SYSTEM SOFTWARE AND COMPILER DESIGN
[As per Choice Based Credit System (CBCS) scheme]
(Effective from the academic year 2017 - 2018)
SEMESTER – VI

Subject Code	17CS63	IA Marks	40
Number of Lecture Hours/Week	4	Exam Marks	60
Total Number of Lecture Hours	50	Exam Hours	03

CREDITS – 04

Module – 1	**Teaching Hours**
Introduction to System Software, Machine Architecture of SIC and SIC/XE. **Assemblers:** Basic assembler functions, machine dependent assembler features, machine independent assembler features, assembler design options. **Macroprocessors:** Basicmacro processor functions, **Text book 1: Chapter 1: 1.1,1.2,1.3.1,1.3.2, Chapter2 : 2.1-2.4,Chapter4: 4.1.1,4.1.2**	**10 Hours**
Module – 2	
Loaders and Linkers: Basic Loader Functions, Machine Dependent Loader Features, Machine Independent Loader Features, Loader Design Options, Implementation Examples. **Text book 1 : Chapter 3 ,3.1 -3.5**	**10 Hours**
Module – 3	
Introduction: Language Processors, The structure of a compiler, The evaluation of programming languages, The science of building compiler, Applications of compiler technology, Programming language basics **Lexical Analysis:** The role of lexical analyzer, Input buffering, Specifications of token, recognition of tokens, lexical analyzer generator, Finite automate. **Text book 2:Chapter 1 1.1-1.6 Chapter 3 3.1 – 3.6**	**10 Hours**
Module – 4	
Syntax Analysis: Introduction, Role Of Parsers, Context Free Grammars, Writing a grammar, Top Down Parsers, Bottom-Up Parsers, Operator-Precedence Parsing **Text book 2: Chapter 4 4.1 4.2 4.3 4.4 4.5 4.6 Text book 1 : 5.1.3**	**10 Hours**
Module – 5	
Syntax Directed Translation, Intermediate code generation, Code generation **Text book 2: Chapter 5.1, 5.2, 5.3, 6.1, 6.2, 8.1, 8.2**	**10 Hours**

Course outcomes: The students should be able to:

- Illustrate system software such as assemblers, loaders, linkers and macroprocessors
- Design and develop lexical analyzers, parsers and code generators
- Discuss about lex and yacc tools for implementing different concepts of system software

Question paper pattern:
The question paper will have TEN questions.
There will be TWO questions from each module.
Each question will have questions covering all the topics under a module.
The students will have to answer FIVE full questions, selecting ONE full question from each module.

Text Books:

1. System Software by Leland. L. Beck, D Manjula, 3rd edition, 2012

2. Compilers-Principles, Techniques and Tools by Alfred V Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman. Pearson, 2nd edition, 2007
Reference Books:
1. Systems programming – Srimanta Pal , Oxford university press, 2016 2. System programming and Compiler Design, K C Louden, Cengage Learning 3. System software and operating system by D. M. Dhamdhere TMG 4. Compiler Design, K Muneeswaran, Oxford University Press 2013.

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