B.Sc. COMPUTER SCIENCE

I YEAR – I SEMESTER
COURSE CODE: 7BCEA1

ALLIED COURSE - I – OFFICE AUTOMATION (THEORY& LAB)

Unit I Word

Introduction to Word

Introduction to word processing – Advantages – Starting Word – Creating a Document – Saving the Document–Printing a Document–Resaving and closing a Document–Exiting word

Editing a Document

Opening a Document – Cursor Movement – Editing a Document – Selecting Text – Deleting Text – Replacing Text – Undoing and Redoing changes

Move and Copy Text

Moving text – Using copy to Repeat text – Cut and Paste – Quickly opening Recently used files – Copying Text to another file.

Unit II

Formatting Text and Paragraph

Formatting Text – Using the Font Dialog Box – Using Bullets and Numbering.

Finding and Replacing Text and Checking Spelling

Moving to a specific page – Finding Text – Replace command – Checking Spelling and Grammar

Enhancing a Document

Page setup – Headers and Footers – Print Preview

Unit III

Tables

Creating Tables – Formatting a Table

Graphics

Drawing Toolbar – Word Art – Inserting Graphics

Mail Merge

Mail Merge – Example of Mail Merge – Viewing and Printing Merged Letters

Unit IV EXCEL

Introduction to Electronic Worksheet – Advantages – Excel – Starting Excel – Excel Screen – Organisation of the Worksheet Area – Entering information in a worksheet – Entering numbers – Entering a Formula – Advantages of using a formula – Saving a work book.

Editing cells and using commands and Functions

Aligning Data in cells – Editing Data in a cell – Excel functions – Range – Using a range with sum– Resaving a workbook file – closing a workbook file – Exiting Excel.

Unit V

Moving and Copying, Inserting and Deleting Rows and Columns

Opening an Existing workbook file – Moving Date – Copying Date to another Area – Filling up a cell – Copying a single cell to several cells – Using the mouse to copy Data – Undoing and Redoing actions – Inserting a Row in the worksheet – Inserting columns – Erasing part of a worksheet – Deleting Rows and Columns.

Printing the workbook

Printing the workbook – Using Print Preview – Setting Up Print Area – Using Math functions.

Power Point

Introduction – Creating a Presentation – PowerPoint views – Running a Slide Show – Printing a Presentation.

Access

Starting Access – Menus And Toolbars – Viewing Data – Sorting and Filtering Records – Creating and Printing Reports.

Text Book

1) **"PC SOFTWARE for Windows 98 Made Simple"**, 2006, **R.K.Taxali**, TATA McGraw Hill Publishing Company Limited, New Delhi.
   UNIT I Chapters – 9, 10, 11
   UNIT II Chapters – 12.1, 12.2, 12.4, 13.1 – 13.4, 15.1, 15.6, 15.7
   UNIT III Chapters – 16.1, 16.2, 17.1 – 17.3, 18.1 – 18.3
   UNIT IV Chapters – 20, 21, 22.1 – 22.5, 22.10, 22.11, 22.13
   UNIT V Chapters – 23, 25.1 – 25.3, 28.5, Annexures – B

2**)** **"Introduction to Computers with MS-Office 2000"** 2001, **Alexis Leno & Mathews Leon**, TATA McGraw Hill Publishing Company Limited, New Delhi.
   Unit V Chapters – 18, 19

Book for Reference:

1) **"Microsoft Office"**, **Gordon Padwick, Sue Plumley, Debbie walkowski**, Prentice Hall of India Private Limited, New Delhi.

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I YEAR – II SEMESTER
COURSE CODE: 7BCEA2

ALLIED COURSE - II – COMPUTER ORGANIZATION

Unit I

Number Systems and Codes: Binary Number system – Binary to decimal –decimal to binary – hexadecimal – ASCII code – Excess-3 Code – Gray code.

Digital Logic: The Basic Gates – NOT, OR, AND - Universal Logic Gates – NOR, NAND.

