

Revised

Govt. V.Y.T. PG Autonomous College Durg (CG)



**SCHEME OF EXAMINATION
&
SYLLABUS**

of

**Choice Based Credit System(CBCS)
for
B.Sc. I & II Semester
(Information Technology)**

Department of Information Technology

Session – 2022-23

(Approved by Board of studies)

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


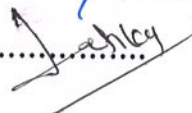
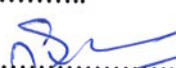
Course Code	Course Type	Course Name	Theory Marks		Internal Marks		Practical Marks		Total Marks		Teaching Load per Week			Credits
			Max. (A)	Min. (B)	Max. (C)	Min. (D)	Max. (E)	Min. (F)	Max.	Min.	L	T	P	
BIT 101(L)	DSC	Fundamental of IT	60	24	15	6			75	30	3	1		3
BIT 102(P)		Fundamental of IT Lab					25	10	25	10			1x2	1
BIT 103 (L+P)	SEC	Web Designing with HTML	25	10			25	10	50	20	1		1x2	2
TOTAL									150	60				6

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

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

The syllabus for B.Sc. (IT) is hereby approved for the session 2022-23.

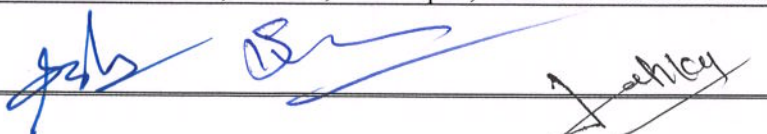
Name and Signatures

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

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
B.Sc. (IT) -I Semester
Session 2022-2023

Part A: Fundamentals of IT			
Program: B.Sc.-IT		Class: B.Sc.-IT – I SEMESTER	Year: 2022
Session: 2022-2023			
1	Course Code	BIT-101(L)	
2	Course Title	Fundamentals of IT	
3	Course Type	Core Course	
4	Pre-requisite (if any)	None	
5.	Course Objectives	Introduce the fundamentals of computer, Number system various memory devices and introduction to Operating System introduction and Data Communication and provide hands-on use of Microsoft Office applications Word, Excel, Access and PowerPoint,MS Access.	
6.	Course Outcome	At the end of this course, the students will be able On successful completion of the course, the student will be able to: <ul style="list-style-type: none"> • Understand the history and various generations of computer, characteristics of computer and its types, logic gates, number system • Understand Concept of Operating System and its features. • Understand the basic computer network technology • Understand the concept and Features of MS-Word and MS-Excel. • Understand the concept and Features of MS-Power point and MS-Access. 	
6	Credit Value	Theory: 4	
7	Total Marks	Max. Marks: 60	Min Marks: 24

Unit	Part B - Topics
I	UNIT – I Introduction to Computers: Introduction, Characteristics of Computers, Block diagram of computer. Types of computers and features, Mini Computers, Micro Computers, Mainframe Computers, Super Computers. Types of Programming Languages (Machine Languages, Assembly Languages, High Level Languages). Data Organization, Drives, Files, Directories. Types of Memory (Primary and Secondary) RAM, ROM, PROM, EPROM. Secondary Storage Devices (FD, CD, HD, Pen drive) I/O Devices (Scanners, Plotters, LCD, Plasma Display) Number Systems Introduction to Binary, Octal, Hexadecimal system Conversion.
II	Operating System and Data Communication – History, Files and Directories, Internal and External Commands, Batch Files, Types of O.S.Windows Operating Environment Features of MS – Windows, Control Panel, Taskbar, Desktop, Windows Application, Icons, Windows Accessories, Notepad, Paintbrush etc. Use of communication and IT, Communication Process, Communication types- Simplex, Half Duplex, Full Duplex, Communication Protocols, Communication Channels - Twisted, Coaxial, Fiber Optic, Serial and Parallel Communication, Modem



