S.V.K.P & Dr. K.S. RAJU ARTS & SCIENCE COLLEGE (Autonomous)
Accredited by NAAC with "A" Grade , Recognized by UGC as "College with Potential for Excellence"
ISO Certified Institution (with 3 ISO Certificates)
(Affiliated to ADIKAVI NANNAYA UNIVERSITY - Recognized by Govt. of Andhra Pradesh)
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I B.Sc., (Computer Science Major/Minor) under CBCS w.e.f 2023-2024

PAPER – III: PROBLEM SOLVING USING 'C' **PAPER CODE: 23CSC21**

SEMESTER-II

Course Objectives

1. To explore basic knowledge on computers
2. Learn how to solve common types of computing problems.
3. Learn to map problems to programming features of C.
4. Learn to write good portable C programs.

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand the working of a digital computer and Fundamental constructs of Programming
2. Analyze and develop a solution to a given problem with suitable control structures
3. Apply the derived data types in program solutions
4. Use the 'C' language constructs in the right way
5. Apply the Dynamic Memory Management for effective memory utilization

UNIT-I: Introduction to computer and programming: Introduction, Basic block diagram and functions of various components of computer, Concepts of Hardware and software, Types of software, Compiler and interpreter, Concepts of Machine level, Assembly level and high- level programming, Flowcharts and Algorithms

Fundamentals of C: History of C, Features of C, C Tokens-variables and keywords and identifiers, constants and Data types, Rules for constructing variable names, Operators, Structure of C program, Input /output statements in C-Formatted and Unformatted I/O

UNIT-II: Control statements: Decision making statements: if, if else, else if ladder, switch statements. Loop control statements: while loop, for loop and do-while loop. Jump Control statements: break, continue and goto.

UNIT-III: Derived data types in C

Arrays: One Dimensional arrays - Declaration, Initialization and Memory representation; Two Dimensional arrays -Declaration, Initialization and Memory representation.

Strings: Declaring & initializing string variables; String handling functions, Character handling functions

UNIT-IV: **Functions:** Function Prototype, definition and calling. Return statement. Nesting of functions. Categories of functions. Recursion, Parameter Passing by address and by value. Local and Global variables.

Storage classes: automatic, external, static and register.

Pointers: Pointer data type, Pointer declaration, initialization, accessing values using pointers.Pointer arithmetic. Pointers and arrays, pointers and functions.

UNIT-V: Dynamic Memory Management: Introduction, Functions-malloc, calloc, realloc, free. **Structures:** Basics of structure, structure members, accessing structure members, nested structures, array of structures, structure and functions, structures and pointers.

Unions - Union definition; difference between Structures and Unions.

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

Text Books:

1. E. Balagurusamy, "Programming in ANSI C", Tata McGraw Hill, 6 th Edn, ISBN-13: 978-1-25- 90046-2
2. Herbert Schildt, —Complete Reference with C, Tata McGraw Hill, 4th Edn., ISBN- 13: 9780070411838, 2000
3. Computer fundamentals and programming in C, REEMA THAREJA, OXFORD UNIVERSITY PRESS

Reference Books:

1. E Balagurusamy, COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill,Second Reprint 2008, ISBN 978-0-07-066909-3.
2. Ashok N Kamthane, Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
3. Henry Mullish&Huubert L.Cooper: The Spirit of C An Introduction to modern Programming,Jaico Pub. House,1996.
4. Y kanithkar, let us C BPB, 13 th edition-2013, ISBN:978-8183331630,656 pages.

PAPER – III: PROBLEM SOLVING USING 'C'

PAPER CODE: 23CSC21P

List of Experiments

1. A. Write a program to calculate simple & compound interest
   B. Write a C program to interchange two numbers.
2. Find the biggest of three numbers using C.
3. Write a c program to find the sum of individual digits of a positive integer.
4. A Fibonacci sequence is defined as follows: the first and second terms in the sequenceare0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence.
5. Write a c program to check whether a number is Armstrong or not.
6. Write a c program to generate all the prime numbers between 1 and n, where n is avaluesupplied by the user.
7. Write a c program that implements searching of given item in given list
8. Write a c program that uses functions to perform the following: Addition of twomatrices.Multiplication of two matrices.
9. Write a program for concatenation of two strings.
10. Write a program for length of a string with and without String Handling functions
11. Write a program to demonstrate Call by Value and Call by Reference mechanism
12. Write a Program to find GCD of Two numbers using Recursion
13. Write a c program to perform various operations using pointers.
14. Write a c program to read data of 10 employees with a structure of 1.employee id2.aadarno, 3.title, 4.joined date, 5.salary, 6.date of birth, 7.gender, 8.department.
15. Write a Program to demonstrate dynamic arrays using Dynamic Memory Managementfunctions

I B.Sc., (Computer Science Major) under CBCS w.e.f A.Y 2023-2024

PAPER – IV: Digital Logic Design PAPER CODE: 23CSC22

SEMESTER-II

Course Objectives

To familiarize with the concepts of designing digital circuits.