Unit II

Combinatorial Logic Circuits: Boolean Laws and Theorems. - Sum of Products method - Truth table to Karnaugh Map – Pairs, Quads, Octets – Don't Care Conditions- Product-of sums method -Product-of sums Simplifications.

Data Processing Circuits: Multiplexers – Demultiplexers-1-of-16 Decoder – BDC-to-decimal Decoders – Seven-segment Decoders – Encoders – Exclusive-OR Gates- Parity Generators and Checkers.

Unit III

Arithmetic Circuits: Binary Addition- Binary Subtraction – 2'S Complement Representation - 2'S Complement Arithmetic – Arithmetic Building Blocks.

Unit IV

Basic Computer organization and Design: Instruction codes - stored program organization - Computer registers and common bus system - Computer instructions - Timing and control - Instruction cycle: Fetch and Decode - Register reference instructions.

Micro programmed Control: Control memory organization - Address sequencing, micro instruction format and symbolic microinstructions - symbolic micro-program - binary micro-program.

Unit V

Central Processing Unit : General register organization - stack organization - instruction formats - addressing modes - Data transfer and manipulation - Program control.

CISC and RISC - Parallel processing - Pipeline- general consideration.

Input-output organization: Peripheral devices - I/O interface - Memory organization: Memory hierarchy - Main memory - Auxiliary memory.

Text Books:

1. Digital Principles and Applications – Donald P Leach, Albert Paul Malvino, Goutam Saha, 8th edition , McGraw-Hill Education, 3rd reprint 2015.
2. Computer System Architecture, M. Morris Mano, Pearson Education, 3rd edition.,2007

UNIT I Chapters 5: (5.1 to 5.9) and 2: (2.1 to 2.3) Text Book 1
UNIT II Chapters 3: (3.1 to 3.8) and 4: (4.1 to 4.7) Text Book 1
UNIT III Chapters 6: (6.1 to 6.8) Text Book 1
UNIT IV Chapters 5 (5.1 to 5.5) and 7 (7.1 to 7.3) Text Book 2
UNIT V Chapters 8 (8.1 to 8.8), 9 (9.1 to 9.2), Text Book 2
11 (11.1 to 11.5) and 12 (12.1 to 12.3)

Books for Reference:

1. Digital design, R.Anantha Natarajan, PHI Learning, 2015.
2. Principles of digital Electronics, K.Meena, PHI Learning, 2013.

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I YEAR – I/II SEMESTER
COURSE CODE: 7BCEAP1

ALLIED PRACTICAL – I - OFFICE AUTOMATION LAB

MS-WORD

1. Working with Files – Creating and opening documents, Saving documents, Renaming documents, working on multiple documents.
2. Working with Text – Formatting, Moving, copying and pasting text
3. Styles – Apply a style, Apply from the Style dialog box, Create a new style from a model, Modify or rename a style, Delete style.
4. Lists – Bulleted and numbered lists, Nested lists, Formatting lists
5. Table Manipulations.
6. Graphics – Adding clip Art, Add an image from a file, Editing a graphic
7. Spelling and Grammar, AutoCorrect
8. Page formatting – Page margins, page size and orientation, Header and footers, page numbers
9. Mail Merge.
10. Macros – Recording a macro, Running a macro
11. Web wizard – Using the Web Wizard, Creating & Saving web pages, Hyper links.

MS-EXCEL

1. Modifying a Worksheet – Moving through cells, Adding worksheets, rows and columns, Resizing rows and columns, Selecting cells, Moving and copying cells, Freezing panes
2. Macros – recording and running.
3. Formatting cells – Formatting toolbar, Dates and times, Auto formatting.
4. Formula and Functions.
5. Linking worksheets – Relative, absolute and mixed referencing
6. Sorting and Filling – Basic ascending and descending sorted, Complex sorts, Alternating text and numbers with Auto fill, Autofilling functions.
7. Graphics – Adding clip art, add an image from a file
8. Charts – Using chart Wizard, Copy a chart to Microsoft Word

MS-POWER POINT

1. Create a Presentation from a template.
2. Working with Slides-Insert a new slide, Applying a design template, Changing slide layouts, Reordering slides, Hide slides, Create a Custom slide show 7 edit.
3. Adding Content – Resizing a text box, Text box properties, Delete a text box.
4. Video and Audio effects.
5. Color Schemes & Backgrounds
6. Adding clip art, Adding an image from a file
7. Save as a web page.

