

COMPILER DESIGN AND SYSTEMS SOFTWARE

IV SEM

Course Code: 6CS307

Module 1

ASSEMBLERS: Basic assembler functions – A simple assembler – Assembler algorithm and data structures – Machine dependent assembler features – Instruction formats and addressing modes – Program relocation – Machine independent assembler features – Literals –Symbol-defining statements – Expressions – One pass assemblers and Multi pass assemblers – Implementation example – MASM assembler.

Module 2

LOADERS AND LINKERS: Basic loader functions – Design of an Absolute Loader – A Simple Bootstrap Loader –Machine dependent loader features – Relocation – Program Linking – Algorithm and Data Structures for Linking Loader – Machine-independent loader features – Automatic Library Search – Loader Options – Loader design options – Linkage Editors – Dynamic Linking – Bootstrap Loaders – Implementation example – MSDOS linker.

Module 3

Lexical and Syntax Analysis

A language for specifying lexical analysers–design of a lexical analyser generator. Need and role of Parser–Context free grammar–Top down parsing–Bottom up parsing–Operator precedence parsing–LR and LALR Parsers,. Parser Generator Error Handling and Recovery in Syntax Analyser.

Module 4

Syntax-Directed Translation: Syntax-Directed Definitions, Construction of Syntax Trees, Bottom-Up Evaluation of S-Attributed Definitions, L-Attributed Definitions–Type Systems–Specification of a simple type checker– Equivalence of Type Expressions–Type Conversions. Semantic Analysis,Intermediate code Generation.

Module 5

Run-time Environments(2hrs), and Introduction to Code Optimisation. A Simple Code Generator – Compiler project.