Course Outcomes

1. Upon successful completion of the course, the students will be able to understand how toConvert numbers from one radix to another radix and perform arithmetic operations.
2. Simplify Boolean functions using Boolean algebra and k- maps
3. Design adders and subtractors circuits
4. Design combinational logic circuits such as decoders, encoders, multiplexers and demultiplexers.
5. Use flip flops to design registers and counters.

UNIT – I:

Number Systems: Binary, octal, decimal, hexadecimal number systems, conversion of numbers from one radix to another radix, 1's complement and 2's complement methods, signed binary numbers, addition and subtraction of unsigned and signed numbers, weighted and un-weighted codes.

UNIT – II:

Logic Gates and Boolean Algebra: NOT, AND, OR, universal gates, X-OR and X-NOR gates, Boolean laws and theorems, complement and dual of a logic function, canonical and standard forms, two level realization of logic functions using universal gates, minimizations of logic functions (POS and SOP) using Boolean theorems, K-map (up to four variables), don't care conditions.

UNIT – III:

Combinational Logic Circuit-1: Design of half adder, full adder, half subtractor, full subtractor, ripples adders and subtractors, ripple adder / subtractor.

UNIT – IV:

Combinational Logic Circuits-2: Design of decoders, encoders, priority encoder, multiplexers, demultiplexers, higher order decoders, demultiplexers and multiplexers, realization of Boolean functions using decoders, multiplexers.

UNIT – V:

Sequential Logic Circuits: Classification of sequential circuits, latch and flip-flop, RS- latch using NAND and NOR Gates, truth tables, RS, JK, T and D flip-flops, truth and excitation tables, conversion of flip- flops, flip-flops with asynchronous inputs (preset and clear). Design of registers, shift registers, bidirectional shift registers, universal shift register, design of ripple counters, synchronous counters and variable modulus counters.

Text Books:

1. M. Morris Mano, Michael D Ciletti, "Digital Design", 5th edition, PEA.

Reference Books:

1. Kohavi, Jha, "Switching and Finite Automata Theory", 3rd edition, Cambridge. 2.

2. Leach, Malvino, Saha, "Digital Principles and Applications", 7th edition, TMH.

3. 3. Roth, "Fundamentals of Logic Design", 5th edition, Cengage.

PAPER – IV: Digital Logic Design
PAPER CODE: 23CSC22P

List of Experiments

The laboratory work can be done by using physical gates and necessary equipment or simulators.

Simulators: https://sourceforge.net/projects/gatesim/ or https://circuitverse.org/ or any free open- source simulator

1. Introduction to digital electronics lab- nomenclature of digital ICs, specifications, study ofthe data sheet, concept of Vcc and ground, verification of the truth tables of logic gates using TTL ICs.
2. Implementation of the given Boolean functions using logic gates in both SOP and POSforms
3. Realization of basic gates using universal gates.
4. Design and implementation of half and full adder circuits using logic gates.
5. Design and implementation of half and full subtractor circuits using logic gates.
6. Verification of stable tables of RS, JK, T and D flip-flops using NAND gates.
7. Verification of stable tables of RS, JK, T and D flip-flops using NOR gates.
8. Implementation and verification of Decoder and encoder using logic gates.
9. Implementation of 4X1 MUX and DeMUX using logic gates.
10. Implementation of 8X1 MUX using suitable lower order MUX.
11. Implementation of 7-segment decoder circuit.
12. Implementation of 4-bit parallel adder.
13. Design and verification of 4-bit synchronous counter.
14. Design and verification of 4-bit asynchronous counter.

I B.Com (Computer Applications) –Major/ I B.Com (General)

MinorII SEMESTER

COURSE 4: OFFICE AUTOMATION TOOLS (23BCV22/23BCG23) w.e.f A.Y. 2023-2024

Unit 1: Introduction to MS Office & MS Word Unit-1: Introduction to MS Office & MS Word: Features of MS-Word, MS-Word Window Components , working with formatted test, Shortcut keys, Formatting documents , Selecting text , Copying & moving data, Formatting characters, changing cases, Paragraph formatting, Indents, Drop caps, Using format painter, Page formatting, Header & footer, Bullets & numbering , Tabs, Forming tables, Finding & replacing text, to (F5) command, proofing text(Spell –check , Auto correct).