MS-ACCESS

1. Using Access database wizard, pages and projects.
2. Open an existing database, converting to Access 2000
3. Screen Layouts – Database window, Design view, Datasheet view
4. Creating Tables – Create a Table in design view, Primary key, Indexes, Field validation rules.
5. Datasheet Records – Adding, Editing, Deleting records, Adding and deleting columns & Resizing rows and columns, Finding data in a table & replacing, Print a datasheet.
6. Declaring Table Relationships.
7. Sorting and Filtering – Sorting, Filter by selection, by form, saving & removing a filter.
8. Queries – Create a query in design view, Query Wizard, Find duplicates query ,Delete
9. Forms – Create a form using the wizard, Create a form in Design View.
10. Form Controls.
11. Sub forms – Create a form and sub form at once, Sub form wizard, Drag and drop method.
12. Reports – Using the wizard, Create in Design View, Printing reports.
13. Importing, Exporting, Linking.

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II YEAR – III SEMESTER
COURSE CODE: 7BCEA3

ALLIED COURSE - III – PROGRAMMING IN C (THEORY & LAB)

Unit I

Overview of C: History of C – Importance of C – Basic Structure of C Programs – Programming Style – Character Set – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables – Defining Symbolic Constants – Declaring a variable as a constant – overflow and underflow of data – **Operators and Expressions:** Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – Arithmetic Expressions- Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical functions.

Unit II

Managing I/O Operations: Reading and Writing a Character – Formatted Input, Output – **Decision Making & Branching:** if statement - if else statement - nesting of if else statements - else if ladder – switch statement – the ?: operator – goto statement – the while statement – do statement – the for statement – jumps in loops.

Unit III

Arrays: One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays – Dynamic Arrays – Initialization. **Strings:** Declaration, Initialization of string variables – reading and writing strings – string handling functions.

Unit IV

User-defined functions: need – multi-function programs – elements of user defined functions – definition – return values and their types – function calls, declaration, category – all types of arguments and return values – nesting of functions – recursion – passing arrays, strings to functions – scope visibility and life time of variables. **Structures and Unions:** Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – array of structures – arrays within structures – structures within structures – structures and functions – unions – size of structures – bit fields.

Unit V

Pointers: the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – chain of pointers – pointer increments and scale factors – pointers and character strings – pointers as function arguments – pointers and structures. **Files**: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.

Text Book:

1. Programming in ANSI C, E.Balagurusamy, 6th Edition, Tata McGraw Hill Publishing Company, 2012.
   UNIT I: Chapters 1 (Except 1.3-1.7, 1.10-1.12), 2 (Except 2.9, 2.13), 3 (Except 3.13)
   UNIT II: Chapters 4 – 6
   UNIT III: Chapters 7, 8 (Except 8.5, 8.6, 8.7, 8.9, 8.10)
   UNIT IV: Chapters 9 (Except 9.20), 10
   UNIT V: Chapters 11 (Except 11.8, 11.10, 11.12, 11.14, 11.15, 11.17), 12 (Except 12.6)

Books for Reference:

1. Programming with C, Schaum's Outline Series, Gottfried, Tata McGraw Hill, 2006
2. Programming with ANSI and Turbo C , Ashok N.Kamthane , Pearson Education, 2006
3. H. Schildt, C: The Complete Reference, 4th Edition, TMH Edition, 2000.
4. Kanetkar Y., Let us C, BPB Pub., New Delhi, 1999.

