DEPARTMENT OF COMPUTER SCIENCE

COURSE CURRICULUM & MARKING SCHEME

B.Sc. I, II, III, IV Semester

COMPUTER SCIENCE

(Based on Choice Based Credit System)

SESSION : 2023-24

ESTD : 1958

GOVT. V.Y.T. PG AUTONOMOUS COLLEGE, DURG, 491001 (C.G.)

(Former Name – Govt. Arts & Science College, Durg)

NAAC Accredited Grade A+, College with CPE - Phase III (UGC), STAR COLLEGE (DBT)

Phone : 0788-2212030

Website - www.govtsciencecollegedurg.ac.in, Email – autonomousdurg2013@gmail.com

Course Structure for CBCS
B.Sc. (CS)- I Semester

Course Code	Course Type	Course Name	Theory Marks		Internal Marks		Practical Marks		Total Marks		Teaching Load per Week			Credits
											L	T	P	
			Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.				
BCS 101(L)	DSC	Computer Fundamentals	60	24	15	6			75	30	3	1		3
BCS 102(P)		Computer Fundamentals Lab					25	10	25	10			1x2	1
BCS 103 (L+P)	SEC	Problem Solving and Programming Techniques	25	10			25	10	50	20	1		1X2	2
BCS 104	VAC	YOGA	25	10			25	10	50	20	1		1X2	2
		TOTAL							200	80				8

Course Structure for CBCS
B.Sc. (CS)- II Semester

Course Code	Course Type	Course Name	Theory Marks		Internal Marks		Practical Marks		Total Marks		Teaching Load per Week			Credits
											L	T	P	
			Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.				
BCS 201(L)	DSC	Programming in C Language	60	24	15	6			75	30	3	1		3
BCS 202(P)		Programming in C Language Lab					25	10	25	10			1x2	1
BCS 203 (L+P)	SEC	Fundamental of Web Technology	25	10			25	10	50	20	1		1X2	2
BCS 204 (L+P)	VAC		25	10			25	10	50	20	1		1X2	2
		TOTAL							200	80				8

The syllabus for B.Sc. (CS) is hereby approved for the session 2023-24.

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE

B.Sc. (CS) -I Semester

SYLLABUS FOR AY 2023-24
COURSE CODE: BCS-101 (L)

Computer Fundamentals

Max Marks: 60 **Min. Marks: 24**

Course Objectives	Course Outcomes
Introduce the fundamentals of computing devices and reinforce computer vocabulary, particularly with respect to personal use of computer hardware and software, various memory devices and Operating System.	**On successful completion of the course, the student will be able to:** 1. Understand the history and various generations of computer, characteristics of computer and its types, logic gates, number system 2. Identify computer hardware and peripheral devices. 3. Understand the concept and Features of MS-Word 4. Understand the concept and Features of MS-Power point and MS-Excel. 5. Understand Concept of Operating System and its features.

UNIT 1: CLASSIFICATION AND ORGANISATION OF COMPUTERS

Computer system: characteristics and capabilities. Computer Hardware and Software: Block Diagram of a Computer, Different Data Processing: Data, Data Processing System, Storing Data, Processing Data.
Types of Computers: Analogue, Digital, Hybrid, General and Special Purpose Computers. Generation of Computers.
Input Devices-Keyboard, Pointing devices: Mouse, Joy-sticks, Scanner, Touch Screen, Voice input devices.
Output devices: Monitor, Impact and Non-Impact Printers, Plotters,
Memory hierarchy, Primary Memory, Cache memory, Secondary Memory, Virtual Memory.

UNIT 2: MS-WORD

Introduction to word processing software , creating new document, saving document opining and printing document. *Home Tab* : setting fonts, paragraph settings various styles (normal no spacing, heading1, heading2, title, strong), find & replace, format painter, copy paste and paste special. *Insert tab :* Pages, tables, pictures, clipart, shapes, header & footer, word art, equation and symbols. *Page Layout Tab :* Page setup, page background, paragraph (indent and spacing). *Mailing Tab:* create envelops and labels, mail merge. *Review Tab:* spelling and grammar check, new comment, Protect document, *View Tab:* document views, zoom, window (new window, split, switch window).

UNIT 3: MS-EXCEL

Introducing Excel, use of excel sheet, creating new sheet, Home Tab: Insert Tab: Table, charts (column chart, pie chart, bar chart, line chart) and texts (header * footer, word art, signature line). Page Layout Tab: page setup options, scale to fit (width, height, scale). Formulas Tab: Autosum (sum, average, min, max), logical (IF, and, or, not, true, false).

UNIT 4: MS-POWER-POINT

Introducing power point, use of power point presentation, creating new.*Home Tab :* new slide, layout, reset, delete, setting text direction, align text, convert to smart art, drawing options. *Desing Tab:* page setup options, slide orientation, applying various themes, selecting background style and formatting it. *Animations Tab :* custom animation for entrance, exit and emphasis, applying slide transition, setting transition speed and sound, animation on rehears timing. *Slide show & view Tab:* start slid show options, setup option. *View Tab :* presentation views, colours and window option.

UNIT 5: INTRODUCTION TO MS-DOS AND WINDOWS:

Introduction to DOS: History and Versions of DOS, *Fundamentals of DOS:* Physical Structure of the Disk, Compatibility of drives, Disks & DOS versions, Preparing Disks for use, Device Names. *Getting Started with DOS:* Booting Process (DOS, Windows, UNIX), System Files and Command.com, Internal DOS Files and Directories, Elementary External DOS Commands, Creating a Batch file, Additional.

Microsoft Windows: Operating System- Definition & functions, basics of Windows, Basic Components of Windows, Icons, Types of Icons, Taskbar, activating Windows, Using Desktop, Title Bar, running applications, Exploring computer, Managing Files and Folders, copying and moving files and folders. Control panel- Display properties, adding and removing software and hardware, setting date and time, screen saver and appearance. Using windows accessories.

TEXT BOOKS-

1. Computer Fundamentals, P.K. Sinha, BPB Publication, Sixth Edition.
2. Computer Fundamentals Architecture and Organization, B. Ram, New Age International Publishers, Fifth Edition
3. 1. MICRODOFT OFFICE 2007 FUNDAMENTAL: - L STORY, D WALLS.
4. 2. MS OFFICE : - S S SHRIVASTAVA, FIREWALL MEDIA.
5. 3. OFFICE 2000 MADE EASY: - ALAN NEIBAUER, TATA MCGRAW HILL

REFERENCE BOOK:-

1. Fundamentals of Computers, V. Rajaraman, PHI Sixth Edition.
2. Computers Today, Donald H. Sanders, McGraw-Hill Third Edition.