Case Study:

1. Create a document to write a letter to the DM & HO of the district complaining aboutHygienic conditions in your area.
2. Create a document to share your experience of your recent vacation with family **Unit-2: MS Word Advanced features:** Difference between Wizard and Template-Customize the Quick Access Tool Bar- Macros: Purpose-Crating Macro-Using Macro-Storing Macro – Inserting pictures: From Computer, Online Pictures-Insert 3d Models-Inserting Shapes-Inserting Text Boxes- Insert Equation-Hyperlinks, Tables :Insert tables ,Mathematical calculation on tables data, Insert Text Boxes.

Case Study:

1. Create a document to send holiday intimation to all the parents at time aboutDasara Vacation.
2. Create a document to create Time Tables of your class using tables.

Unit-3: Introduction to MS Excel & Its features: MS –Excel Features, Spread sheets, workbooks creating ,saving & editing workbook , Renaming sheet, cell entries(numbers, labels, and formulas), spell check , find and replace, adding and deleting rows and columns , Filling series, fill with drag, data sort , Formatting worksheet, Functions and its parts, Some useful function in Excel(SUM, AVERAGE, COUNT, MAX, MIN, IF).

Case Study:

1. Create a worksheet with your class marks displaying total, average, top marks in the calland least marks in the class.

Unit-4: MS-Excel Advanced Features: Cell referencing (Relative, Absolute, Mixed), What-if analysis, , introduction to charts : types of charts , creation of charts, printing a chart, printing worksheets-Sort-Filters-View Menu.

Case Study:

1. Prepare a chart with the height and weight of class mates in at least 3 types of charts.
2. Demonstrate the use of filter with the attendance data of your class.

Unit 5:MS-PowerPoint and its Applications: MS-PowerPoint: Features of Power Point, Uses, Components of slide, templates and wizards , using template, choosing an auto layout using outline , adding sub heading, editing text, formatting text, using master slide, adding slides, changing colour scheme, changing background and shading , adding header and footer, adding clip art and auto shapes, various presentations, working in slide sorter view(deleting

,duplicating, re arranging slides) adding transition and animations s to slideshow, inserting music or slide, viewing slideshow.

Case Study:

1. Prepare presentation with your achievements and experiences in college.

Textbooks:

1. Computer Fundaments-Pradeepk.Sinha: BPBPublications.

2. Fundaments of Computer-ReemaThareja, Oxford University Press India

Reference Books:

1. Fundamentals of Computer – V . Rajaraman, Printice Hell of India. 2.

Introduction toComputers–Peter Norton McGraw-Hill.

Reference Books:

1. Fundaments of Computer –V.Rajaraman, Printice Hell of India.
2. Introduction to Computers- Peter Norton McGraw-Hill.

OFFICE AUTOMATION TOOLS Practicals (23BCV22P/23BCG23P)

LIST OF EXPERIMENTS

1) Design a visiting card for Managing Director of a company as per the following specification.
   - Sizeofvisitingcardis3½×2
   - Name of the company with big font
   - Phone number, Fax number and E-mail address with appropriate symbols.
   - Office and Residence address separated by a line

2) Create a table with following columns and display the result ins eparate cells for the following
   - Emp Name, Basic pay, DA, HRA, Total salary.
   - Sort all the employees in ascending order with the name as the key
   - Calculate the totals alary of the employee
   - Calculate the Grand total salary of the employee
   - Finding highest salary and
   - Find lowest salary

3) Prepare an advertisement to a company requiring software professional with the following
   - Attractive page border
   - Design the name of the company using WordArt
   - Use at least one clipart.
   - Give details of the company (use bullets etc)
   - Give details of the Vacancies in each category of employee's (Business manager, Software engineers, System administrators, Programmers, Data entry operators)

   qualification required.

4) Create a letter having following specifications

- Name ofthecompanyonthetopofthepage2withbigfontandgoodstyle
- Phone no, Fax no and E-mail address with symbols.
- Main products manufactured by the company
- Slogans if any should be specify in bold at the bottom

5) Create two pages of curriculum vitae of a graduate with the following specifications

- Table to show qualifications with proper headings
- Appropriate left and right margins
- Format ½pageusingtwo-columnapproachabout yourself
- Name on each page at the top right side
- Page no.in the footer on the right side.

6) Write a macro format documents below

- Linespacing“2”(double)

- Paragraphindentof0.1
- Justification formatting style
- Arial font andBoldof14pt-size

7) Create a letter as the maindocumentandcreate10recordsforthe 10persons usemailmergetocreateletterforselectedpersonsamong10.

8) Create an electronic spread sheet in which you enter the following decimal numbers and convert the mintooctal, Hexa decimal an d binary numbers and vice-versa.

