

Guru Tegh Bahadur Institute of Technology, New Delhi
Department of Computer Science & Engineering
Lecture Plan for 5th Semester

Class:5th Sem. (CSE)

Subject: Compiler Design

Subject Code: CIC-303T

Total Lecture classes available: 36

S.No.	TOPICS TO BE COVERED	No. of Lectures
1	Compilers and translators, need of translators	1
2	Structure of compiler: its different phases, compiler construction tools	2
3	Lexical analysis: Role of lexical analyzer, Input Buffering, A simple approach to the design of Lexical Analyzers, Specification and recognition of tokens.	2
4	Finite automata, from regular expressions to automata, and vice versa, minimizing number of states of DFA.	2
5	A language for specifying Lexical Analyzers, Design and implementation of lexical analyzer.	2
6	The role of the parser, Context free grammars, Writing a grammar: Lexical versus Syntactic analysis.	1
7	Eliminating ambiguity, Elimination of left recursion, Left factoring.	2
8	Top Down Parsing: Recursive- Decent parsing, Nonrecursive Predictive parsing, LL(1) grammars.	2
9	Bottom Up Parsing: Shift Reduce Parsing, Operator precedence Parsing.	2
10	LR Parsing: LR(0), SLR	2
11	LALR, CLR	1
12	Parser Generators.	1
	Total Hours	20hrs
2nd TERM END		
13	Syntax directed definitions, Evaluation orders for SDD's	1
14	construction of syntax trees, syntax directed translation schemes, implementation of syntax directed translation.	2
15	Kinds of intermediate code: Postfix notation, Parse trees and syntax trees, Three-address code, quadruples and triples.	2
16	Semantic Analysis: Types and Declarations, Translation of Expressions, Type checking.	2
17	Symbol tables, its contents, Data Structure for Symbol Table: lists, trees, linked lists, hash tables.	2
18	Error Detection and Recovery: Errors, lexical phase errors, syntactic phase errors, semantic errors, Error seen by each phase.	2
19	Code Optimization: The principal sources of optimizations, Loop optimization, Basic blocks and Flow Graphs, DAG representation of basic blocks.	2
20	Code Generation: Issues in the design of code generation, A simple target machine mode, A Simple Code Generator, Peep-hole optimization, Register allocation and assignment.	3
	Total Hours	16 hrs

Textbook(s):

1. Alfred V. Aho, Monica S. Lam, Ravi Sethi and Jeffrey D. Ullman, "Compilers Principle, Techniques, and Tool", Pearson.

2. Alfred V. Aho, Ravi Sethi and Jeffrey D. Ullman, "Compilers Principle, Techniques, and Tool", Addison Wesley.

References:

1. Trembley and Sorenson, "Theory and Practice of Compiler Writing", McGraw Hill.
2. Jhon R. Levine, Tony Mason and Doug Brown, —Lex &Yacc, O'Reilly.
3. M. Joseph, "Elements compiler Design", University Science Press.