SUBJECTS OF STUDY AND SYLLABI FOR

B.TECH (CSE) PROGRAMME
## SEMESTER V:

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Periods of Instruction</th>
<th>CREDIT Points</th>
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<tr>
<td>BCSCCS501</td>
<td>Design and Analysis of Algorithms</td>
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<td>System Software &amp; compiler design</td>
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<td>Data Base Management Systems</td>
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<td><strong>TOTAL</strong></td>
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### DEPARTMENTAL Electives:

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<tr>
<td>BCSDCS501</td>
<td>C# and .NET Framework</td>
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<td>BCSDMA502</td>
<td>Numerical Methods</td>
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<td>BCSDBT503</td>
<td>Basics of Bio-informatics</td>
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<td>BCSDCS504</td>
<td>Theory of Computation</td>
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<td>BCSDMA505</td>
<td>Probability and queuing theory</td>
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<td>BCSDCS506</td>
<td>Micro controller &amp; Applications</td>
<td>3</td>
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</tbody>
</table>
UNIT I


UNIT II


UNIT III


UNIT IV


Text Books:

References:
UNIT I

Assemblers: Functions-Data structures- machine dependent assembler features - machine independent assembler features - one pass assembler and multipass assembler - assembler design options.

Loaders and Linkers: Functions – design - bootstrap loader - machine dependent loader features - machine independent loader features - loader design options - Dynamic linking and Linkage Editors – Implementation Examples

UNIT II

Introduction: Compilers and translators- The structure of a compiler- Finite automata and lexical analysis-regular expressions-Finite automata - NFA and DFA - Implementation of lexical analyzer-context free grammars- Derivations and parse trees.

UNIT III

Parsers: Shift reduce parsers- Operator precedence parsers- Top down parsing-predictive parsing-LR parsers-SLR parsers-Canonical LR parsers- LALR parser.
Symbol Table & Run Time Storage: Data structures- Syntax directed translation - Implementation - Storage allocations

UNIT IV

Text Books:


References:

1. Alfred V Aho, Jeffrey D Ullman, "principles of compiler design", Narosa Publishers, 1999
2. D M Dhamdhere, "Introduction to System Software", Tata Mcgraw hill, 1999
UNIT - I 15
Introduction to Object Oriented Programming - Genesis of Java - Overview of Java - Data types, Variables and Arrays - Operators – Control Statements - Introducing Classes - Methods and Classes - Overloading - Understanding static, final - Nested and Inner Classes - String class - Command Line Arguments - Inheritance - I/O Basics - Packages and Interfaces - Exception Handling.

UNIT – II 15

UNIT – III 15

UNIT – IV 15

Text Books
UNIT I:  
Introduction: Data – Database – types of databases – conventional content and rich content databases – Database Management Systems – Categories of DBMS Systems – Underlying theories – Applications of DBMS – Users and Nature of DBMS – Languages, Utilities and Interfaces provided by commercial DBMS


UNIT II:  


UNIT III:  


UNIT IV:  
Text Books:


References:

1. Polymorphism in Java
2. Inheritance in Java
3. Interfaces in Java
4. Packages in Java
5. Developing a simple applet using labels, text field and buttons.
6. Developing a simple applet using list box, choice box, scroll bar, check box.
7. Developing stand-alone GUI interface using frames.
8. Developing an applet demonstrating the font features.
9. Developing an applet demonstrating graphics features – using brush styles, colors, etc.
10. Demonstrate Remote Method Invocation in Java
BCSCCS506 – DATABASE MANAGEMENT SYSTEM LAB

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**Part1 – SQL**

1. Creation of Tables & Simple Queries
2. Implementation of Key Constraints
3. Implementation of Arithmetic/Logical Operations, Sorting and Grouping
4. Nested Queries
5. Joins
6. Built-In Functions
7. Update Operations
8. Indexes, Sequences, Synonyms & Views

**Part2 – PL/SQL**

1. Simple PL/SQL Procedure
2. PL/SQL Procedure with Cursors
3. Exception Handling
4. Triggers

**Part 3 – Developer 2000 (Forms)**

1. Student Information
2. Inventory Control System
3. Payroll System

**Part 4 – Developer 2000 (Reports)**

1. Payroll Reports
2. Student Reports
WEEK 01  CAREER PROSPECTS
WEEK 02  MOCK PRESS
WEEK 03  APTITUDE TEST IV
WEEK 04  PUBLIC SPEAKING ESSENTIALS
WEEK 05  PUBLIC SPEAKING PRACTICAL
WEEK 06  PUBLIC SPEAKING PRACTICAL
WEEK 07  ATTENTION TO DETAILS
WEEK 08  TEAM SKILLS III
WEEK 09  GROUP DISCUSSION ESSENTIALS
WEEK 10  GROUP DISCUSSIONS PRACTICE
WEEK 11  MIND SKILL EXERCISE
WEEK 12  DECISION MAKING
WEEK 13  CONFLICT MANAGEMENT
WEEK 14  PSYCHOMETRIC TEST
WEEK 15  ORGANISATIONAL SKILLS
BCSDCS 501: C# AND .NET FRAME WORK

UNIT I  15
Introduction to .NET framework-.NET objects- ASP .NET- .NET web services – Windows Forms

UNIT II  15
Introduction to C#, Understanding C# in .NET, overview of C#, Literals, Variables, Data types, Operators, Expressions, Branching and looping operations- Methods, Arrays, Strings.

