

DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM & MARKING SCHEME

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

(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.(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 2023-24.

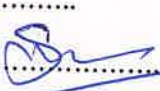
Name and Signatures


V.C. Nominee 

Subject Expert 


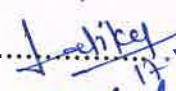

Subject Expert.....

Alumni(member).....

Prof. from other Dept. of Sc. Faculty 

Specialist from Industry 

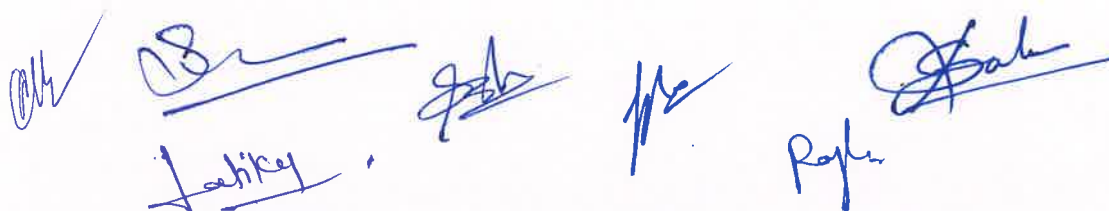
Departmental members

1. HOD- Mr. Dileep Kumar Sahu..... 
2. Mrs. Latika Tamrakar.....  17.4.2023
3. Dr. Sanat Kumar Sahu 

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
B.Sc. (IT) -I Semester
Session 2023-2024

| Part A: Fundamentals of IT | | | |
|----------------------------|--------------------------|---|----------------------|
| Program: B.Sc.-IT | | Class: B.Sc.-IT – I SEMESTER | Year: 2023 |
| | | Session: 2023-2024 | |
| 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 | <p>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.</p> <p>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.</p> |
| 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>

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 | |

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
B.Sc. (IT) -I Semester
Session 2023-2024
COURSE CODE: BIT-102 (P)
LAB I: Fundamentals of IT LAB

Max Marks: 25

Min. Marks: 10

| Course Objectives | Course Outcomes |
|---|---|
| <p>Objective of this course is:</p> <ol style="list-style-type: none"> To enabling the students in crafting professional word documents Excel spread sheets, power point presentations using the Microsoft suite of office tools. To familiarize the students in preparation of documents and presentations with office automation tools. | <p>On successful completion of the course, the student will be able to:</p> <p>CO1: Understand creating and formatting basic documents in word processor software with their properties.</p> <p>CO2: Understand the creating and using formulas and charts in worksheets</p> <p>CO3: Able to create presentations and can apply various animations on it.</p> <p>CO4: Understand the creating and using structure query language queries in database</p> |

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

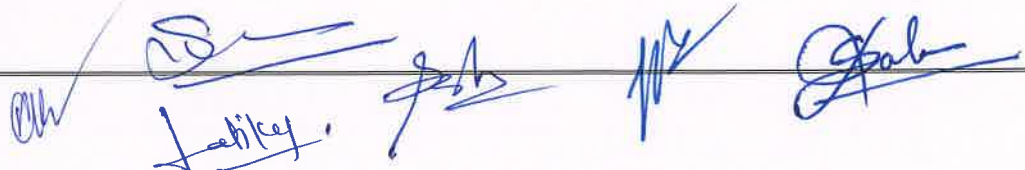
As already mentioned, a word processor is a package that processes textual matter and creates organized and flawless documents. In addition to it a word processor not only remove all the limitations of typewriter but also offers various useful features that cannot be even dreamt of with typewriter.

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.

Ref.



- (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

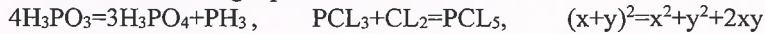
The Potential Dangers for Using Organizations

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

Handwritten signatures and initials in blue ink, including "Raj", "Joh", "Shikay", and others.

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:



4. Write the following equations in MS-Word:



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.

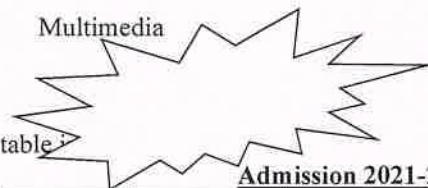
--Bill Gates

8. Create the following:

Time is money.



9. Create the following:



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

Refer

(Handwritten signatures and marks)

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 | | |

(1) Calculate days work and gross wages

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

Handwritten signatures and initials in blue ink, including 'Rajeev', 'Pradeep', and 'Kushagra'.

| 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

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 |

- Sort the data according to Zone then by Department

Ref.
[Handwritten signatures and initials]

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.

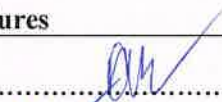






Q 2 Create a PPT presentation use rehearse timing for the slide show

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.

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)..... | | 3. Dr. Sanat Kumar Sahu  |
| Prof. from other Dept. of Sc. Faculty |  | |
| Specialist from Industry |  | |

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
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



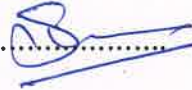




History, Evolution, Internet applications, Intranet, WWW, Emergence of Web, Web Site, client, Web Servers, Web Browser, Web concept, Search Engine, URL, DNS, Internet Connection, Internet Service Provider, Web Design Strategies,

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.