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
B.Sc. (CS) -I Semester
SYLLABUS FOR AY 2023-24
COURSE CODE: BCS-102 (P)
LAB I: Computer Fundamental LAB

Max Marks: 25 **Min. Marks: 10**

Course Objectives	Course Outcomes
Objective of this course is: 1. To enabling the students in crafting professional word documents Excel spread sheets, power point presentations using the Microsoft suite of office tools. 1. To familiarize the students in preparation of documents and presentations with office automation tools.	**On successful completion of the course, the student will be able to:** **CO1:** Understand the history and various generations of computer, characteristics of computer and its types, logic gates, number system **CO2:** Be able to identify computer hardware and peripheral devices **CO3:** Understand creating and formatting basic documents in word processor software with their properties. **CO4:** Understand the creating and using formulas and charts in worksheets and Able to create presentations and can apply various animations on it. **CO5:** Able to understand DOS and GUI Operating System features.

1. **Scheme of Examination:-Practical examination** will be of 3 hours duration. The distribution of practical marks will be as follows:

Programme 1 (MS-Office) - 5
Programme 2 (MS-Office) - 5
Programme 4 (DOS Commands) 5
Viva- Voice - 5
[Practical Copy + Internal Record] - 5

Total - 25

2 In every program there should be comment for each coded line or block of code.
3 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.
4 All the following programs or a similar type of programs should be prepared.

List of Practical

1. Demonstration of Computer Hardware and all the Peripheral Devices of Computer Systems.
2. All the Internal and External DOS Commands.

MS- WORD
File New, Open, Save, Cut, Copy, Paste, Drag Drop, Bullets and Numbering, Undo, Redo, Find, Replace, Paragraph Formatting, Character Formatting and Page Formatting.

1. Open a document. Type the following text and perform the tasks as instructed below:-

Working with Word Processor

As already mentioned, a word processor is a package that processes textual matter and creates organized and flawless documents. In addition to it a word processor not only remote all the limitations of typewriter but also offers various useful features that cannot be even dreamt of with typewriter.
Also if same textual matter is to be reproduced with minor changes, retyping the only option in typewriters.
The word processing (and word processor) originated way back in 1964 when special typewriters. Magnetic Tape Selectric typewriters (MIST) were launched by IBM (International Business Machines).

(i) Insert the following text after the first paragraph
The main components of a word processing system are listed below:
a. Computer
b. Printer
c. A word processing software

(ii) Save the document as Word1.doc

(iii) Move the second paragraph to the end of the document. Using darg & drop.

(iv) Move the second paragraph in the end of the document using cut, paste operations.

(v) Undo the above actions.

(vi) Now use Redo actions

(vii) Go to the End of the document (in one step)

(viii) Go to the Beginning of document (in one step)

(ix) Insert page break before the third paragraph.

(x) Search the word "computer: in your document with options Match case, find whole words only.

(xi) Replace the word "typewriters" with "word processor"

(xii) Undo the above action

(xiii) Remove All page breaks from your document

(xiv) Change the magnification of your document to different percentages using zoom features.

(xv) Format the above written paragraphs and give the options as follows:
- Alignment justified
- Indentation: left 0.2 right:0.2
- Spacing: before 6 pt. after:6 pt.
- Special: first line by :0.4"
- Line spacing 1.5 lines.

(xvi) Set the default tab stop to 0.3"

(xvii) Set the margins to 1.25

(xviii) Format the page using
a. Left margin:0.5, right margin: 0.5
b. Top margin:1.5, bottom margin:0.5
c. Gutter Margin: 1indentation: left 0.2 right:0.2
d. Header Margin:0.5

(xix) Format the each occurrence of group of words 'Word Processor' as bold, italic, under line and small caps

(xx) using find and replace with formatting options.

(xxi) Align the heading to Center and make it bold, underlined and italicized.

File New, Open, Save, Find, Replace, Paragraph Formatting, Character Formatting and Page Formatting.

2. Type the text as show below and perform the tasks as directed:

Computers
COMPUTER is an electronic device that processes data and gives meaningful information. Computers are being used in almost all the fields today
EXPERT SYSTEMS
HUMAN THINKING AND ARTIFICAL INTELLIGENCE
Can computer think?
AI at work Today: Natural Language programs and Expert Systems.
THE IMPACT OF COMPUTERS ON PEOPLE
The Positive Impact
The Potential Dangers
THE IMPACT OF COMPUTERS ON ORGANIZATIONS
The information Processing Industry
The Positive impact on Using Organizations
The Potential Dangers for Using Organizations

1. Search for the word 'Computer' in the entire document. All the occurrences of the given word are to be searched irrespective of the case.
2. In the above question note that word also searches 'computerization and 'computerisations'. Now make sure that this time Word searches only for the word 'computer' in the entire document.
3. Change the entire uppercase letter to lowercase.
4. Give a heading to the above written text 'COMPUTERS IN TODAY'S WORLD'
5. Centre aligns the Heading text Computer that appears in first line.
6. Apply outside border to entire document.

7. Apply outside border to the just heading text.
8. Change page setup according to the following specifications
   Top margin: 1.5", bottom margin: 1.5"
   Gutter: 1", left margin: 1.5"
   Right margin: 1"
   Page width: 7.5", page height: 6.5 "
   Orientation: portrait
9. Give a header 'Creations' and footer 'The school of computing'. The footer should also consist of page no's.
10. Give appropriate commands for giving different header and footers for first page and odd & even pages.
11. Save and close the document.

3. Write the following equations in MS-Word:
$4H_3PO_3=3H_3PO_4+PH_3$, $PCL_3+CL_2=PCL_5$, $(x+y)^2=x^2+y^2+2xy$

4. Write the following equations in MS-Word:
$C_2H_5OH+PCL_5=C_2H_5CL+POCL_3+HCL$, $A = \pi r^2$, $a \div b \neq 0$

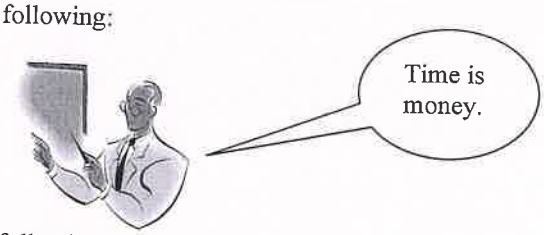
5. Write the following in MS-Word:
1. Preheat the oven to 220°C.
2. Copyright ©
3. Registered ®
4. Trademark ™

6. Create the following table in MS-Word:

Name		Rahul	
Roll No.		101	
Subject	**Max**	**Min**	**Obtain**
Java	100	33	75
Multimedia	100	33	70

7. Create a document in MS-Word. Set the watermark as **Microsoft**. Also write the following text as formatted below:
Measuring programming progress by lines of code is like measuring aircraft building progress by weight.
--Bill Gates

8. Create the following:



9. Create the following:

10. Create the following table in MS-Word:

Admission 2021-2022

Course	OC	OB	MBC	SC/ST	Total
Computer Science	9	18	5	5	37
Commerce	14	25	6	5	50
Mathematics	12	20	4	4	40

11. Create Table as shown

Car		Price
Maruti	Omni Van	200000
	Maruti 800	242000
Tata	Sumo	390000

	Sierra	447000

12. Insert the following in MS-Word.

Welcome

PC Software

Rabbit

14. Write the following in MS-Word.

- This is sentencecase.
- this is lowercase.
- THIS IS UPPERCASE.
- This Is Capitalise Each Word.
- tHIS IS tOGGLE cASE.
-

