**Language Processor syllabus**

**Unit I**: Introduction to compilers, compilers and translators, Cross Compiler,Phases of compilation and overview.Lexical Analysis (scanner): Regular languages, finite automata, regularexpressions, scanner generator (lex, flex).

**Unit II:** Syntax Analysis: Syntax specification of programming languages,Design of top-down & bottom-up parsing technique, Design of LL(1) parser. LRparsing: Design of SLR, CLR, LALR parsers. Dealing with ambiguity of thegrammar, Parser generator (yacc, bison)

**Unit III:** Syntax directed definitions, implementation of SDTS, Intermediatecode representations (postfix, syntax tree, TAC), Intermediate code generationusing syntax directed translation schemes for translation of controls structures,declarations, procedure calls, and Array reference.

**Unit IV:** Table Management: Storage allocation and run time storageadministration, symbol table management.Error detection and recovery: Error recovery in LR parsing, Error recovery in LLparsing, automatic error recovery in YACC**.**

**Unit V**: Code optimization: Sources of optimization, loop optimization, controlflow analysis, data flow analysis, setting up data flow equations to computereachingdefinitions,available expressions, Livevariables, Induction Variable,Common sub expression elimination.

**Unit VI:** Code generation: Problems in code generation, Simple code generator,Register allocation and assignment, Code generation from DAG, Peepholeoptimization.

**Text Books:**

**1.** Aho, Sethi, and Ullman; Compilers – Principles, Techniques and Tools;Second Edition, Pearson Education, 2008.

**2.** Alfred V. Aho and Jeffery D. Ullman; Principles of Compiler Design;Narosa Publishing House, 1977.

**3**. Vinu V. Das; Compiler Design using Flex and Yacc; PHI Publication,2008.

**Reference Books:**

**1**. Compiler Design, O. G. Kakde, Laxmi Publications, 2006.

2. Principles of Compiler Design, V. Raghavan, Tata McGrawHill, 2009**.**