Course Title : Compiler Design			
Course Code: P18CS62	Semester : 6	L:T:P - 4 : 0 : 0	Credits: 4
Contact Period : Lecture :52 Hr, Exam: 3Hr		Weightage :CIE:50% SEE:50%	

Prerequisites : Knowledge of theory of computation.

Course Content

Unit-1

Introduction, Lexical analysis, Syntax analysis: Various phases of a compiler,Grouping of phases; Lexical analysis: The Role of Lexical Analyzer; Input Buffering; Specifications of Tokens; Recognition of Tokens.

Self study component : Compiler-Construction tools

10 Hours

Unit-2

Syntax Analysis–: Role of parser; Context-free grammars; Top-down Parsing.

Self study component : Error handling

11 Hours

Unit-3

Syntax Analysis : Bottom-up Parsing, LR parsers.

Self study component : Using ambiguous grammars

10 Hours

Unit-4

Syntax-Directed Translation: Syntax-directed definitions; Construction of syntax tree ;Evaluation orders for SDDs; Syntax-directed translation schemes. **Type checking**-Type Systems; Specification of a simple type checker; Equivalence of type expression.

Run-Time Environments: Source language issues; Storage Organization; Storage allocation strategies; parameter passing; Symbol tables; dynamic storage allocation techniques.

Self study component : Type conversions.

11 Hours

Unit-5

Intermediate Code Generation: Intermediate languages; declaration; Assignment statements; Boolean expressions; Case statements; Back patching ;Procedure calls.

Code Generation: Issues in the design of Code Generator; basic blocks and flow graphs; A simple code generation; Register allocation and assignment.

Self study component : DAG representation of basic blocks.

10 Hours

Text Book:

1. Alfred V Aho, Monica S.Lam, Ravi Sethi, Jeffrey D Ullman: Compilers- Principles, Techniques and Tools, 2nd Edition, Pearson Education, 2007.

Reference Books:

1. Charles N. Fischer, Richard J. leBlanc, Jr.: Crafting a Compiler with C, Pearson Education, 1991.
2. Andrew W Apple: Modern Compiler Implementation in C, Cambridge University Press, 1997.
3. Kenneth C Louden: Compiler Construction Principles & Practice, Cengage Learning, 1997

Course Outcomes

1. **Design** simple lexical analyzer

2. **Construct** simple top down parser for a given context free grammar
3. **Construct** simple bottom up parser for a given context free grammar
4. **Apply** different syntax directed translation schemes
5. **Generate** intermediate and machine dependent code

CO-PO Mapping

Semester: 6th		Course code : P18CS62					Title : Compiler Design								
CO	Statement	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS 01	PS O2
CO1	**Design** simple lexical analyzer	3	3	2	2	1								3	2
CO2	**Construct** simple top down parser for a given context free grammar	3	3	3	3	1								3	3
CO3	**Construct** simple bottom up parser for a given context free grammar	3	3	3	3	1								3	3
CO4	**Apply** different syntax directed translation schemes	3	3	2	1									3	2
CO5	**Generate** intermediate and machine dependent code	3	3	2	2									3	1
		3	**3**	**2.4**	**2.2**	**1**								**3**	**2.2**