UNIT III  15
Structures and Enumerations – Classes and Objects - Inheritance and Polymorphism, Multiple Inheritance.

UNIT IV  15
Operator overloading, Events, console I/O operations and Exception.

TEXT BOOKS

REFERENCES
UNIT-1: System of equations and Eigen value problems

Direct method- Gauss elimination method-Gauss Jordan method- Cholesky method.
Iterative methods- Gauss Jacobi iteration method- Gauss seidel iteration method-
Successive over relaxation method. Eigen values and Eigen vectors by power method

UNIT-2: Interpolation and Approximation

Introduction- Finite difference operators- relation between operators- Lagrange and Newton interpolations- Gauss interpolation formula- Stirlings interpolation formula-
Bessels interpolation formula. Solving difference equations with constant co -efficient.

UNIT-3: Numerical Differentiation and Integration

Introduction- Numerical differentiation- Methods based on finite differences.
Numerical integration-Trapezoidal rule, Simpson’s 1/3 rule, Simpson’s 3/8 rule.


UNIT-4: Numerical solution of Partial Differential Equation


Text Book

Dr. M.K. Venkatraman, Numerical methods, National Publishing company-1999

References:
UNIT I

Overview of bioinformatics: The scope of bioinformatics; Bioinformatics & the internet; useful bioinformatics sites on the WWW. Data acquisition: sequencing DNA, RNA & proteins; Determination of protein structure; gene & protein expression data; Protein interaction data. Databases – contents, structures & annotation: file formats; Annotated sequence databases; miscellaneous databases. Retrieval of biological data: data retrieval with Entrez & DBGET / Link DB; data retrieval with SRS (sequence retrieval system).

UNIT II

Searching sequence databases by sequence similarity criteria: Sequence similarity searches; amino acid substitution matrices; Databases searches, FASTA & BLAST; sequence filters; Iterative databases searches & PSI – BLAST. Multiple – sequence databases alignment, gene & protein families: Multiple – sequence alignment & family relationships; protein Families & pattern databases; protein domain families. Phylogenetics: Phylogenetics, cladistics & ontology; building Phylogenetic trees; evolution of macromolecular sequence.

UNIT III

Sequence annotation: principles of genome annotation; Annotation tools & resources. Structural bioinformatics: conceptual models of protein structure; the relationship of protein three-dimensional structure to protein function; the evaluation of protein structure & function; obtaining viewing & analyzing structural data; structural alignment; classification of proteins of known three-dimensional structure: CATH & SCOP; introduction to protein structure prediction; advanced protein structure prediction & prediction strategies.

UNIT IV

Microarray data analysis: microarray data, analysis methods; Microarray data, tools & resources; sequence sampling & SAGE. Bioinformatics in pharmaceutical industry: informatics & drug Discovery; pharmainformatics resources. Basic principles of computing in bioinformatics: running Computer software; computer operating systems; software Downloading & installation; database management.
Text Books:


Cynthia Gibas, Per Jambeck, O'Reilly, “Developing Bioinformatics Computer Skills” 1st Edition April 2001
BCSDCS504 – THEORY OF COMPUTATION

UNIT I


UNIT II


UNIT III


UNIT IV


TEXT BOOK


REFERENCES

UNIT I 15


UNIT II 15

**Stochastic process:** processes – classification – poisson process – markov process - renewal model of program behavior

UNIT III 15


UNIT IV 15

**Network queues:** Open queuing networks – closed queuing networks – non exponential substitution – distribution – multiple job types – Non Product form networks

Text Books:

BCSDCS506 – MICROCONTROLLER & APPLICATIONS

Unit – I: Introduction


(15 periods, Chaps. 1 – 3, TB 1)

Unit II: 8051 Features


(15 periods, Chaps. 4 – 6, TB 1)

Unit III: 8051 Programming


(15 periods, Chaps. 7 – 9, TB 1)

Unit IV: 8051 Applications


(15 periods, Chaps. 10 & 11, TB 2, Chap. 12, TB 1)

Text books:

1. Myke Predko, “Programming and Customizing the 8051 Microcontroller”, TMH 1999
References: