

Object-Oriented design: Objects and Object Classes; An Object-Oriented design process; Design evolution.

UNIT – 6

6 Hours

Development: Rapid Software Development: Agile methods; Extreme programming; Rapid application development.
Software Evolution: Program evolution dynamics; Software maintenance; Evolution processes; Legacy system evolution.

UNIT – 7

7 Hours

Verification and Validation: Verification and Validation: Planning; Software inspections; Automated static analysis; Verification and formal methods.
Software testing: System testing; Component testing; Test case design; Test automation.

UNIT – 8

6 Hours

Management: Managing People: Selecting staff; Motivating people; Managing people; The People Capability Maturity Model.
Software Cost Estimation: Productivity; Estimation techniques; Algorithmic cost modeling, Project duration and staffing.

Text Books:

1. Ian Sommerville: Software Engineering, 8th Edition, Pearson Education, 2007.
(Chapters: 1, 2, 3, 4, 5, 6, 7, 8, 11, 14, 17, 21, 22, 23, 25, 26)

Reference Books:

1. Roger.S.Pressman: Software Engineering-A Practitioners approach, 7th Edition, Tata McGraw Hill, 2007.
2. Pankaj Jalote: An Integrated Approach to Software Engineering, Wiley India, 2009.

SYSTEM SOFTWARE

Subject Code: 10CS52

L.A. Marks : 25

Hours/Week : 04

Exam Hours: 03

Total Hours : 52

Exam Marks: 100


PART – A

UNIT – 1

6 Hours

Machine Architecture: Introduction, System Software and Machine Architecture, Simplified Instructional Computer (SIC) - SIC Machine Architecture, SIC/XE Machine Architecture, SIC Programming Examples.

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UNIT - 2**6 Hours**

Assemblers -1: Basic Assembler Function - A Simple SIC Assembler, Assembler Algorithm and Data Structures, Machine Dependent Assembler Features - Instruction Formats & Addressing Modes, Program Relocation.

UNIT - 3**6 Hours**

Assemblers -2: Machine Independent Assembler Features - Literals, Symbol-Definition Statements, Expression, Program Blocks, Control Sections and Programming Linking, Assembler Design Operations - One-Pass Assembler, Multi-Pass Assembler, Implementation Examples - MASM Assembler.

UNIT - 4**8 Hours**

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 a Linking Loader; Machine-Independent Loader Features - Automatic Library Search, Loader Options, Loader Design Options - Linkage Editor, Dynamic Linkage, Bootstrap Loaders, Implementation Examples - MS-DOS Linker.

PART - B**UNIT - 5****6 Hours**

Editors and Debugging Systems: Text Editors - Overview of Editing Process, User Interface, Editor Structure, Interactive Debugging Systems - Debugging Functions and Capabilities, Relationship With Other Parts Of The System, User-Interface Criteria

UNIT - 6**8 Hours**

Macro Processor: Basic Macro Processor Functions - Macro Definitions and Expansion, Macro Processor Algorithm and Data Structures, Machine-Independent Macro Processor Features - Concatenation of Macro Parameters, Generation of Unique Labels, Conditional Macro Expansion, Keyword Macro Parameters, Macro Processor Design Options - Recursive Macro Expansion, General-Purpose Macro Processors, Macro Processing Within Language Translators, Implementation Examples - MASM Macro Processor, ANSI C Macro Processor.

UNIT - 7**6 Hours**

Lex and Yacc - 1: Lex and Yacc - The Simplest Lex Program, Recognizing Words With LEX, Symbol Tables, Grammars, Parser-Lexer Communication, The Parts of Speech Lexer, A YACC Parser, The Rules Section, Running

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LEX and YACC, LEX and Hand- Written Lexers, Using LEX - Regular Expression, Examples of Regular Expressions, A Word Counting Program, Parsing a Command Line.

UNIT – 8

6 Hours

Lex and Yacc - 2: Using YACC – Grammars, Recursive Rules, Shift/Reduce Parsing, What YACC Cannot Parse, A YACC Parser - The Definition Section, The Rules Section, Symbol Values and Actions, The LEXER, Compiling and Running a Simple Parser, Arithmetic Expressions and Ambiguity, Variables and Typed Tokens.

Text Books:

1. Leland.L.Beck: System Software, 3rd Edition, Pearson Education, 1997.
(Chapters 1.1 to 1.3, 2 (except 2.5.2 and 2.5.3), 3 (except 3.5.2 and 3.5.3), 4 (except 4.4.3))
2. John.R.Levine, Tony Mason and Doug Brown: Lex and Yacc, O'Reilly, SPD, 1998.
(Chapters 1, 2 (Page 2-42), 3 (Page 51-65))

Reference Books:

1. D.M.Dhamdhere: System Programming and Operating Systems, 2nd Edition, Tata McGraw - Hill, 1999.

OPERATING SYSTEMS

Subject Code: 10CS53

I.A. Marks : 25

Hours/Week : 04

Exam Hours: 03

Total Hours : 52

Exam Marks: 100

PART – A

UNIT – 1

6 Hours

Introduction to Operating Systems, System structures: What operating systems do; Computer System organization; Computer System architecture; Operating System structure; Operating System operations; Process management; Memory management; Storage management; Protection and security; Distributed system; Special-purpose systems; Computing environments. Operating System Services; User - Operating System interface; System calls; Types of system calls; System programs; Operating System design and implementation; Operating System structure; Virtual machines; Operating System generation; System boot.



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