Name and Signatures

| | |
|--|---|
| <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> <p>3. Dr. Sanat Kumar Sahu </p> |
|--|---|

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 |

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  |
|--|--|

**B.Sc. (Information Technology) Second Semester
Session 2023-2024**

| Part A: Introduction | | | |
|----------------------|----------------------|--|---------------------------------|
| Program: B.Sc.-IT | | Class: B.Sc.-IT-II SEMESTER | Year: 2023 Session:2023-2024 |
| 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, pointer comparison, 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=PLmp4yIk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=2>
2. Constant and Inline Function
 - <https://www.youtube.com/watch?v=pX6LufLso2M&list=PLmp4yIk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=10>
3. Pointer and Reference
 - <https://www.youtube.com/watch?v=GtsBZ5e1-cE&list=PLmp4yIk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=12>
4. Function Overloading
 - <https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4yIk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=13>
5. Operator Overloading
 - <https://www.youtube.com/watch?v=0jpOwe4d-FE&list=PLmp4yIk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=17>
6. Dynamic Memory Management
 - <https://www.youtube.com/watch?v=lkFK2X6q1c0&list=PLmp4yIk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=18>

GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24

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. | 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 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

Handwritten signatures and initials:
Akhil, Sahitya B..., Job, Ravi, and another signature.

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.



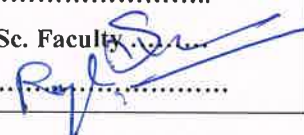
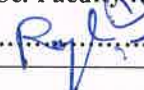

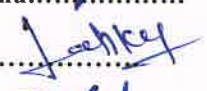

OH Raje *Lakshy* *JS* *gob* *W* *Spahn*

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.

Name and Signatures

| | |
|--|--|
| <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> <p>3. Dr. Sanat Kumar Sahu </p> |
|--|--|

GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE, DURG (C.G.)
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR SESSION 2023-24
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 |
|--|---|
| <p>Course Objective: This Subject is useful for understanding the techniques of solving problem through algorithm, flow chart and programming Languages.</p> | <p>On successful completion of the course, the student will be able to understand various techniques of problem solving through programming.</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,

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







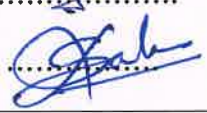
Procedural Programming verses Object-oriented Programming. Types of Procedural Programming languages.

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

Name and signature

| | |
|--|--|
| <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> <p>3. Dr. Sanat Kumar Sahu </p> |
|--|--|

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.) | 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

| Name and Signatures | Departmental members |
|--|--|
| V.C. Nominee  | |
| Subject Expert  | 4. HOD- Mr. Dileep Kumar Sahu.....  |
| Subject Expert..... | 5. Mrs. Latika Tamrakar.....  |
| Alumni(member)..... | 6. 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. (IT)- III 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 301(L) | DSC | Programming in C++ | 60 | 24 | 15 | 6 | | | 75 | 30 | 3 | 1 | | 3 |
| BIT 302(P) | | Programming in C++ Lab | | | | | 25 | 10 | 25 | 10 | | | 1x2 | 1 |
| BIT 303 (L+P) | SEC | Hindi | 25 | 10 | | | 25 | 10 | 50 | 20 | 1 | | 1X2 | 2 |
| BIT 304 | VAC | | 25 | 10 | | | 25 | 10 | 50 | 20 | 1 | | 1X2 | 2 |
| | | TOTAL | | | | | | | 200 | 80 | | | | 8 |

B.Sc. (IT)- - IV 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 401(L) | DSC | Database Management System | 60 | 24 | 15 | 6 | | | 75 | 30 | 3 | 1 | | 3 |
| BIT 402(P) | | DBMS Lab | | | | | 25 | 10 | 25 | 10 | | | 1x2 | 1 |
| BIT 403 (L+P) | SEC | | 25 | 10 | | | 25 | 10 | 50 | 20 | 1 | | 1X2 | 2 |
| BIT 404 (L+P) | VAC | | 25 | 10 | | | 25 | 10 | 50 | 20 | 1 | | 1X2 | 2 |
| | | TOTAL | | | | | | | 200 | 80 | | | | 8 |


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



GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
B.Sc. (IT) -III Semester
Session 2023-2024

| Part A: Fundamentals of IT | | | |
|----------------------------|---------------------------|--|---------------------------------|
| Program: B.Sc.-IT | | Class: B.Sc.-IT III SEMESTER | Year: 2023 Session:2023-2024 |
| 1 | Course Code | BIT-301(L) | |
| 2 | Course Title | Programming in C++ | |
| 3 | Course Type | Core Course | |
| 4 | Pre-requisite (if any) | None | |
| 5. | Course Objectives | This course intends to provide in-depth knowledge of Object Oriented programming using C++. | |
| 6. | Course Outcome | <p>On successful completion of the course, the student will be able to:</p> <p>CO1: Discuss the concepts of programming designing and get hands on with selection and iterative building blocks for coding. CO2: Describe modular programming approach and learn user defined derive data types CO3: Discuss object oriented programming concepts and features of OOPs using C++ CO4: Describe pointers and their usage using C++ along with handling exceptions. CO5: Describe Inheritance in C++.</p> | |
| 6 | Credit Value | Theory: 4 | |
| 7 | Total Marks | Max. Marks: 60 | Min Passing Marks: 24 |

