MCA 404 Compiler Design and Language Processor

Module 1 (10 Hours)

Introduction to Compilers: Compilers and translators, Phases of compiler design, cross compiler, Bootstrapping, Design of Lexical analyser, LEX programming.

Syntax Analysis: Specification of syntax of programming languages using CFG, Top- down parser, design of LL (1) parser, bottom up parsing technique, LR parsing algorithm, Design of SLR, LALR, CLR parsers.YACC programming.

Module 2 (10 Hours)

Syntax directed translation: Study of syntax directed definitions & syntax directed translation schemes, implementation of SDTS, intermediate notations: postfix, syntax tree, TAC, translation of expression, controls structures, declarations, procedure calls, Array reference.

Storage allocation & Error Handling: Run time storage administration, stack allocation, symbol table management, Error detection and recovery: lexical, syntactic, semantic.

Module 3(10 Hours)

Code optimization: Important code optimization techniques, loop optimization, control flow analysis, data flow analysis, Loop invariant computation, Induction variable removal, Elimination of Common sub expression.

Module 4 (10 Hours)

Code generation – Problems in code generation, Simple code generator, Register allocation and assignment, Code generation from DAG, Peephole optimization.

Module 5 (6 Hours)

(As per choice of faculty)

(Portion covered can be tested through Internal evaluation only not to be included in University examination)

Text Books

1. Principles of Compiler Design by Alfred V. Aho., Jeffrey D. Ulman.

2. "Compilers: Principles, Techniques and Tools" Aho, Ravi Sethi, Ullman, Pearson Education, VIII Ed. 2002.

Reference Books

1. Lex and Yacc by Johan R. levine, Tonny Mason, et. al. O" Reilly and Assosiates.

2. "Compilers Design in C" Allen I. Holub, PHI eastern economy edition 2003.