	- Working and characteristics, Types of network Connections - Dialup, Leased Lines, ISDN, DSL, RF, Broad band, Types of Network - LAN, WAN, MAN, Internet, VPN etc., Topologies of Components of LAN -Media, NIC, NOS, Bridges, HUB, Routers, Repeater and Gateways.
III	<p>MS-Word</p> <p>Introduction to word processing software and it's features, creating new document, saving document opening 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 envelopes 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).</p>
IV	<p>MS-Excel</p> <p>Introducing Excel, use of excel sheet, creating new sheet, saving, opening, and printing workbook, Home Tab: Font, alignment, number, styles and cells and editing, conditional formatting. 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 :Auto sum (sum, average, min, max), logical (IF, and, or, not, true, false), math & trig (sin, cos tan, ceiling, floor, fact, mod, log), watch window. Data Tab: get external data from MS Access, sort and filter options, Data validation, group and ungroup. Review Tab: protect sheet, protect workbook, share workbook. View Tab: page breaks, page layout, freezing panes, split and hide.</p>
V	<p>MS-Power Point</p> <p>Introducing power point, use of power point presentation, creating new slides saving, opening, and printing. Home Tab :new slide, layout, reset, delete, setting text direction, align text, convert to smart art, drawing options. Insert Tab :Table, picture, clipart, photo album, smart art, shapes and chart, movie and sound, hyperlink and action, text box, word art, object. DesingTab :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.</p>

Part C -Learning Resources

Text Books, Reference Books, Other Resources

TEXT BOOK:

1. Computer Fundamentals Architecture and Organization, B. Ram, New Age International Publishers, Fifth Edition.
2. Computer Fundamentals, P. K. Sinha, BPB Publications, Sixth Edition.
3. Introduction to Information Technology, V. Rajaraman, PHI, Second Edition.
4. Digital Fundamental, Thomas L. Floyd , Pearson Publications , Eleventh edition
5. Fundamental of Information Technology, ChetanShrivastava, Kalyani Publishers.

E-learning Resources:

1. <https://www.w3schools.blog/computer-fundamentals-tutorial>
2. <https://www.javatpoint.com/digital-electronics>
3. <https://vikaspedia.in/education/digital-literacy/it-literacy-courses-in-associating-with-msup/computer-fundamentals>
4. <https://www.geeksforgeeks.org/introduction-of-sequential-circuits/>
5. <https://nptel.ac.in/courses/108105132>

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Prof. from other Dept. of Sc. Faculty 

Specialist from Industry

Departmental members

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2. Mrs. Latika Tamrakar 

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

B.Sc. (IT) -I Semester

Session 2022-2023

COURSE CODE: BIT-102 (P)

LAB I: Fundamentals of IT 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 creating and formatting basic documents in word processor software with their properties. CO2: Understand the creating and using formulas and charts in worksheets CO3: Able to create presentations and can apply various animations on it. CO4: Understand the creating and using structure query language queries in database

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 3 (MS-Office)	-	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

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 drag & 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: 1 indentation: 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 ARTIFICIAL 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

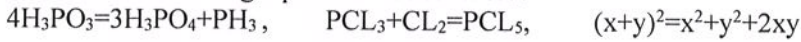
The Potential Dangers for Using Organizations

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 "

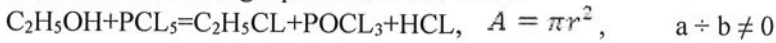
Orientation: portrait

- Give a header 'Creations' and footer 'The school of computing'. The footer should also consist of page no's.
- Give appropriate commands for giving different header and footers for first page and odd & even pages.
- Save and close the document.

3. Write the following equations in MS-Word:



4. Write the following equations in MS-Word:



5. Write the following in MS-Word:

- Preheat the oven to 220°C.
- Copyright ©
- Registered ®
- 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:



Time is money.

9. Create the following:

Multimedia

10. Create the following table

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.

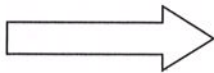
Welcome

PC
Software

Handwritten signatures and marks at the bottom of the page.

