

III YEAR SEM-I B.Tech CSE	ELECTIVE	L	T	P	C
Code: CS3601	Compiler Design	2	2	0	4

Unit I

Introduction to compilers:

Introduction to compilers, Phases of compiler, Lexical Analyzer, The role of the lexical analyzer, input buffering, specification of tokens, Recognition of tokens

Unit II

Syntax Analysis:

Role of the parser, writing grammars and context free grammars, Top down parsing, Brute-force approach, Recursive descent parsing, Predictive parsing, FIRST and FOLLOW constructs.

Unit III

Bottom-up parsing, shift-reduce parsing, operator precedence parsing, LR parsers, SLR parser, canonical LR parser, LALR parser.

Unit IV

Semantic Analysis:

Syntax directed translations, applications of syntax directed translations, Syntax directed definitions, construction of syntax tree, Bottom-up evaluation of S-attributed definitions, L-attributed definitions.

Unit V

Intermediate Code Generation and Code Optimization:

Intermediate languages, Declarations, Assignment statements, Boolean Expressions, case statements, back patching, Procedure calls, Principal sources of optimization, optimization of basic blocks, DAG representation of basic blocks, flow graphs.

Unit VI

Code generation:

Issues in the design of code generator, the target machine, run time storage management, peephole optimization.

Text Books:

1. Alfred V.Aho, Jeffrey D Ullman, “Compilers: Principles, Techniques and Tools”, Pearson Education Asia, 2012
2. Randy Allen, Ken Kennedy, Optimizing Compilers for Modern Architectures, Morgan Kauffmann, 2001

Reference Books:

1. Allen I. Holub, “Compiler Design in C ”, Prentice Hall of India,2003
2. Kenneth C.Louden, “Compiler Construction: Principles and Practice ”, Thompson Learning, 2003

Video Reference links:

Title	Expert Name	Details of Expert	Web link
Lecture series on Compiler Design	Prof Y N Srikant	Department of Computer Science and Automation, IIScBangalore	http://nptel.ac.in/courses/106108052/