| Unit | Part B - Topics |
|------|--|
| I | Introduction to Object Oriented Programming : Concepts, Features of C++, Bottom up Approach, Structure of C++ program, Data types, Class and Objects, Access Specifiers : Private, Public, Protected, I/O statements, Insertion and Extraction operator, Scope resolution operator, Array, this pointer |
| II | <p>Constructor & Destructor: Default constructor, Copy constructor, Parameterized constructor , Destructor.</p> <p>Inheritance: Definition, Concept of base and derived class, Types of Inheritance: Single, Multilevel, Multiple, Hierarchical and Hybrid Inheritance.</p> |



| | |
|-----|---|
| III | <p>Pointer, Virtual Function & Polymorphism:</p> <p>Pointers : & and * operator pointer variables, pointer to pointer, void pointer, pointer and array, pointer and functions, pointer and string, memory management, new and delete, pointer to object, this pointer.</p> <p>Polymorphism: Definition, Compile time polymorphism: Function overloading, Operator overloading, Run time polymorphism: Virtual Function, pure virtual function. Inline function, friend function, friend class.</p> <p>Virtual function : virtual function, virtual member function, access with pointer, pure virtual function.</p> |
| IV | <p>Managing Console I/O:</p> <p>Introduction, C++ Stream, C++Stream Classes, Unformatted I/O Operations, Formatted Console I/O Operations, Managing Output with Manipulators.</p> <p>Working with Files : Classes for file stream operations, Opening and Closing a file, File Modes, Sequential Input and Output Operations, Updating a file :Random Access, Command Line Argument.</p> |
| V | <p>Exception Handling and Standard Template Library: Definition, Exception basics, try, catch and throws keywords, Template, Components of STL.</p> |

Part C -Learning Resources

Text Books, Reference Books, Other Resources

REFERENCE TEXT BOOKS:

1. Programming in C++ - E. Balaguruswami
2. Mastering in C++ - VenuGopal
3. Object Oriented Programming in C++ - Robert Lafore
4. Let us C++ - Y. Kanetkar

E-learning Resources:

1. Let us C++ ,Y. Kanetkar, B.P.B Publication.
2. Programming in C++, E. Balaguruswamy, Tata McGraw Hill.

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=PLmp4yIk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=2>
2. Constant and Inline Function
 - <https://www.youtube.com/watch?v=pX6LufLso2M&list=PLmp4yIk->

[B4KrM9uOEdvPIVFUkU3jNc6D2&index=10](https://www.youtube.com/watch?v=GtsBZ5e1-cE&list=PLmp4yvk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=10)

3. Pointer and Reference

<https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4yvk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=12>

4. Function Overloading

<https://www.youtube.com/watch?v=0jpOwe4d-FE&list=PLmp4yvk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=17>

5. Operator Overloading

<https://www.youtube.com/watch?v=IkFK2X6qIc0&list=PLmp4yvk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=18>

6. Dynamic Memory Management

https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4yvk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24

7. Class and Object

https://www.youtube.com/watch?v=6ki_W7cXdM0&list=PLmp4yvk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=22

8. Access Specifiers

https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4yvk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24

9. Constructor and Destructor

<https://www.w3schools.com/c/>

10. C different topics from W3School

<https://www.w3schools.com/CPP/default.asp>

11. C++ different topics from W3School

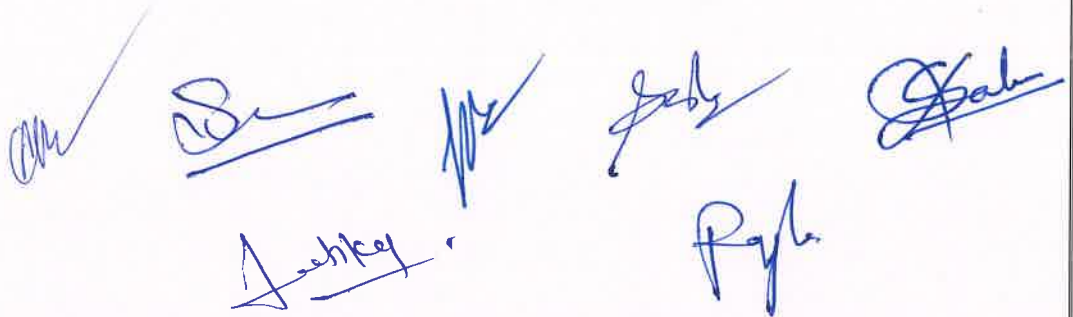
<https://www.javatpoint.com/c-programming-language-tutorial>

12. C different topics from Javatpoint

<https://www.javatpoint.com/cpp-tutorial>

13. C++ different topics from Javatpoint

<https://www.javatpoint.com/cpp-tutorial>

The bottom of the page features several handwritten signatures in blue ink. There are five distinct signatures arranged horizontally across the width of the page. The signatures are stylized and appear to be initials or names of individuals.