13. Insert the following in MS-Word.

Rabbit



14. Write the following in MS-Word.

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

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		

- allow bonus 8000 to employee having service >2 year other wise allow bonus 3000
- 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			

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

Class Average		

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

- Provide heading production detail
- Provide z axis title; lacks metric tone
- 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

Handwritten signatures and initials at the bottom of the page.

- 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


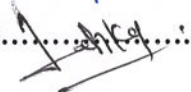

300	3	4	5
1%	45	60	75
2%	90	120	150
3%	135	180	225

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.

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GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2022-23
COURSE CODE: BIT-103 (L+P)
SEC1- Web Designing with HTML

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
<p>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</p>	<p>On successful completion of the course, the student 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.</p>



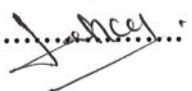
Basics of Internet

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:


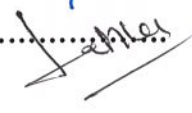

1. Web Technology, A developer's Perspective, N.P. Gopalan and J. Akilandeswari, PHI publication.
2. Web Technologies : HTML, JAVASCRIPT, PHP, JAVA, JSP, ASP, NET, XML and Ajax, Black Book by Dream Tech Press.
3. Internet : The Complete Reference Millennium Edition Margaret Levine Young, Doug Muder.
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.

<p>V.C. Nominee</p> <p>Subject Expert</p> <p>Subject Expert.....</p> <p>Alumni(member).....</p> <p>Prof. from other Dept. of Sc. Faculty </p> <p>Specialist from Industry</p>	<p>Departmental members</p> <p>1. HOD- Mr. Dileep Kumar Sahu..... </p> <p>2. Mrs. Latika Tamrakar..... </p>
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BIT 202(P)		Programming in C Language Lab					25	10	25	10			1x2	1
BIT 203 (L+P)	SEC	Problem Solving and Programming Techniques	25	10			25	10	50	20	1		1X2	2
TOTAL									150	60				6

Name and Signatures

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Specialist from Industry	

**B.Sc. (Information Technology) Second Semester
Session 2022-2023**

Part A: Introduction			
Program: B.Sc.-IT		Class: B.Sc.-IT-II SEMESTER	Year: 2022 Session: 2022-2023
1	Course Code	BIT-201(L)	
2	Course Title	Programming in C Language	
3	Course Type	Core Course	
4	Course Objective	This course intends to provide the fundamental programming methodologies and problem-solving techniques in the C programming language.	
5	Course Outcomes (CO)	<p>On successful completion of the course, the student will be able to</p> <p>CO1: Understand modular programming approach and learn different data types, operators and its types, operator precedence and associativity, Input-Output functions in C language.</p> <p>CO2: Understand various Control Constructs and function in C language.</p> <p>CO3: Understand the concepts of array, string structure, union and enum in C Language.</p> <p>CO4: Describe pointers and their usage using C with its various applications.</p> <p>CO5: Discuss Pre-processor file and file handling and the features of Object oriented programming.</p>	
6	Credit Value	Theory: 4	
7	Total Marks	Max. Marks: 60	Min Passing Marks: 24

Unit	Topics
I	<p>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, Algorithms, Flow Charts, History of C language, Structure of C program, Keywords, Tokens, Data types, Constants, Literals and Variables.</p> <p>Operators and Expressions : Arithmetic operators, Relational operator, Logical operators, Expressions, Operator : operator precedence and associativity, Type casting,</p>
II	<p>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().</p>
III	<p>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, function with command line argument. User defined function: math and character functions, Recursive function.</p>

IV	<p>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, pointers to functions, f, pointer to structure, dynamic array of structure through pointer to structure.</p>
V	<p>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.</p>

Part C -Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

TEXT BOOK:

1. Programming in C – YashwantKanetkar
 2. Programming in C - Venugopal
 3. The C Programming Language - Kernighan and Ritchie[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

E Resources:

1. Introduction (from SWAYAM/NPTEL)
 - https://onlinecourses.nptel.ac.in/noc19_cs38/preview
 - https://onlinecourses.nptel.ac.in/noc22_cs103/preview
 - <https://www.youtube.com/watch?v=KG4hjVDw-p8&list=PLmp4ylk-B4KrM9uOEedvPIVFUkU3jNc6D2&index=2>
2. Constant and Inline Function
 - <https://www.youtube.com/watch?v=pX6LufLso2M&list=PLmp4ylk-B4KrM9uOEedvPIVFUkU3jNc6D2&index=10>
3. Pointer and Reference
 - <https://www.youtube.com/watch?v=GtsBZ5e1-cE&list=PLmp4ylk-B4KrM9uOEedvPIVFUkU3jNc6D2&index=12>
4. Function Overloading
 - <https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4ylk-B4KrM9uOEedvPIVFUkU3jNc6D2&index=13>
5. Operator Overloading
 - <https://www.youtube.com/watch?v=0jpOwe4d-FE&list=PLmp4ylk-B4KrM9uOEedvPIVFUkU3jNc6D2&index=17>
6. Dynamic Memory Management
 - <https://www.youtube.com/watch?v=lkFK2X6q1c0&list=PLmp4ylk-B4KrM9uOEedvPIVFUkU3jNc6D2&index=18>



GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2022-23
B.Sc. (IT) – II SEMESTER
Course Code: BIT-202(P)
Practical LAB II: PROGRAMMING IN C LAB

Max Marks: 25

Min. Marks: 10

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

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 marks will be as follows:

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

Total - 25

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

List of Practical

INPUT AND OUTPUT, FORMATTING

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



LOOPS, DECISIONS

2. Write program to print all combination of 1 2 3.

3. Write program to generate following pattern

a) * * * * *

* * * * *

* * *

**

*

c) *

* *

* * *

* * * *

* * * * *

b) 1

2 3

4 5 6

7 8 9 10

d) 1

2 1 2

3 2 1 2 3

4 3 2 1 2 3 4

4. 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.

5. Write program to display number 1 to 10 in octal, decimal and hexadecimal system.

6. 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.

7. Write a program to perform following tasks using switch...case, loops, and conditional operator (as and 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.

8. Write program no. 6 but use library function to perform above tasks.

ARRAY

9. 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.

10. 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

11. Write program using the function power (a, b) to calculate the value of a raised to b.
12. Write program to demonstrate difference between static and auto variable.
13. Write program to demonstrate difference between local and global variable.
14. 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.
15. 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
16. Write a function to accept 10 characters and display whether each input character is digit, uppercase letter or lower case letter.

Array & Function

17. 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.
18. 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.
19. 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

20. 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.



21. 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

22. 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.
23. Define an enumDays_of_Week members of which will be days of week. Declare an enum variable in main and test it.
24. Write a program of swapping two numbers and demonstrates call by value and call by reference.
25. Write program to sort strings using pointer exchange.
26. 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.
27. Write program to demonstrate pointer arithmetic.



GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2022-23
B.Sc. (IT) – II SEMESTER
COURSE CODE: BIT-203(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, the student 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



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 1. HOD- Mr. Dileep Kumar Sahu..... 2. Mrs. Latika Tamrakar.....
Subject Expert	
Subject Expert.....	
Alumni(member).....	
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

Corrigendum for UG Classes

1. Section –A (very short answer question)


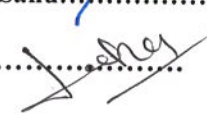

There shall be 10 objective type questions (No multiple choice). All questions are compulsory; at least one from each unit.

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

Name and Signatures	
V.C. Nominee	Departmental members
Subject Expert	3. HOD-Mr. Dileep Kumar Sahu..... 
Subject Expert.....	4. Mrs. Latika Tamrakar..... 
Alumni(member).....	
Prof. from other Dept. of Sc. Faculty 	
Specialist from Industry	