15. Create the following list in MS-Word:

1. Actors
    1. Bruce Willis
    2. Gerard Butler
    3. Vin Diesel
2. Actress
    1. Julia Roberts
    2. Angelina Jolie
    3. Kate Winslet
    4. Cameron Diaz

16. Write the following in MS-Word:

1. Cricket Players

3. Batsman
    1. Sachin Tendulkar
    2. Rahul Dravid
    3. Virendra Sehwag

4. Bowler
    a. Kumble
    b. Zaheer Khan
    c. Balaji

5. Spinner
    a) Harbhajan
    b) Kumble
    c) Kartik

17. Write a letter to send invitation to your friend inviting on your birthday.

18. Create labels for your friends' address.

MS – EXCEL

1. Create the following worksheet and save the worksheet as wages.xls

PACE COMPUTERS (ATC CEDT), Govt. of India
Payroll for Employee (Temporary)

Today's date :		Pay Rate :	
Worker's Name	Hired On	days Worked	Gross Wages
Kushagra	3-Mar-07		
Pradeep	4-Mar-07		
Puneet	5-Mar-07		
Rajeev	6-Mar-07		

(I) Calculate days work and gross wages

2. Create the following worksheet and save the worksheet as wages.xls

Name Basic (monthly) (Rs.)	HRA(% of basic)	DA (Rs.)	Total Salary (1997)	Bonus (Rs)	Total Salary (1998)	% (Increase)
Shirome5000	10	450		1200		
Somya9000	15	800		200		
Tanya7000	12	900		1800		

- Calculate the total salary as sum of Basic salary, HRA ,DA, for each employee for 1997
- Calculate total salary for year 1998 as sum of salary of 1997 and bonus
- Calculate % increase in salary from 1997 to 1998

3. Create a worksheet as follows

Pace computer (ATC CEDT) Govt. Of India
Payroll for employee (Permanent)

Empcode	name	doj	salary	bonus	net salary
E001	Meenu	3-Mar-95	5000		
E002	Manoj	4-Mar-06	4000		
E003	Preeti	3-Mar-95	4800		
E004	Sumita	6-Mar-07	7500		

i. allow bonus 8000 to employee having service >2 year other vise allow bonus 3000
ii. find net salary as sum of bonus and salary

4. create the worksheet as follows

Roll No	Name	English	Maths	Total	Average	Division
101	Kushagra	95	99			
102	Ajay	92	95			
103	Vijay	70	69			
			Class Average			

i. find Total of two subject for each student
ii. find average of two subject for each student
iii. find class as average of average column
iv. find division of student as first, second, third, assume percentage of division of your own and maximum marks
v. in each student as 100
vi. Apply conditional formatting for division column, first division should be in bold, second division should be in italic and third division should be underline

5. Create macro in excel to make selected cell, bold, italic outside bordered and center across select.

6. create bar chart with given data

	2001	2002	2003
Tea	19	23	25
Coffee	22	24	22
Sugar	45	40	45

(I) Provide heading production detail
(II) Provide z axis title; lacks metric tone
(III) Provide x axis title year

7. Create a table with column heading as shown below and using form perform data entry of records.

Zone	Department	Employee	Salary
West	Marketing	Mukesh	10500
East	Sales	Rahul	20000
South	Marketing	Suresh	5500
North	Marketing	Anju	25000
South	Sales	Neeraj	8000
North	Sales	Ajay	8000
South	Marketing	Mahesh	7500
West	Sales	Rajesh	4500

i. Sort the data according to Zone then by Department
ii. Use group and outline feature to show & hide details

8. Create a table with column heading as shown below and using form perform data entry of records.

Zone	Department	Employee	Salary
West	Marketing	Mukesh	10500
East	Sales	Rahul	20000
South	Marketing	Suresh	5500
North	Marketing	Anju	25000
South	Sales	Neeraj	8000
North	Sales	Ajay	8000
South	Marketing	Mahesh	7500
West	Sales	Rajesh	4500

(I) Use filter command to show records having zone: West
(II) Use filter command to show records having zone: West and salary less than 5000
(III) Use filter command to show records having salary greater than 10000

9. Create pivot table using Data of exercise 8

10. Create Table using feature

Principle 1500
Rate 4%
Time 5

300	3	4	5
1%	45	60	75
2%	90	120	150
3%	135	180	225

11. Using goal seek feature find out the interest rate it must be to earn interest 500

Principle	1500
Rate	4%
Time	5
Interest 300	

MS PowerPoint

Q 1 Create a PPT of Atleast 10 Slides with one slide for comparison, one slide displaying a chart with the table.
Q 2 Create a PPT presentation use rehearse timing for the slide show
Q 3 Create PPT presentation slide import sound and video clips.
Q 4 Create PPT presentation with hyperlinking.
Q 5 Create PPT presentation and apply themes and transitions.

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR: (2023-24)
B.Sc. (CS) -I Semester
SUBJECT CODE: BCS -103(L+P)
Problem Solving and Programming Techniques

Max Marks: 25(L)+25(P) **Min. Marks: 10+10**

NOTE:- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Course Objectives	Course Outcomes
Course Objective: This Subject is useful for understanding the techniques of solving problem through algorithm, flow chart and programming Languages.	**On successful completion of the course, thestudent will be able to understand various techniques of problem solving through programming.**

Introduction and Programming Concepts:
Definition of Program, Source file, Object file, Executable file, Header file,

Language Translator- Assembler, Interpreter, Compiler, Testing, Debugging, Linker and Loader,

Introduction to algorithm, pseudo code, flow chart, Programming Languages, types of Programming Languages.

Procedural Programming verses Object-oriented Programming. Types of Procedural Programming languages.

Object-oriented Programming Paradigm, Advantages and Limitations of Object-oriented Programming, types of Object-oriented Programming languages.

Text Book:

1. Computer Fundamentals: PK Sinha, BPB Publications
2. C Problem solving and Programming - A. Kenneth, Prentice Hall International.
3. C made easy - H. Schildt, McGraw Hill Book Company

Course Structure for CBCS
B.Sc. (CS)- - II Semester

Course Code	Course Type	Course Name	Theory Marks		Internal Marks		Practical Marks		Total Marks		Teaching Load per Week			Credits
											L	T	P	
			Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.				
BCS 201(L)	DSC	Programming in C Language	60	24	15	6			75	30	3	1		3
BCS 202(P)		Programming in C Language Lab					25	10	25	10			1x2	1
BCS 203 (L+P)	SEC	Fundamental of Web Technology	25	10			25	10	50	20	1		1X2	2
		TOTAL							150	60				6

Name and Signatures

V.C. Nominee .....

Subject Expert .....

Subject Expert.....

Alumni(member).....

Prof. from other Dept. of Sc. Faculty .....

Specialist from Industry .....

