LANGUAGE PROCESSOR - II

Paper Code	**CEN-703**
Course Credits	**4**
Lectures / week	**3**
Tutorial / week	**1**

Course Description

UNIT – I

Introduction to Type Checking: Type systems, Specification of simple type checker, equivalence of type expressions, Type checking for expression and statements, type conversions, overloading of functions and operators.

UNIT- II

Storage Organization, Storage allocation strategies, access to non local names, memory allocation in block structured language. Symbol attributes and Symbol table entries, Local Symbol Table management, Global Symbol table structure, dynamic storage allocation, Symbol Table for block structured language.

UNIT- III

Intermediate representations, Types of TAC statements, TAC implementation, TAC generation for Assignment statements, Declarative statements, Boolean expression & Flow of control statements. Short circuit code, Back-patching.

UNIT- IV

Code Optimization, Early Optimizations: Principle sources of optimization, Common-Sub-expression elimination, Copy Propagation, Constant Folding Algebraic Simplifications, Loop Optimizations: Code Motion, Induction-Variable Optimizations. Control Flow Analysis, Flow Graph, Dominator, Natural Loops, Data Flow Analysis, Gen & Kill information, Iterative Algorithm for IN &

OUT Computation.

UNIT – V

Issues in the design of a code generator, The target machine, code generation from DAG, Heuristic Node Listing Algorithm, Code generation from a tree, Labeling Algorithm, Function Gencode, A simple code generator.

References / Text Books:

- Aho, Sethi, Ullmann & Lam "Compilers: Principles, techniques and tools", Pearson Education Asia
- Keith Cooper & Linda Torczon, "Engineering a Compiler", Morgan Kaufmann publication.
- Levine, Mason, and Brown, "Lex & Yacc", O' Reilly publication.

Computer Usage / Software Requires: