse and Independence
27	Java: Objects, Classes, and Methods
28	Java: Objects, Classes, and Methods
29	Inheritance and Dynamic Binding
30	Programs as Functions
31	Functional Programming in an Imperative Language
32	Scheme: A Dialect of LISP
33	Scheme: A Dialect of LISP
34	Logic and Logic Programs
35	Horn Clauses
36	Resolution and Unification
37	Introduction of Parallel Processing
38	Parallel Processing and Programming Languages
39	Threads, Semaphores
40	Threads, Semaphores
41	Monitors, Message Passing
42	Parallelism in Non-imperative Languages
43	Parallelism in Non-imperative Languages

44	A Sample Small Language
45	Operational Semantics
46	Denotational Semantics
47	Axiomatic Semantics
48	Proofs of Program Correctness

REFERENCES:

1. Kenneth c. Louden "Programming Languages Principles and Practice" Thomson Brooks / Cole publication, 3rd edition.
2. Harold Abelson, Gerald Jay Sussman and Julie Sussman, "Structure and Interpretation of Computer Programs", MIT Press, 2nd edition, 1996
3. Robert w. Sebesta, "Concepts of Programming Languages", Addison-Wesley, 9th edition, 2010
4. Michael L. Scott, "Programming Language Pragmatics", Morgan Kaufmann Publishers, 3rd edition, 2009.