Departmental members

1. HOD- Mr. Dileep Kumar Sahu.....
2. Mrs. Latika Tamrakar .....
3. Dr. Sanat Kumar Sahu.....

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
B.Sc. (CS) – II Semester
COURSE CODE: BCS - 201(L)
PROBLEM SOLVING AND PROGRAMMING IN 'C'

Max Marks: 60 **Min. Marks: 24**

NOTE:- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Course Objectives	Course Outcomes
This course intends to provide the fundamental programming methodologies and problem solving techniques in the C programming language.	**On successful completion of the course, thestudent will be able to** **CO1:** Understand modular programming approach and learn different data types, operators and its types, operator precedence and associativity, Input-Output functions in C language. **CO2:** Understand various Control Constructs and function in C language. **CO3:** Understand the concepts of array , string structure, union and enum in C Language. **CO4:** Describe pointers and their usage using C awith its various applications. **CO5:** Discuss Pre-processor file and file handling and the features of Object oriented programming.

Unit	Topics
I	**Introduction of C Language:** History of C language, Structure of C program ,Keywords, Tokens, Data types, Constants, Literals and Variables. **Operators and Expressions:** Arithmetic operators, Relational operator, Logical operators, Expressions, Operator : operator precedence and associativity ,Type casting,
II	**Control Constructs** If-else, conditional operators, switch and break, nested conditional branching statements, **Loops**: For, do..while, while, Nested loops, break and continue, goto and label, exit function. Console I/O formatting, Unformatted I/O functions: getch(), getchar, getche(), getc(), putc(), putchar().
III	**Array, String, Structure and Union** **Array**:-Array declaration, One and Two dimensional numeric and character arrays. Multidimensional arrays. **String:**-String declaration, initialization, string manipulation with/without using library function. **Functions**:-definition, **Function components:** Function arguments, return value, function call statement, function prototype. Type of function, Scope and lifetime of variable. Call by value and call by reference. Function using arrays, User defined function: math and character functions, Recursive function.
IV	**Pointer** Definition of pointer, pointer declaration, using **&** and *operators. Void pointer, pointer to pointer, Pointer in math expression, pointer arithmetic, pointercomparison, dynamic memory allocation, functions – malloc, calloc, realloc and free, pointers vs. Arrays, Arrays of pointer, pointer to array, pointer to structure.

V	**Structure, Union & Enum- Structure**: basics, declaring structure and structure variable, typedef statement, array of structure, array within structure, Nested structure; passing structure to function, function returning structure. **Union**: basics, declaring union and union variable, **Enum**: declaring enum and enum variable.

TEXT BOOK:

1. Programming in C – Yashwant Kanetkar
2. Programming in C - Venugopal
3. The C Programming Language - Kemigham and Ritche[Prentice Hall].
4. Application Programming in C - R. Johnson-baugh& Martin Kalin Macmillan International Editions.

Supplementary Readings:

1. The art of C Programming - Jones, Robin & Stewart, Narosa Publishing House.
2. C Problem solving and Programming - A. Kenneth, Prentice Hall International.
3. C made easy - H. Schildt, McGraw Hill Book Company

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
B.Sc. (CS) – II SEMESTER
Course Code: BCS-202(P)
Practical LAB II: PROGRAMMING IN C LAB

Max Marks: 25 **Min. Marks: 10**

Course Objectives	Course Outcomes
This course intends to provide in-depthprogramming knowledge of Problem-solving techniques and programming in C Language.	**On successful completion of the course, the student will be able to:** **CO1:** Write program with all type of variables and statements of C. **CO2:** Discuss modular approach by working with functions **CO3:** Discuss programming concepts with derived data types. **CO4:** Know different features file Handling and pre-processors.

1. **Scheme of Examination: -Practical examination** will be two programs and a project demonstration. It will be of 3 hours duration. All programs should be with flow chart and algorithms. The distribution of practical markswill be as follows:

Programme 1	-	**5**
Programme 2	-	**5**
Programme 3	-	**5**
Viva- Voice	-	**5**
[Practical Copy + Internal Record]	-	**5**
Total		**- 25**

2. In every program there should be comment for each coded line or block of code.
3. Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.
4. All the following programs or a similar type of programs should be prepared.

List of Practical

INPUT AND OUTPUT, FORMATTING

1. Write a program in which you declare variable of all data types supported by C language. Get input from user and
2. print the value of each variable with alignment left, right and column width 10. For real numbers print their values
3. with two digits right to the decimal.

LOOPS, DECISIONS

4. Write program to print all combination of 1 2 3.
5. Write program to generate following pattern

a)
```
* * * * *
 * * * *
  * * *
   * *
    *
```

b)
```
1
2 3
4 5 6
7 8 9 10
```

c)
```
    *
   * *
  * * *
 * * * *
* * * * *
```

d)
```
      1
    2 1 2
  3 2 1 2 3
4 3 2 1 2 3 4
```

6. Write main function using switch…case, if..else and loops which when called asks pattern type; if user enters 11 then first pattern is generated using for loop. If user enters 12 then first pattern is generated using while loop. If user enters 13 then first pattern is generated using do-while loop. If user enters 21 then a second pattern is generated using for loop and so on.
7. Write program to display number 1 to 10 in octal, decimal and hexadecimal system.
8. Write program to display number from one number system to another number system. The program must ask for the number system in which you will input integer value then the program must ask the number system in which you will want output of the input number after that you have to input the number in specified number system and program will give the output according to number system for output you mentioned.
9. Write a program to perform following tasks using switch…case, loops, and conditional operator (as and
10. when necessary).
    a) Find factorial of a number
    b) Print Fibonacci series up to n terms and its sum.
    c) Print sin series up to n terms and its sum.
    d) Print exponential series up to n terms and its sum.
    e) Print prime numbers up n terms.
    f) Print whether a given year is leap or not.
11. Write program no. 6 but use library function to perform above tasks.

ARRAY

12. Create a single program to perform following tasks using switch, if..else, loop and single dimension character array without using library function:
    a) To reverse the string.
    b) To count the number of characters in string.
    c) To copy the one string to other string;
    d) To find whether a given string is palindrome or not.
    e) To count no. of vowels, consonants in each word of a sentence and no. of punctuation in sentence.
    f) To arrange the alphabets of a string in ascending order.
13. Create a single program to perform following tasks using switch, if..else, loop and single dimension integer array:
    a) Sort the elements.
    c) Search for presence of particular value in array element using linear search.
    d) Search for presence of particular value in array element using binary search.

FUNCTIONS

14. Write program using the function power (a, b) to calculate the value of a raised to b.
15. Write program to demonstrate difference between static and auto variable.
16. Write program to demonstrate difference between local and global variable.
17. Write a program to perform following tasks using switch…case, loops and function.
    a) Find factorial of a number
    b) Print Fibonacci series up to n terms and its sum.
    c) Print Sin series up to n terms and its sum.
    d) Print exponential series up to n terms and its sum.
18. Write a program to perform following tasks using switch…case, loops and **recursive** function.
    a) Find factorial of a number
    b) Print Fibonacci series up to n terms and its sum.
    c) Print Sin series up to n terms and its sum.
    d) Print exponential series up to n terms and its sum.
    e) Print natural series up to n terms and its sum
19. Write a function to accept 10 characters and display whether each input character is digit, uppercase letter or lower case letter.