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

B.Sc. (IT) -I Semester

Session 2023-24

COURSE CODE: BIT-302(P)

Practical Lab- Programming Lab in 'C++'

Max Marks: 30(L)+ 20(P)

Min Marks: 12+8

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:</p> <p>The objectives of the course are to have students identify and practice the object-oriented programming concepts and techniques, practice the use of C++ classes and class libraries, arrays, vectors, inheritance and file I/O stream concepts.</p> | <p>On successful completion of the course, the student will be able to:</p> <p>CO1: Understand key features of the object-oriented programming language such as encapsulation (abstraction), inheritance, and polymorphism.</p> <p>CO2: Design and implement object-oriented applications.</p> <p>CO3: Analyze problems and implement simple C++ applications using an object-oriented software engineering approach.</p> |

1. Scheme of Examination :-

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

| | | |
|---|---|-----------|
| Programme 1 | - | 10 |
| Programme 2 | - | 10 |
| Programme 3 | - | 10 |
| Viva- Voice | - | 10 |
| [Practical Copy + Internal Record] | - | 10 |
| Total | - | 50 |

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

List of Practical

LOOPS, DECISIONS, NESTED METHOD, MEMBER FUNCTION DEFINED OUTSIDE CLASS BODY:

1. Write program to generate following pattern

- | | | | |
|----|---------------|----|-----------|
| a) | A B C D E F G | b) | 1 |
| | A B C E F G | | 1 2 |
| | A B F G | | 1 2 3 |
| | A G | | 1 2 3 4 |
| c) | * | d) | 1 |
| | * * | | 1 2 1 |
| | * * * | | 1 3 3 1 |
| | | | 1 4 6 4 1 |

- Write member functions which when called asks pattern type; if user enters 11 then a member function is called which generates first pattern using for loop. If user enters 12 then a member function is called which

generates first pattern using while loop. If user enters 13 then a member function is called which generates first pattern using do-while loop. If user enters 21 then a member function is called which generates second pattern using for loop and so on.

3. Write program to display number 1 to 10 in octal, decimal and hexadecimal system.
4. 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 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 earlier.

Array

5. Write a program using function to add, subtract and multiply two matrices of order 3×3 , You have to create one function for addition, which accepts three array arguments. First two array arguments are matrices to add and third matrix is destination where the resultant of addition of first two matrix's is stored. In similar way create functions for matrix subtraction and multiplication.
6. Create a single program to perform following tasks without using library functions :
 - a) To reverse the string accepted as argument.
 - b) To count the number of characters in string passed as argument in form of character array.
 - c) To copy the one string to other string; passed as arguments in form of source character array and destination character array without using library function.
 - d) To count no. of vowels, consonants in each word of a sentence passed as argument in form of character array.

Class, Object, Array of object, Object Using Array

7. Create a class Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare an object of class student, Provide facilities to input data in data members and display result of student.
8. Create a class Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare array of object to hold data of 3 students. Provide facilities to display result of all students. Provide also facility to display result of specific student whose roll number is given.
9. Create a class Sarray having an array of integers having 5 elements as data member provide following facilities :
 - a) Constructor to get number in array elements
 - b) Sort the elements
 - c) Find largest element
 - d) Search for presence of particular value in array element.

Static member function

10. Create a class Simple with static member functions for following tasks:
 - a) To find factorial by recursive member function.
 - b) To check whether a no. is prime or not.
 - c) To generate Fibonacci series up to requested terms.

Object as argument to function, function returning object

11. Write program-using class having class name Darray. Darray has pointer to Pointer to integer as data member to implement double dimension dynamic array and provide following facilities :
 - a) Constructor to input values in array elements.
 - b) Input member function to get input in array element
 - c) Output member function to print element value
 - d) Add member function to perform matrix addition using objects.

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- e) Subtract member function to perform matrix subtraction using objects
- f) Multiply member function to perform matrix multiplication using objects

12. Write program to create class complex having data members to store real and imaginary part Provide following facilities :

- a) Add to complex no, using object.
- b) Subtract two complexes no, using object.
- b) Multiply two complexes no, using objects
- d) Divide two complex no. using objects.

Friend Function

13. Create class polar having data member radius and angle. It contains member function for taking input in data members and member function for displaying value of data members. Class polar contains declaration of friend function add which accept two object of class polar and returns object of class polar after addition. Test the class using main function and objects of class polar.

14. Write program to create class having data member a feet and inch (A single object will store distance in form such as 5 feet 3 inch). It contains member functions for taking input in data members and member function for displaying value of data members. Class Distance contains declaration of friend function add which accept two object of class Distance and return object of class Distance after addition. Class Distance contains declaration of another friend function. Subtract that accept two object of class Distance and returns object of class Distance after subtraction. Test the class using main function and object of class distance.

15. Write a program to create class Mother having data member to store salary of Mother, create another class Father having data member to store salary of Father. Write a friend function, which accept objects of class Mother, and Father and prints Sum of Salary of Mother and Father object.

Friend Class

16. Write a program to create class Mother having data member to store salary of Mother, create another class Father having data member to store salary of Father. Declare class Father to be friend class of Mother Write a member function in Father, which accept object of class Mother and prints. Sum of Salary of Mother and Father Object. Create member function in each class to get input in data member and to display the value of data member.

Static Data Member

17. Create a class Counter having a static data member, which keeps track of no. of objects created of type Counter. ONE static member function must be created to increase value of static data member as the object is created. One static member function must be created to decrease value of static data member as the object is destroyed. One static member function must be created to display the current value of static data member. Use main function to test the class Counter.

STRUCTURE AND CLASS

18. Define structure student. Structure has data members for storing name, rollno, name of three subjects and marks. Write member function to store and print data.