DecimalNumbers:35,68,95,78,165,225,355,375,465

BinaryNumbers:101,1101,11101,11111,10001,11101111

9) Calculate the net pay of the employees following the conditions below.

	A	B	C	D	E	F	G	H	I
1	Employee	Employe e	Basic	DA	HRA	GPF	Gross	Income	Net
2									

DA:-56%ofthebasicpayifBasicpayisgreaterthan20000 orelse44%.

HRA:-
15%oftheBasicpaysubjecttomaximumofRs.4000.
GPF: -10%ofthebasicpay.
INCOMETAX:-
10%ofbasicifBasicpayisgreaterthan20000. Find who is getting highest salary & who is get lowestsalary?

10) The ABC Company shows the sales of different product For5years.CreateBARGraph, 3D

and Pie chart for the following.

A	B	C	D	E	F
S.No.	Year	Pro1	Pro2	Pro3	Pro4
1	1989	1000	800	90	1000
2	1990	800	80	50	900
3	1991	1200	190	40	800
4	1992	400	200	30	1000
5	1993	1800	400	40	1200

11) Create a suitable examination data base and find the sum of the marks (total) of each student and respective, class secured by the student.

Pass: if marks in each subject>=35

Distinction :if average>=75

First class :if average>=60but<75

Second class: if

average>=50butlessthan60 Third class:

if average>=35butlessthan50 Fail: if

marks in any subject<35

12) Enter the following data into the sheet.

Name	Department	Salary
Anusha	Accounts	12000
Rani	Engineering	24000
Lakshmi	Accounts	9000
Purnima	Marketing	20000
Bindu	Accounts	4500
Tejaswi	Accounts	11000
Swetha	Engineering	15000
Saroja	Marketing	45000
Sunitha	Accounts	5600
Sandhya	Engineering	24000
Harika	Marketing	8000

- Extract records for department tin Accounts and Salary > 10000
- Sort the data by salary with the department using “sort commands”.
- Calculate total salary for a ch department using Subtotals

13) Enter the following data in to the sheet..

	Raju	Rani	Mark	Rosy	Ismail	Reshma
English	76	89	43	51	76	87
2ndLang	55	85	78	61	47	33
Maths	65	82	34	58	52	65
Computers	45	91	56	72	49	56
Human Values	51	84	54	64	32	64

Apply the conditional formatting for marks

- 35 below Red
- 35 to 50 Blue
- 51 to 70 Green
- 71 to 100 Yellow

14) Create a presentation using templates.

15) Create a Custom layout or Slide Master for professional presentation.

16) Create a presentation with slide transitions and animation effects.

17) Create a table in PPT and apply graphical representation.

SKILL COURSE under CBCS w.e.f A.Y. 2023-2024PAPER – IV: DIGITAL LITERACY
Paper Code(23SC22)
(Common for II SEMESTER of all Major COURSES)

Course Objectives:

By undergoing the Digital Literacy course, one should acquire basic knowledge on Computer and he/she is able to

CO1: Perform operations on the computer

CO2: Access the Internet and finding information of interest

CO3: Register for an E-mail account and operating it

CO4: Make bill payments and use other applications of

Internet CO5: Create, edit and format documents using a

word processor

Unit-1: operate the elements of a computer and performing operations on the computer Operate the elements of a computer including power cord, power switch, network connectingcable, USB ports, Mouse operations, Keyboard operations, interface icons, GUI elements,Editing options, perform operations including switching on the computer, logging in, locating afile, opening a file, printing a document, storing a file with proper extension, creating a folder/sub folder in a volume on hard disk and desktop, shifting files from one folder to another,shutting off the computer

Unit-2: Access the Internet to browse information and E-mail operation

Access the Internet, use a search engine, find information on the topic of interest, register for a web-based E-mail account, access E-mail with attachments, reply to an E-mail, forward an E- mail and delete an E-mail message

Unit-3: Make bill payments, other applications using Internet and word processing

Make utility bill payments, booking bus/train tickets, bank transactions, personal transactions, job search through employment portals, mobile/DTH recharge, word processing basics, creating, editing and formatting of text, saving and printing of word document

Prescribed readings: 1. Appreciation of Digital Literacy Handbook published by Department of Electronics & Information Technology, Ministry of Communications & Information Technology, Government of India

Web Resources:

1. https://youtu.be/b2X_j5Bz-VM
2. https://youtu.be/jln3-P6L2ro
3. https://youtu.be/cfDisqUMIvw
4. https://youtu.be/3h_PyURcdrc
5. https://youtu.be/EqN0LBcydBg

Note: Digital Literacy course should be taught by blending the practical demonstration of concepts with hands-on experience by learners using desktop/laptop computer and mobile handset device