Array & Function

20. Create a single program to perform following tasks using switch, if..else, loop, function and double dimension integer array of size 3x3:
    a) Addition of two matrix.
    b) Subtraction of two matrix.
    c) Multiplication of two matrix.
    d) Inverse of matrix.
    e) Transpose of matrix.
21. Create a single program to perform following tasks using switch, if..else, loop, user defined function and single dimension character array:
    a) To reverse the string.
    b) To count the number of characters in string.
    c) To copy the one string to other string;
    d) To find whether a given string is palindrome or not.
    e) To count no. of vowels, consonant in each word of a sentence and no, of punctuations in sentence.
22. Create a single program to perform following tasks using switch, if..else, loop, function and single dimension integer array:
    a) Sort the elements.
    b) Find largest element and smallest element.
    c) Search for presence of particular value in array element using linear search.
    d) Search for presence of particular value in array element using binary search.

STRUCTURE & UNION

23. Create a structure Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare a structure variable of student. Provide facilities to input data in data members and display result of student.
24. Create a structure Date with data member's dd, mm, yy (to store date). Create another structure Employee with data members to hold name of employee, employee id and date of joining (date of joining will be hold by variable of structure Date which appears as data member in Employee Structure). Store data of an employee and print the same.

POINTER

25. Define union Emp having data members:-one integer, one float and one single dimension character array. Declare a union variable in main and test the union variable.
26. Define an enum Days_of_Week members of which will be days of week. Declare an enum variable in main and test it.
27. Write a program of swapping two numbers and demonstrates call by value and call by reference.
28. Write program to sort strings using pointer exchange.
29. Write a program in c using pointer and function to receive a string and a character as argument and return the no. of occurrences of this character in the string.
30. Write program to demonstrate pointer arithmetic.

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR: (2023-24)
B.Sc. (CS) – II Semester
SUBJECT CODE: BCS -203(L+P)
FUNDAMENTAL OF WEB TECHNOLOGY

Max Marks: 25(L)+25(P) **Min. Marks: 10+10**

NOTE:- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Course Objectives	Course Outcomes
Course Objective: This Subject is useful for Making own Web page and how to host own web site on internet. Also, Students will learn what the protocols are involving in internet technology	**On successful completion of the course, thestudent will be able to:** **CO1**: Discuss internet technology and concept of website. **CO2**: Discuss the basic elements of HTML **CO3**: Discuss the concept of list and font tags and its attributes. **CO4**: Describe image and external & Internal; linking in HTML.

Basics of Internet
History, Evolution, Internet applications, Intranet, WWW, Emergence of Web, Web Site, client, Web Servers, Web Browser, Web concept, Search Engine, URL, DNS, Internet Connection, Internet Service Provider, Web Design Strategies,

Introduction, Html version, HTML tags, Creating headings on a web pages : Aligning the headings, creating list, Working with Links: Creating a Hyperlinks, Setting the Hyperlink Colors, Linking Different sections of A web page, Creating Paragraph, Working with Images, Using Images as Links, Working with Tables, Setting the Frame Border Thickness, Applying Hyperlink Targets to a Frame, Creating and HTML Form, Specifying the Action URL and Method to Send the Form, Using the HTML Controls.

TEXT BOOKS:

1. Web Technology, A developer's Perspective, N.P. Gopalan and J. Akilandeswari, PHI publication.
2. Web Technologies : HTML, JAVASCRIPT, PHP, JAVA, JSP, ASP, NET, XML and Ajax, Black Book by Dream Tech Press.
3. Internet : The Complete Reference Millennium Edition Margaret Levine Young, Doug Muder.
4. The Complete Reference : HTML and CSS, Thomas A, Powell, Mc Graw Hill.
5. Java Script The Complete Reference, Thomas Powell, Fritz Schenider, McGrawHill, Third Edition
6. Introduction To HTML, Kamlesh N.Agrawal, O.p, Vyas, P.A. Agrawal.
7. Web Technology and Design, Xavier, C, New Age International.
8. HTML, DHTML, Java Script, Perl and CGI, Ivan Bayros, BPB Publication.
9. Internet and Web Design, Ramesh Bangia, New Age International.

DIRECTIVES FOR STUDENTS, FACULTY AND EXAMINERS

1. There shall be three sections (Section A, B, and C) in each theory paper.
2. Section A shall contain very short answer type questions (One or two line answer) or objective type questions (fill in the blank). **(not multiple choice questions)**
3. Section B shall contain short answer type questions with the limit of 150 words
4. Section C shall contain long answer/ descriptive type questions. The students are required to answer precisely and the answer should not exceed the limit of 350 words.
5. The students are required to study the content mentioned in the curriculum exhaustively.

EVALUATION PATTERN

- **Theory- 60 marks + Internal and Assignment – 15 Marks**
- **Practical- 25 marks**

Total – 100 Marks

Question Type	MAX MARKS 60 (Marks X No. of Q.)
A (Very short Ans.)	1X10 = 10
B (Short Ans.)	4X5 = 20
C (Long Ans.)	6X5 =30

EVALUATION PATTERN FOR SEC and VAC

- **Theory 25 marks**
- **Practical 25 marks**
- **Total – 50 Marks**

Name and Signatures

V.C. Nominee	**Departmental members**
Subject Expert	1. **HOD- Mr. Dileep Kumar Sahu**.....
Subject Expert.....	2. **Mrs. Latika Tamrakar** .....
Alumni(member).....	3. **Dr. Sanat Kumar Sahu**.....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

Corrigendum for UG Classes

1. **Section –A (very short answer question)**
   There shall be 10 objective type questions (No multiple choice). All questions are compulsory; at least one from each unit.

2. **Section B, Section C**
   There shall be 10 questions, two questions from each unit.
   The candidate has to attempt one question from each unit.

Name and Signatures

V.C. Nominee	**Departmental members**
Subject Expert	1. **HOD- Mr. Dileep Kumar Sahu**.....
Subject Expert.....	2. **Mrs. Latika Tamrakar** .....
Alumni(member).....	3. **Dr. Sanat Kumar Sahu**.....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

Course Structure for CBCS
B.Sc. (CS)- III Semester

Course Code	Course Type	Course Name	Theory Marks		Internal Marks		Practical Marks		Total Marks		Teaching Load per Week			Credits
											L	T	P	
			Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.				
BCS 301(L)	DSC	Programming in Java	60	24	15	6			75	30	3	1		3
BCS 302(P)		Programming in Java Lab					25	10	25	10			1x2	1
BCS 303 (L+P)	SEC	Physics	25	10			25	10	50	20	1		1X2	2
BCS 304	VAC		25	10			25	10	50	20	1		1X2	2
		TOTAL							200	80				8

Course Structure for CBCS
B.Sc. (CS)- IV Semester

Course Code	Course Type	Course Name	Theory Marks		Internal Marks		Practical Marks		Total Marks		Teaching Load per Week			Credits
											L	T	P	
			Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.				
BCS 401(L)	DSC	Database Management System	60	24	15	6			75	30	3	1		3
BCS 402(P)		DBMS Lab					25	10	25	10			1x2	1
BCS 403 (L+P)	SEC	English (COA)	25	10			25	10	50	20	1		1X2	2
BCS 404 (L+P)	VAC		25	10			25	10	50	20	1		1X2	2
		TOTAL							200	80				8

The syllabus for B.Sc. (CS) is hereby approved for the session 2023-24.