COPY CONSTRUCTOR, CONSTRUCTOR OVERLOADING, THIS POINTER, CONSTRUCTOR WITH DEFAULT ARGUMENT.

19. Write program to create a class polar which has data member radius and angle, define overloaded constructor to initialize object and copy constructor to initialize one object by another existing object keep name of parameter of parameterized constructor same as data members. Test function of the program in main function.

20. Write program to create a class polar which has data member radius and angle, use constructor which default arguments to avoid constructor overloading and copy constructor to initialize one object by another existing object keep name of parameter of parameterized constructor same as data members. Test functioning of the program in main function.

FUNCTION OVERLOADED, REFERENCE VARIABLE, PARAMETER PASSING BY ADDRESS,

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Handwritten signatures: "Ajay", "Raj", "Gopal", "Rajeev", "Rajeev".
Handwritten notes: "Handwritten signature", "Handwritten signature", "Handwritten signature".

STATIC FUNCTION

21. Write a class having name Calculate that uses static overloaded function to calculate area of circle, area of rectangle and area of triangle.
22. Write a class array. Sort that uses static overloaded function to sort an array of floats, an array of integers.
23. Write a program using class, which uses static overloaded function to swap two integers, two floats methods use reference variable.
24. Write a program using class, which use static overloaded function swap two integers, two floats methods use parameter passing by address.

STRING, POINTER, AND OPERATOR OVERLOADING

25. Create class String having pointer to character as data member and Provide following Facilities :
 - a) Constructor for initialization and memory allocation.
 - b) Destructor for memory release.
 - c) Overloaded operators + to add two string object
 - d) Overloaded operators = to assign one string object to other string object.
 - e) Overloaded operators == to compare whether the two string objects are equal or not
 - f) Overloaded operator < to compare whether first-string object is less than second-string object.
 - g) Overloaded operator > to compare whether first-string object is greater than second-string object or not.
 - h) Overloaded operator <= to compare whether first string object is less than or equal to second string object or not
 - i) Overloaded operator >= to compare whether first string object is greater than or equal to second string object
 - j) Overloaded operator != to compare whether first string object is not equal to second string object or not.
 - k) Overloaded insertion and extraction operators for input in data member and display out put of data members.
26. Create a class Matrix having data member double dimension array of floats of size 3×3. Provide following facilities :
 - a) Overloaded extraction operator for data input.
 - b) Overloaded insertion operator for data output.
 - c) Overloaded operator + for adding two matrix using objects.
 - d) Overloaded operator – for subtracting two using matrix objects.
 - e) Overloaded operator * for multiplying two using matrix objects.

OPERATOR OVERLOADING WITH FRIEND FUNCTION

27. Create a class Polar having radius and angle as data members. Provide following facilities;
 - a) Overloaded insertion and extraction operators for data input and display.
 - b) Overloaded constructor for initialization of data members.
 - c) Overloaded operator + to add two polar co-ordinates using objects of class Polar .
28. Create class Degree-Celsius having a single data member to hold value of temperature in degree Celsius. Provide following facilities :
 - a) Overloaded operator ++ which will increase value of data member by 1 (consider post fix and prefix operator overloading).
 - b) Overloaded operator -- which will decrease value of data member by 1 (consider post fix and prefix operator overloading).
 - c) Overloaded insertion and extraction operators for input in data member and display value of data member.

OPERATOR OVERLOADING AND DATA TYPE CONVERSION

29. Create a class Fahrenheit that contains a data member to hold temperature in Fahrenheit. Create another class Celsius that contains a data member to hold temperature in Degree Celsius; in the same program and provide following facilities :
 - a) It should be possible to assign object of Fahrenheit class to object of Celsius class.
 - b) It should be possible to assign object of Celsius class to object of Fahrenheit class.

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- c) It should be possible to compare objects of class Fahrenheit and Celsius to find out which object contains higher temperature.

VOID POINTER, POINTER AND POINTER TO OBJECT

30. Create a program having pointer to void to store address of integer variable then print value of integer variable using pointer to void. Perform the same operation for float variable.
31. Write program to find biggest number among three numbers using pointer and function.
32. Write swapping program to demonstrate call by value, call by address and call by reference in a single program.
33. Write program to Create a class Employee having data members to store name of employee, employee id, salary. Provide member function for data input, output. Use Pointer to object to simulate array of object to store information of 3 employees and test the program in function main.

INLINE FUNCTION

34. Write a program using inline function to calculate area of circle
35. Write a program using inline function to find minimum of two functions. The inline function should take two arguments and should return the minimum value.

INHERITANCE

36. Create a class account that stores customer name, account number and type of account. From this derive the classes cur acct and say acct to make them more specific to their requirements. Include necessary member functions in order to achieve the following tasks.
- Accept deposit from customer.
 - Display the balance
 - Computer and deposit interest.
 - permit withdrawal and update the balance.
 - Check for the minimum balance, impose penalty, necessary and update the balance.
37. Create a class circle with data member radius, provide member function to Calculate area. Derive a class sphere from class circle, provide member function to calculate volume. Derive class cylinder from class sphere with additional data member for height and member function to calculate volume.
38. Consider an example of declaring the examination result. Design three classes student, exam and result. The student class has data member such as that representing roll number, name of student. Create the class exam. Which contains data members representing name of subject, minimum marks, maximum marks, obtained marks for three subjects. Derive class result from both student and exam. Class. Test the result class in main function.