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II YEAR – III SEMESTER
COURSE CODE: 7BCEA4

ALLIED COURSE IV – PROGRAMMING IN C++ (THEORY & LAB)

Unit I

Software Crisis – Software Evolution – Basic Concepts of Object-Oriented Programming – Benefits of OOP – Object-Oriented Languages - Applications of OOP – Application of C++ - Structure of a C++ Program – Tokens – Keywords – Identifiers – Basic Data Types – Userdefined Data types – Derived data types – Symbolic constants – Type compatibility – Declaration of variables – Dynamic initialization of variables –Reference variables – Operators in C++ - Manipulators – Type cast operator – Expressions and their types-Implicit conversions – Control structures – The main function – Function prototyping – inline functions – Function overloading.

Unit II

Specifying a class – Defining member functions – Making an outside function inline – Nesting of member functions – Private member functions – Array within a class – Memory allocation for objects – Static data members – Static member functions – Array of objects - Objects as function arguments – Friendly functions – Returning objects – Constant member functions – Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of objects – Copy constructor – Destructors.

Unit III

Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators - Defining derived classes – Single inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance - Virtual base classes – Constructors in derived class – Member classes:
Nesting of classes.

Unit IV

Pointer to objects – this pointer – Pointers to derived classes – Virtual functions – Pure virtual functions – C++ Stream classes – Unformatted I/O operations – Managing output with manipulators.

Unit V

Classes of file stream operations – Opening and Closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command-line arguments- Templates: class templates and function templates.

Text Book:

1. Object Oriented Programming with C++**,** E. Balagurusamy, Sixth Edition-2013, McGraw Hill Education (India) Private Limited, New Delhi.

UNIT I – Chapter 1 (Except 1.3, 1.4),
Chapter 2 (Only 2.6),
Chapter 3 (Except 3.20, 3.21, 3.22), Chapter 4
UNIT II – Chapter 5 (Except 5.18, 5.19), Chapter 6 (Except 6.8, 6.9, 6.10)
UNIT III – Chapter 7, Chapter 8
UNIT IV – Chapter 9, Chapter 10
UNIT V – Chapter 11 (Except 11.8), Chapter 12 (Only 12.2, 12.3 and 12.4)

Books for Reference:

1. C++ - The Complete Reference, Herbert Schildt, TMH, 1998.
2. C++ How to Program, Paul Deitel, Harvey Deitel, PHI, Ninth edition (2014).
3. Ashok N.Kamthane, Object Oriented Programming with ANSI & Turbo C ++,Pearson Education, 2006.
4. Object-Oriented Programming With C++, Poornachandra Sarang, 2nd Edition, PHI Learning Private Limited, New Delhi, 2009.
5. Object-Oriented Programming Using C++, Alok Kumar Jagadev, Amiya Kumar Rath and Satchidananda Dehuri, Prentice-Hall of India Private Limited, New Delhi, 2007.

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II YEAR – III/IV SEMESTER
COURSE CODE: 7BCEAP2

ALLIED PRACTICAL – II - PROGRAMMING IN C AND C++ LAB

1. Write a C Program to find the sum of digits.
2. Write a C Program to check whether a given number is Armstrong or not.
3. Write a C Program to check whether a given number is Prime or not.
4. Write a C Program to generate the Fibonacci series.
5. Write a C Program to display the given number is Adam number or not.
6. Write a C Program to print reverse of the given number and string.
7. Write a C Program to find minimum and maximum of 'n' numbers using array.
8. Write a C Program to arrange the given number in ascending order.
9. Write a C Program to add and multiply two matrices.
10. Write a C Program to calculate NCR and NPR
11. Write a program in C++ to add complex numbers using operator overloading
12. Write a program in C++ to multiply complex numbers using operator overloading
13. Write a program in C++ to convert temperature from Fahrenheit to Celsius
14. Write a program in C++ to calculate variance and standard deviation of N numbers
15. Write a program in C++ to find largest value of two numbers using nesting of member functions.
16. Write a program in C++ to find the sum of digits using constructor
17. Write a program in C to prepare the pay bill of employees
18. Write a program in C++ to calculate the volume of sphere, cone and cylinder using inline function
19. Write a program in C++ to prepare the student mark list
20. Write a program in C++ to perform the matrix addition, subtraction, and multiplication using single level inheritance
21. Write a program in C++ to find out the standard deviation using hybrid inheritance

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