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24

B. Sc. (CS) – III Semester

Programming in Java

Course Code– BCS-301 (L)

Max Mark: 60 **Min Marks: 24**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Part A: Programming in Java			
Program: **B. Sc. (CS)**	Class: **B. Sc. (CS) –III Semester**	Year: **2023**	Session:**2023-2024**
Course Code	**BCS-301 (L)**		
Course Title	**Programming in Java**		
Course Type	**Core Course**		
Pre-requisite (if any)	None		
Course Objectives	This course intends to provide in-depth knowledge of Object oriented programming using Java and to solve real-life problems through software development using Java.		
Course Outcome	**On successful completion of the course, thestudent will be able to:** **1:** Understand the concepts of basics of Java programming Language and get hands on with selection and iterative building blocks for coding. **2:** Understand and implement the concept of Inheritance, Interface and packages in java. **3:** Understand and implement the exception handling and multithreading mechanism using java. **4:** Describe basics of input-output streams and JDBC programming in java **5:** Describe fundamental of software development using the concept of Applet and AWT in java		
Credit Value	**Theory: 3, Practical: 1**		
Total Marks	**Max. Marks: 60**	**Min Passing Marks: 24**	

Unit	Part B – Topics	No. of Lecture
1.	**UNIT – I : Introduction** History of java, C++ verses Java, features of java, data types, control structures: if else, switch case, looping statement: while, do while, for loop, new version of for loop, break, continue statement, arrays and its types , , string and String Buffer class, Wrapper Classes, vectors.	**12**

2	**UNIT – II:** Basics of class and object, constructor and its types, methods and its types, method overloading, this keyword. **Inheritance:** Basics types, method Overriding, using abstract classes, uses of final keyword final classes, using super. **Packages and Interfaces:** Defined CLASSPATH, importing packages, implementing interface.	**12**
3	**UNIT – III :** **Exception Handling: Basics of E**xception handling, types of exception, using try and catch, throwing exceptions, user defined exceptions, finally, throw verses throws. **Multithreaded Programming:** Java thread model, thread life cycle. Various functions of Thread class and Runnable interface, creating threads, and thread priorities, synchronization. Inter thread communication.	**12**
4	**UNIT – IV:** **Input/Output:** Basic of Streams, Byte and Character Stream, IO stream package, predefined streams, reading and writing from console and reading and writing from files. **Networking:** Networking Basics. TCP/IP client & server sockets, URL connection.	**12**
5	**UNIT – V: Shell Programming** **Applets:** Fundamentals, life cycle, overriding update, HTML APPLET tag, passing parameters. Developing single applets. **Introduction to AWT:** Window fundamentals, creating windowed, programs working with graphics, using AWT controls, menus. Delegation event model: handling mouse and keyboard events.	**12**

Part C -Learning Resources
Text Books, Reference Books, Other Resources
BOOKS RECOMMENDED: **BOOKS RECOMMENDED:** 1. JAVA COMPLETE REFERENCE - BY HERBERT SCHILDT 2. PROGRAMMING WITH JAVA - BY E. BALAGURUSAMY 3. JAVA PROGRAMMING - KHALID MUGHAL

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
B.Sc. (CS)– III Semester

Programming in Java Lab

Course Code– BCS-302 (P)

Max Mark: 25 **Min Marks: 10**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
The Operating System Laboratory, OS Lab is a course that will teach students about principles of operating systems using a constructivist approach and problem-oriented learning. Basics of UNIX Commands1.... Write programs using the I/O System calls of UNIX operating system (open, read, write, etc.).	1. Students will be able to understand key features of the various Operating Systems. 2. Implement various commands of Linux Operating System. 3. Students will be able to understand the directory structure of Operating System.

1. Scheme of Examination:-

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows:

Programme 1 - 5
Programme 2 - 5
Programme 3 - 5
Viva - 5
[Practical Copy + Internal Record] – 5

Total - 25

2 In every program there should be comment for each coded line or block of code
3 Practical file should contain printed programs with name of author, date, path of Program, unit no. and printed output.
4 All the following programs or a similar type of programs should be prepared

List of Practical:

Java Programs to implement the basics of Java.

1. WAP that implements the Concept of Encapsulation.
2. WAP to demonstrate concept of Polymorphism (Overloading and Overridding)
3. WAP the use Boolean data type and print the Prime number Series up to 50.
4. WAP for matrix multiplication using input/output Stream.
5. WAP to add the elements of Vector as arguments of main method (Run time) and rearrange them, and copy it into an Array.
6. WAP to check that the given String is palindrome or not.
7. WAP to arrange the String in alphabetical order.
8. WAP for String Buffer class which perform the all methods of that class.
9. WAP to calculate Simple Interest using the Wrapper Class.
10. WAP to calculate Area of various geometrical figures using the abstract class.
11. WAP where Single class implements more than one interfaces and with help of interface reference variable user call the methods.
12. WAP that use the multiple catch statements within the try-catch mechanism.

13. WAP where user will create a self-Exception using the "throw" keyword.
14. WAP for multithread using the isAlive(), join() and synchronized() methods of Thread class.
15. WAP to create a package using command and one package will import the another package.
16. WAP for AWT to create Menu and Popup Menu for Frame.
17. WAP for Applet that handle the KeyBoard Events.
18. WAP, which support the TCP/IP protocol, where client gives the message and server will be, receive the message.
19. WAP to illustrate the use of all methods of URL class.
20. WAP for JDBC to insert the values into the existing table by using prepared Statement.
21. WAP for JDBC to display the records from the existing table.
22. WAP to demonstrate the Border Layout using applet.
23. WAP for Applet who generate the MouseMotionListener Event.
24. WAP for display the checkboxes, Labels and TextFields on an AWT.
25. WAP to calculate the Area of various geometrical figures using the abstract class.
26. WAP for creating a file and to store data into that file.(Using the FileWriterIOStream)
27. WAP to display your file in DOS console use the Input/Output Stream.
28. WAP to create an Applet using the HTML file, where Parameter Pass for font Size and Font type and Applet message will change to corresponding parameters.