VIRTUAL AND PURE VIRTUAL FUNCTION

39. Create a base class shape having two data members with two-member function getdata (pure virtual function) and print area (not pure virtual function) Derive classes triangle and rectangle from class shape and redefine member function print area in both classes triangle and rectangle and test the functioning of classes using pointer to base class objects and normal objects.

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**B.Sc. (Information Technology) Second Semester
Session 2023-2024**

| Part A: Introduction | | | |
|--------------------------|----------------------|---|--|
| Program: B.Sc.-IT | | Class: B.Sc.-IT -IV SEMESTER | Year: 2022 Session: 2023-2024 |
| 1 | Course Code | BIT-401(L) | |
| 2 | Course Title | Web Technology | |
| 3 | Course Type | Core Course | |
| 4 | Course Objective | Basic understanding of programming concepts and Web Development. | |
| 5 | Course Outcomes (CO) | At the end of this course, the students will be able to: CO 1. Create applications using HTML, CSS and Java Script. CO 2. Understand fundamental tools and technologies for web design. CO 3. Specify design rules in constructing web pages and sites. CO 4. Understand how Web pages are designed and created. CO 5. Design console-based GUI based and Web based application. CO 6. Front end designing using html, CSS, java script and bootstrap. CO 7. Understand the basics of PHP. CO 8. Learn to construct fully functional applications. Installation and troubleshooting instructions CO 9. An introduction to relational databases, actual working examples And applications | |
| 6 | Credit Value | Theory: 4 | |
| 7 | Total Marks | Max. Marks: 60 | Min Passing Marks: 24 |

| Unit | Topics |
|------|---|
| I | Introduction: Overview of WWW, Web page, Web browsers, HTTP, URL, Hypertext, Web server, Tools for web site development, hosting options and domain name registration. Markup language: Introduction, DTD, Creating Web pages, Headings, Paragraphs, Lists, Hyperlinks, Tables, Web forms, Input Types, Input Attributes, Inserting images, Frames, Basics of DHTML, XML, XHTML. |
| II | CSS: Introduction, Syntax, measurement units, colors, Backgrounds, Font, Text, position, Align, Images, Link, Table, List, Padding. |
| III | JavaScript: Overview, syntax, Variables, Operators, Decision control statement, Looping statement, JavaScript functions, Java script Events, Cookies, Page Redirect, and Validation. |
| IV | Bootstrap: Introduction, Grid system, typography, tables, images, dropdowns, template and forms. PHP: Introduction, syntax, variables, operators, functions, include, get method, post method, cookies, session, PHP form validation. |
| V | Database Connectivity with MySql: Introduction to RDBMS, connection with MySql Database, performing basic database operation (DML) (Insert, Delete, Update, Select), setting query parameter, executing query join (Cross joins, Inner joins, Outer Joins, Self joins), Exception Handling: Understanding exception and error, try, catch, throw, error tracking and debugging. |

Part C -Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

TEXT BOOK:

1. Internet and Internet Engineering, Daniel Minoli, TMH (Latest Edition)
2. Java Script, Gosslin, Vikas (Latest Edition)
3. HTML The Definite Guide, Chuck musiano& Bill Kenndy, O Reilly (Latest Edition).
4. Learning PHP, MySQL, books by ' O ' riley Press

E Resources:

1. Introduction to web-app
https://www.youtube.com/watch?v=1Znp3tRRTzw&list=PLJ5C_6qdAvBEJ6-TBzKoa1Ov21lwDzJfM&index=22
2. Building web-app
https://www.youtube.com/watch?v=kIEn4LqAQIE&list=PLJ5C_6qdAvBEJ6-TBzKoa1Ov21lwDzJfM&index=3
3. Introduction to Java Script
https://www.youtube.com/watch?v=fRbP92oScp0&list=PLJ5C_6qdAvBEJ6-TBzKoa1Ov21lwDzJfM&index=10
4. Introduction to Database
https://www.youtube.com/watch?v=mtc0HHrUKpl&list=PLJ5C_6qdAvBEJ6-TBzKoa1Ov21lwDzJfM&index=12
5. Introduction to SQL
https://www.youtube.com/watch?v=ar2naKy0aPw&list=PLJ5C_6qdAvBEJ6-TBzKoa1Ov21lwDzJfM&index=16
1. <https://www.shiksha.com/it-software/php-syllabus-chp>

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GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
DEPARTMENT OF COMPUTER SCIENCE
SYLLABUS FOR AY 2023-24
B.Sc. (IT) – II SEMESTER
Course Code: BIT-402(P)
Practical LAB II: Web Technology

| Course Objectives | Course Outcomes |
|--|---|
| This course intends to provide in-depth programming knowledge of Problem-solving techniques and programming in C Language. | At the end of this course, the students will be able to: CO 1. Create applications using HTML, Understand fundamental tools and technologies for web design CO 2. Specify design rules in constructing web pages and sites. CO 3. Understand how Web pages are designed and created. CO 4. Design console-based GUI based and Web based application. CO 5. Front end designing using html, CSS, java script and bootstrap. CO 6 . Learn to construct fully functional Applications Using PHP. Installation and trouble shooting instructions CO 7. An introduction to relational databases, actual working examples and applications |

