

COMPILER DESIGN

Written by Administrator
Sunday, 08 November 2009 07:38 -

Subject Code

:

6CS63/06IS662

IA Marks

:

25

No. of Lecture Hrs./ Week

:

04

Exam Hours

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:

03

Total No. of Lecture Hrs.

:

52

Exam Marks

:

100

PART - A

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UNIT - 1

INTRODUCTION, LEXICAL ANALYSIS: Language processors; The structure of a Compilers; The evolution of programming languages; The science of building a compiler; Applications of Compiler technology; Programming language basics; Lexical analysis: The Role of Lexical Analyzer; Input Buffering; Specifications of Tokens; Recognition of Tokens.

8 Hours

UNIT - 2

SYNTAX ANALYSIS – 1: Introduction; Context-free Grammars; Writing a Grammar; Top-down Parsing.

6 Hours

UNIT - 3

SYNTAX ANALYSIS – 2: Bottom-up Parsing; Introduction to LR Parsing: Simple LR.

6 Hours

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UNIT - 4

SYNTAX ANALYSIS – 3: More powerful LR parsers; Using ambiguous grammars; Parser Generators.

6 Hours

PART - B

UNIT - 5 □□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□

SYNTAX-DIRECTED TRANSLATION: Syntax-Directed definitions; Evaluation order for SDDs; Applications of Syntax-directed translation; Syntax-directed translation schemes.

6 Hours

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UNIT - 6

INTERMEDIATE CODE GENERATION: Variants of syntax trees; Three-address code; Types and declarations; Translation of expressions; Type checking; Control flow; Back patching; Switch statements; Intermediate code for procedures.

8 hours

UNIT - 7

RUN-TIME ENVIRONMENTS: Storage Organization; Stack allocation of space; Access to non-local data on the stack; Heap management; Introduction to garbage collection.

6 Hours

UNIT - 8

CODE GENERATION: Issues in the design of Code Generator; The Target language; Addresses in the target code; Basic blocks and Flow graphs; Optimization of basic blocks; A Simple Code Generator.

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6 Hours

TEXT BOOK:

1. **Compilers- Principles, Techniques and Tools** – Alfred V Aho, Monica S. Lam, Ravi Sethi, Jeffrey D Ullman – 2nd Edition, Addison-Wesley, 2007.

REFERENCE BOOKS:

1. **Crafting a Compiler with C** – Charles N. Fischer, Richard J. leBlanc, Jr., Pearson Education, 1991.
2. **Modern Compiler Implementation in C** – Andrew W Apple Cambridge University Press, 1997.
3. **Compiler Construction Principles & Practice** – Kenneth C Loudon – Thomson Education, 1997.

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