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
B.Sc. (CS)– IV Semester

Database Management System

Course Code– BCS-401 (L)

Max Mark: 60 **Min Marks: 24**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Part A: Database Management System			
Program: **B.Sc. (CS)**	Class: **BCS –III Semester**	Year: **2023**	Session:**2023-2024**
Course Code	**BCS-401(L)**		
Course Title	**Database Management System**		
Course Type	**Core Course**		
Pre-requisite (if any)	None		
Course Objectives	The objective of the course is to present an introduction to database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS.		
Course Outcome	At the end of this course, the students will be able to: 1. Understand the Databases and their design & development 2. Intellectual Cognitive/ analytical skills: Normalization of Databases. 3. Practical Skills: Using SQL and PL/SQL. 4. Transferable skills: Usage of DBMS design and administration. 5. Gather data to analyze and specify the requirements of a system. 6. Design system components and environments. 7. Build general and detailed models that assist programmers in implementing a system.		
Credit Value	**Theory: 3, Practical: 1**		
Total Marks	**Max. Marks: 60**	**Min Passing Marks: 24**	

Unit	**Part B – Topics**	**No. of Lecture**
1.	**UNIT-I: Overview of Database Management** Data. Information and knowledge, increasing use of data as a corporate resource, data processing verses data management, file-oriented approach verses database oriented approach to data management, data independence, database administration roles, DBMS architecture, different kinds of DBMS users, importance of data dictionary, contents of data dictionary, types of database languages. Data models: network, hierarchical, relational.	**12**

2	**UNIT-II: Relational Model & Relational Algebra** Entry-Relational model as a tool for conceptual design-entities, attributes and relationships. ER diagrams; Concept of keys, Case studies of ER modelling Generalization; specialization and aggregation converting an ER model into relational schema. Extended ER features. Introduction to UML, Representation in UML, diagram (Class Diagram etc.)	**12**
3	**UNIT-III: Relational Model & Relational Design** **Relational Algebra:** select, project, cross product different types of joins (inner join, outer joins, self-join); set operations, Tuple relational calculus, Domain relational calculus, Simple and complex queries using relational algebra, stand alone and embedded query languages.	**12**
4	**UNIT-IV: Structured Query Language (SQL)** Normalization concept in logical model; Pitfalls in database design, update anomalies: Functional dependencies, Join dependencies, Normal forms(1NF,2NF,3NF), Boyce Codd Normal form, Decomposition, Multi-Valued Dependencies, 4NF, 5NF, De-normalization.	**12**
5	**UNIT-V: Query Processing and Security** Introduction to SQL, constructs (SELECT-----FROM, WHERE----GROUP BY---HAVING------ORDERBY------) INSERT, DELETE, UPDATE, DROP, VIEW definition and use, Temporary tables, Nested queries and correlated nested queries, Integrity constraints; Not Null unique, check, primary, key, foreign key, references, Inner and Outer joins. **Query processing:** parsing, translation, optimization, evaluation and overview of Query processing **protecting the Data Base:** Integrity, Security and Recovery. Domain Constraints, Referential Integrity, Assertion, Triggers, Security & Authorization in SQL.	**12**

Part C -Learning Resources

Text Books, Reference Books, Other Resources

BOOKS RECOMMENDED:

1. **Database System Concept:** *A. Silberschatz, H. F. Korth and S. Sudarshan, TMH*
2. **Fundamentals of database Systems**: *Elmasri & Nawathe, pearson Education*
3. **An Introduction to Database Systems:** *C.J. Date, AWL publishing Company*
4. **SQL, PL/SQL**: *Ivan Bayross, BPB Publication*
5. **An Introduction to Database Systems**: *Bipin Desai, Galgotia publication.*
6. **Datebase Management System:** *A. K. Majumdar & P. Bhattacharya, TMH.*

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
SYLLABUS FOR AY 2023-24
B. Sc. (CS) – IV Semester

DBMS Lab

Course Code– BCS-402 (P)

Max Mark: 25 **Min Marks: 10**

Note: The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculators allowed not scientific calculator.

Course Objectives	Course Outcomes
To understand the basic database concepts, applications, data models, schema and instances and to demonstrate the use of constraints and relational algebra operations, the basics of SQL and construct queries using SQL.	1. Demonstrate an understanding of the relational data model. 2. Transform an information model into a relational database schema and to use a DDL,DCL and DML, and/or utilities to implement the schema using a DBMS. 3. Formulate, using relational algebra, solutions to a broad range of query problems. 4. Formulate, using SQL, solutions to a broad range of query and data update problems.

1. **Scheme of Examination:-**

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Program 1	**-5**
Program 2	**-5**
Program 3	**-5**
Viva	**-5**
(Practical Copy+ Practical Sessional)	**-5**
Total	**-25**

2. In every program there should be comment for each coded line or block of code.
3. Practical files should contain printed program with name of author, date, path of program, unit no and printed output.
4. All the following programs or a similar type of programs should be prepared.

List of Practical

1. Using the following database,

   Colleges (ename, city, address, phone, afdate)
   Staffs (sid, sname, saddres, contacts)
   Staffjoines (sid, cname, dept, DOJ, post salary0
   Techings (sid, class, paperid, fsession, tsession)
   Subject (paperid subject paperno, papername)

   Write SQL statements for the following –

   a) Create the above tables with the given specifications and constraints.
   b) Insert about 10 rows as are appropriate to solve the following queries.

c) List the name of the teachers teaching computer subjects.
d) List the name and cities of all staff working in your college.
e) List the names and cities of all staff working in your college who earn more than 15,000
f) Find the staffs whose names start with 'M' or 'R' and ends with 'A' and /or 7 characters long
g) Find the staffs whose date of joining is 2005.
h) Modify the database so that staff N1 now works in C2 College
i) List the names of subjects, which T1 teaches in this session or all sessions.
j) Find the classes that T1 do not teach at present session.

a. Find the colleges who have most number of staffs.
b. Find the staffs that earn a higher salary who earn greater than average salary of their college.
c. Find the colleges whose average salary is more than average salary of C2
d. Find the college that has the smallest payroll.
e. Find the colleges where the total salary is greater than the average salary of all colleges
f. List maximum average, minimum salary of each college.

a. List the names of the teachers, departments teaching in more than one department
b. Acquire details of staffs by name in a college of each college.
c. Find the names of staff that earn more than each staff of C2 College.
d. Give all principals a 10% rise in salary unless their salary become greater than 20,000 in such case give 5% rise.
e. Find all staff that do not work in same cities as the colleges they work.
f. List names of employees in ascending order according to salary who are working in your college or all colleges.

a. Create a view having fields sname, cname, dept, DOJ, and post
b. Create a view consisting of cname, average salary and total salary of all staff in that college.
c. Select the colleges having highest and lowest average salary using above views.

2. Create the following database,

Enrollment (enrollno, name, gender, DOB, address, phone)
Admission (admno, enrollno, course, yearsem, date, cname)
Colleges (cname, city, address, phone, afdate)
Fee Structure (course, yearsem, fee)
Payment (billno, admno, amount, pdate, purpose)

a) Create the above tables with the given specifications and constraints.
b) Insert about 10 rows as are appropriate to solve the following queries.
c) Get full detail of all students who took admission this year class wise
d) Get detail of students who took admission in Bhilai colleges.
e) Calculate the total amount of fees collected in this session
i) By your college ii) by each college iii) by all colleges

a) List the students who have not payed full fee
   i) in your college ii) in all colleges
b) List the number of admissions in your class in every year.
c) List the students in the session who are not in the colleges in the same city as they live in.
d) List the students in colleges in your city and also live in your city.