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 | - | 10 |
| Programme 2 | - | 10 |
| Programme 3 | - | 10 |
| Viva- Voice | - | 10 |
| [Practical Copy + Internal Record] | - | 10 |
| Total | | - 50 |

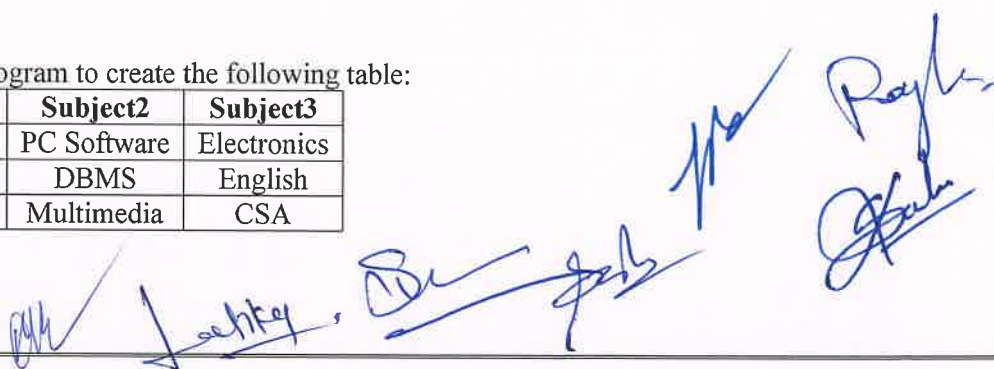
- In every program there should be comment for each coded line or block of code.
- Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.
- All the following programs or a similar type of programs should be prepared.

List of Practical

HTML

Q.1. Write an HTML program to create the following table:

| Class | Subject1 | Subject2 | Subject3 |
|---------|--------------|-------------|-------------|
| BCA I | Visual Basic | PC Software | Electronics |
| BCA II | C++ | DBMS | English |
| BCA III | Java | Multimedia | CSA |



Q.2. Write an HTML program to create the following lists:

1. C
2. C++
3. Fortran
4. COBOL

Q.3. Write an HTML program to demonstrate hyper linking between two web pages. Create a marquee and also insert an image in the page.

Q.4. Write an HTML program to create frames in HTML with 3 columns (Width = 30%, 30% , 40%).

Q.5. Write an HTML program to create a web page with a blue background and the following text:

New Delhi

New Delhi, the capital and the third largest city of India is a fusion of the ancient and the modern. The refrains of the Muslim dynasties with its architectural delights, give the majestic ambience of the bygone era.

Q.6. Create an HTML document and embed a flash movie in it.

Q.7. Write the HTML coding to display the following table:

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

Q.8. Write an HTML program to create a form as the following:

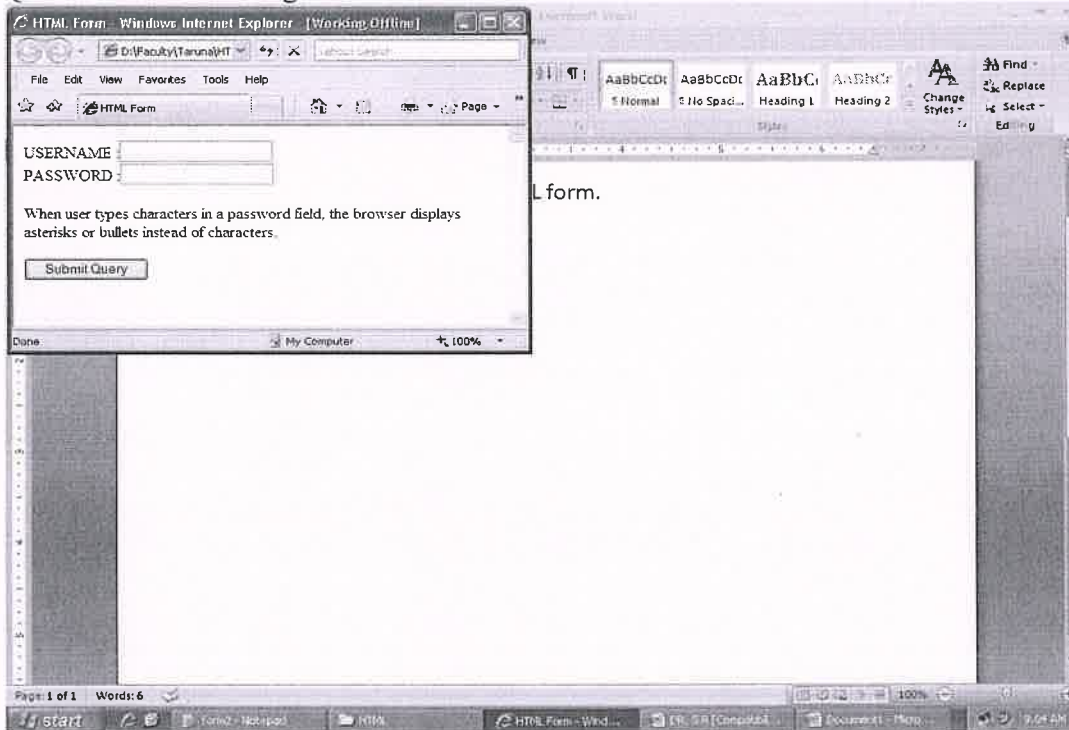
Enter Name:

