

SARDAR PATEL UNIVERSITY
Programme: MCA
Semester: IV
Syllabus with effect from: November 2014

Paper Code: PS04CMCA02	Total Credit: 4
Title Of Paper: Compiler Design	

Unit	Description in detail	Weighting (%)
1	Introduction to Compilation Introduction to compilers, Compilers, translators, interpreters, byte-code compilers, Importance of compiler design techniques Cousins of compilers, Model of compilation, phases of compilation Passes, front end and back end Compiler construction tools	
2	Lexical Analysis Role of lexical analyzer Input buffering Specification of tokens using regular expressions Transition diagrams Deterministic and non deterministic finite automata Lexical analyzer generators, lex	
3	Syntax Analysis and Top Down Parsing Role of the parser Context Free Grammars, BNF Derivation, parse trees Eliminating ambiguity and left recursion, left factoring Recursive descent parsing Predictive parsing Construction of predictive parsing tables	
4	Bottom Up Parsing Rightmost and leftmost derivations, Handles and handle pruning Shift-reduce parsing, Operator precedence parsing LR parsing, Construction of SLR parsing tables Construction of Canonical LR parsing tables Construction of LALR parsing tables Parser generator tools, yacc	
5	Intermediate Code Generation And Other Topics Syntax-directed translation, Symbol table management Error handling, Intermediate code generation	
6	Synthesis Code generation, Code optimization	

Basic Text & Reference Books

- Aho A. V., Sethi R., Ullman J. D. : Compilers - Principles, Techniques and Tools, Addition-Wesley Publishing Company, 1988
- Dhamdhare D. M. : Compiler Construction, MacMillan India Limited, 1997
- Holub A. I. : Compiler Design in C, Prentice Hall of India Private Limited, 1993
- Appel A. W. : Modern Compiler Implementation in C, Foundation Books, 2000