3. Create the following database,

   Subjects (paperid, subject, paper, papername)
   Test (paperid, date, time, max, min)
   Score (rollno, paperid, marks, attendence)
   Students (admno, rollno, class, yearsem)

   a. Create the above tables with the given specifications and constraints.
   b. Insert about 10 rows as are appropriate to solve the following queries.
   c. List the students who were present in a paper of a subject.
   d. List all roll numbers who have passed in fi9rst division
   e. List all student in BSC-II who have scored higher than average
      i) in your college ii) in every college
   f. List the highest score, average and minimum score in BSC-II
      i) In your college ii) in every college

4. Using the following database

   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   Staff Joins (sid, cname, dept, DOJ, post salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)

   Write SQL statements for the following –

   a. Create the above tables with the given specifications and constraints.
   b. Insert about 10 rows as are appropriate to solve the following queries.
   c. List the name of the teachers teaching computer subjects.
   d. List the names and cities of all staff working in your college.
   e. List the names and cities of all staff working in your college who earn more than 15,000
   f. Using the following database
      Colleges (cname, city, address, phone, afdate)

5. Using the following database

   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   Staff Joins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)

   a. Find the staffs whose names start with 'M' or 'R' and ends with 'A' and/or 7 characters long.
   b. Find the staffs whose date of joining is 2005.
   c. Modify the database so that staff N1 now works in C2 college
   d. List the names of subjects which T1 teaches in this session or all sessions.

6. Using the following database

   Colleges (cname, city, address, phone, afdate)
   Staff (sid, sname, saddress, contacts)
   Staff Joins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)

   a. Find the classess that T1 do not teach at present session.
   b. Find the college who have most number of staffs.
   c. Find the staffs who earn a higher salary who earn greater than everage salary of their college.
   d. Find the colleges whose average salary is more than average salary of C2
   e. Find the college that has the smallest payroll.
   f. Find the colleges where the total salary is greater than the average salary of all colleges.
   g. List maximum, average, minimum salary of each college

7. Using the following database

   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   Staff Joins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)

   a. Find the classes that T1 do not teach at present session.
   b. List the names of the teachers, departments teaching in more than one departments.
   c. Acquire details of staffs by name in a college or each college.
   d. Find the names of staff who earn more than each staff of C2 college.
   e. Give all principals a 10% rise in salary unless their salary becomes greater than 20,000 in such case give 5% rise.
   f. Find all staff who do not work in same cities as the colleges they work.
   g. List names of employees in ascending order according to salary who are working in your college or all colleges.

8. Using the following database

   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   Staff Joins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)

   a. Find the classes that T1 do not teach at present session.
   b. Create a view having fields sname, cname, dept, DOJ, and post
   c. Create a view consisting of cname, average salary and total salary of all staff in that college.
   d. Select the colleges having highest and lowest average salary using above views.
   e. List the staff names of a department using above views.

9. Enrollment (enrollno, name, gender, DOB, address, phone)
   Admission (admno, enrollno, course, yearsem, yearsem,

data, cname)

a. Create the above tabls with the given specifications and constraints.

b. Insert about 10 rows as are appropriate to solve the following queries.

c. Get fullo detail of all students who took admission this year Classwise

d. Get detail of students who took admision in Bhilai colleges.

e. Calculate the total amount of fees collected in this session

i) by your college ii)bye each college iii)by all colleges

10. Enrollment (enrollno. Name, gender, DOB, address, phone)
Admission (admno, enrollno, course, yearsem, date, cname)
Colleges (cname, city, address, phone, afdate)
Fee Structure (course, yearsem, fee)
Payment (billno, admno, amount, pdate, purpose)

a. List the students who have not payed full fee

i) In your college ii) in all colleges

b. List the number of admissions in your class in every year.

c. List the students in the session who are nt in the colleges in the same city as they live in.

d. List the student in colleges in your city and also live in your city.

11. Subjects (paperid, subject, paper, papername)
Test (paperid, date, time, max, min)
Score (rollno, paperid, marks, attendence)
Students (admno, rollno, class, yearsem)

a. Create the above tables with the given specifications and Constraints

b. Insert about 10 rows as are appropriate to solve the following queries.

c. List the students who were present in paper of a subject.

d. List all roll numbers who have passed in first division.

e. Lit all students in BSC-II who have scored higher than average
i) in your college ii) in every college

f. List the highest score, average and minimum score in BSC-II
i) in your college ii) in every college

Name and Signatures

V.C. Nominee	**Departmental members**
Subject Expert	**1. HOD- Mr. Dileep Kumar Sahu**.....
Subject Expert.....	**2. Mrs. Latika Tamrakar** .....
Alumni(member).....	**3. Dr. Sanat Kumar Sahu**.....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

DIRECTIVES FOR STUDENTS, FACULTY AND EXAMINERS

1. There shall be three sections (Section A, B, and C) in each theory paper.
2. Section A shall contain very short answer type questions (One or two line answer) or objective type questions (fill in the blank). **(Not multiple-choice questions)**
3. Section B shall contain short answer type questions with the limit of 150 words
4. Section C shall contain long answer/ descriptive type questions. The students are required to answer precisely and the answer should not exceed the limit of 350 words.
5. The students are required to study the content mentioned in the curriculum exhaustively.

EVALUATION PATTERN OF DSC AND GEC

- **Theory- 60 marks + Internal/Assignment – 15 Marks, Practical- 25 marks, Total – 100 Marks**

Question Type	MAX MARKS 60 (Marks X No. of Q.)
A (Very short Ans.)	1X10 = 10
B (Short Ans.)	3X5 = 15
C (Long Ans.)	7X5 =35

EVALUATION PATTERN FOR SEC and VAC

- **Theory 25 marks, Practical 25 marks, Total – 50 Marks**

Name and Signatures

V.C. Nominee	Departmental members
Subject Expert	1. HOD- Mr. Dileep Kumar Sahu.....
Subject Expert.....	2. Mrs. Latika Tamrakar .....
Alumni(member).....	3. Dr. Sanat Kumar Sahu.....
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

Corrigendum for UG Classes

1. **Section –A (very short answer question)**

There shall be 10 objective type questions (No multiple choice). All questions are compulsory; at least one from each unit.

2. **Section B, Section C**

There shall be 10 questions, two questions from each unit.
The candidate has to attempt one question from each unit.

Name and Signatures

V.C. Nominee	**Departmental members** 1. **HOD- Mr. Dileep Kumar Sahu**..... 2. **Mrs. Latika Tamrakar** ..... 3. **Dr. Sanat Kumar Sahu**.....
Subject Expert	
Subject Expert.....	
Alumni(member).....	
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	