Enter Roll No.:

Enter Age:

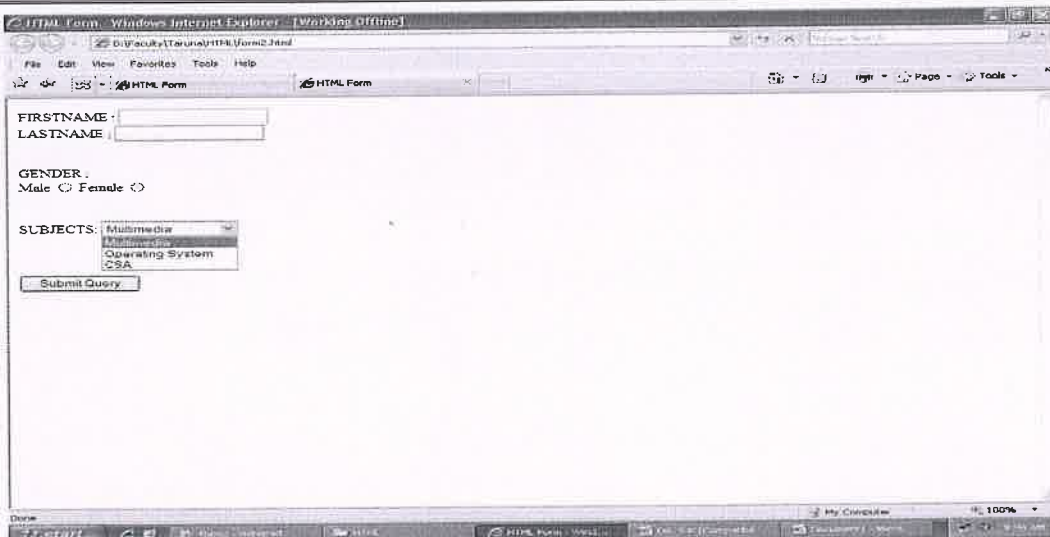
Enter DOB:

Q.9. Create the following HTML form.

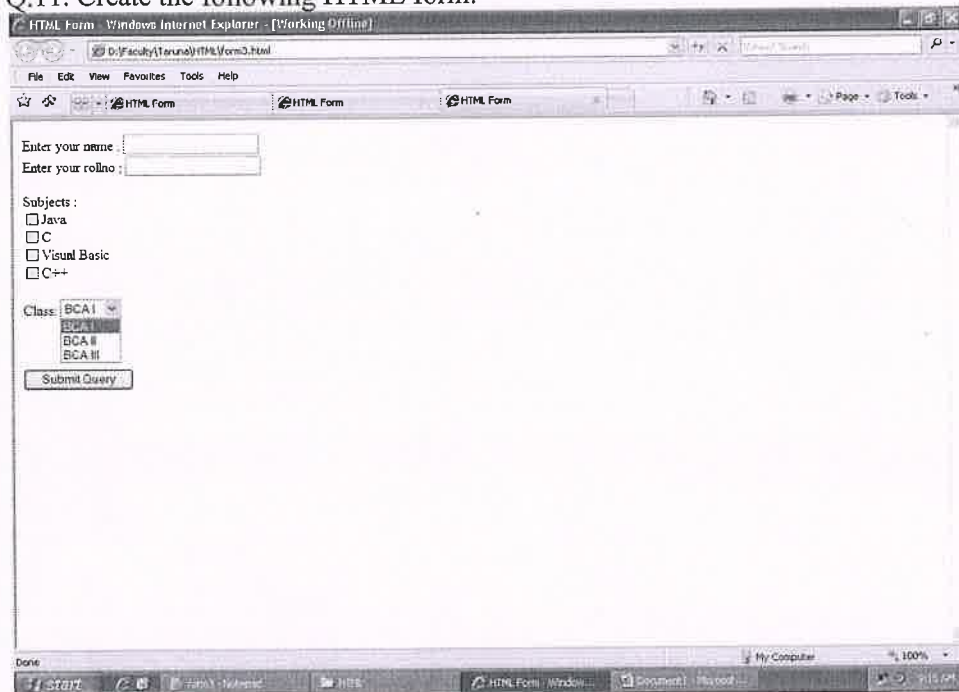


Q.10. Create the following HTML form.

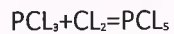
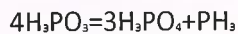
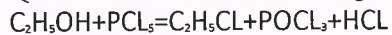
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Q.11. Create the following HTML form.



Q.12. Write the HTML coding for the following equations:



**Note: At least 5 programs of CSS, Java Script and PHP to be done separately.
Name and Signatures**

| | |
|---|---|
| V.C. Nominee | Departmental members 1. HOD- Mr. Dileep Kumar Sahu..... 2. Dr. Sanat Kumar Sahu..... 3. Mrs. Latika Tamrakar..... |
| Subject Expert | |
| Subject Expert..... | |
| Alumni(member)..... | |
| Prof. from other Dept. of Sc. Faculty | |
| Specialist from Industry | <i>Latika Tamrakar</i> 17-04-23 |

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, GEC AND AEC

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

| Question Type | MM 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

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

Corrigendum for UG Classes







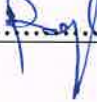
Section –A (very short answer question)

There shall be 8/9/10 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 |  | | |