

Gondwana University, Gadchiroli

NEP 2020 U.G. PROGRAMME SESSION 2024-25

Faculty of Science and Technology

B.Sc. - I (Computer Science)
Semester – I & Semester -II
Syllabus

Note: For Details about assessment, practical examination, Paper Pattern, kindly refers Appendix

B.Sc. - I (Computer Science)
Semester – I
Syllabus

B.Sc. I (Computer Science)

For Semester I

Core Subjects

Programming Logic and Techniques

Max. Marks: 40/Credits: 2

Program Learning Outcomes:

1. Understand the evolution of programming languages, including machine language, assembly language, and high-level language.
2. Understand the types of algorithms, algorithm analysis, and the advantages and disadvantages of using algorithms.
3. Recognize the role of data types, constants, and variables in programming.
4. Understand the concept of arrays and their applications in programming.

UNIT-I: Language Evolution

Machine Language, Assembly Language, High-Level Language. Translators: Compiler, Interpreter, and Assembler. The Compilation Process, Linker, Loader, Study of Programming Languages (Function Oriented, Object-Based, Event Base), Study of HLL, Characteristics of Good Language

UNIT-II: Programming Construction Tools

Problem Analysis, Process Analysis, Conceptual Development of Solution. Development Tools: **Algorithm:** Types of Algorithm, Algorithm of Analysis, Advantage and Disadvantage of Algorithm, Complexity of Algorithm, Big-O Notation. **Flowcharts:** Types of Flowcharts, Advantage and Disadvantage of Flowchart.

UNIT-III: Control Statements

Basics of Programming Language: Usage of Character Set, Meaning of Keywords and Identifiers, Role of Data Types, Constants, and Variables. Importance of Casting, Different Types of Operators and their Precedence, Expressions, Conditional Statements (One-Way, Two-Way, and Multi-Way Conditional), Looping Statements (for, while, do-while), Usage of exit(), continue, break, and goto Statement.

UNIT-IV: Arrays

Arrays: Arrays, One-dimensional arrays, Various Operations on an Array (Inserting of Element, Deleting of Element) and Two-dimensional arrays (Matrix Addition, Transpose of Matrix, Matrix Multiplication), Modular programming and its features.

Text Books:

- 1) Dr. Ajay S. Kushwaha, Dr. Rajani D. Singh, Dr. Venugopal N., Dr. M. Quadri, "Developing Programming Logic and Technique", Das Ganu Prakashan
- 2) Maureen Sprankle, "Problem Solving Programming Concepts", Pearson, 7th Edition, 2009 ISBN 81-317-0711-1
- 3) Behrouz Forouzan, "Basic of Computer Science", Cengage Learning, ISBN 81-315- 1118-9

References:

- 1) Donald Knuth, "The Art of Computer Programming Vol-I, II III", Pearson.
- 2) Horowitz, Sahani, "Fundamental of Computer Algorithm", Orient Longman, ISBN 978817371612

Practical

Marks: 50 / Credit 02

Lab: Perform the Following Practical Questions in lab, Write the steps for each and put the screenshots in Practical record. Practical Should be Perform Using Libre Office Writer/MS-Word.

1. a) Type the Content Heading and then set the Index option using Tab setting. Finally take a print out.

CONTENTS

Chapter	Page No.
Windows.....	1
Ms-Word.....	18
Ms-Excel.....	27
Power-Point	98
Ms-Access	131

[Chapter names at 1” with left alignment while Page number at 4.5” with right alignment and with Header]

- b) Draw a Block diagram of computer system using auto-shapes, and name them using textbox and join each part using line-style.

At the end give the page border to it.

Finally take a print out.

- c) Type the following set of equation. Finally take a printout.

1. $B^2 - 4AC = 0$

2. H_2SO_4

3. If $(A^2 \geq 0)$

4. $f(x) = \sum_{i=1}^{i=5} 5 * X^i$

5. $k^2 - 4 = 0$, if $b_0 \neq 0$

6. $e^{i\theta} + e^{-i\theta} = 2\cos\theta$

2. Type the following letter and take printout

ABC
SAI Nagar
Mumbai
☎020-1111111

Dear Sir,

Kindly provide the **rate** of following set of peripherals,

- Computer 🖨 with following configuration
 - Intel® Pentium® Processor T4400 (2.2 Ghz, 1MB L2 Cache, 800 MHz FSB)
 - 250 GB HDD, DVD RW, 35.56cms (14) CSV LED Backlit, 1GBDDR3 RAM
- Pen drive of 64 GB and 128 GB
- 3-Button mouse 🖱 of following 5 each
 - a) i-ball
 - b) Logitech

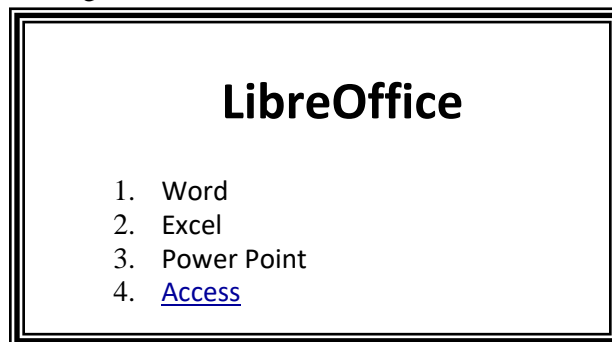
Thanking you,

Date: < Insert System Date >

Your

XYZ

3. Type the following




- a) **Ms-Word:** MS-Word is the application software and one of the most powerful word processor in Windows operating system. It is used for formatting of letters or the text. In simple meaning it is a word processor having various functions for text you may insert different objects like pictures, sound and video or calendar in word file.
- b) **Ms-Excel:** Ms-Excel is a powerful spreadsheet or worksheet application that can use for managing, analyzing and presenting data in tabular format. It also helps to display data in graphical format using charts.
- c) **Ms-Power Point:** MS PowerPoint is a powerful tool to create professional looking presentation and slide shows.
- d) **Ms-Access:** Ms-Access is a powerful program to create and manage database.

Perform the following operation,

- i. When user presses on Access it should jump to Access Paragraph within page.
- ii. Similarly create a hyperlink for other option within a page.
- iii. Print it.

4. Define and write the characteristic of computer and perform following operation,
- Divide the text in two columns
 - Insert the picture of computer in the background in each column.
 - Insert header with your name
 - In footer write name of your college
 - Give proper heading for phrase.
 - Use Drop Cap for 1st letter of each paragraph
 - Define line spacing 1.5 with left margin 1.25” and right margin 0.75”
 - Font: Courier New, Font size for heading 14 and for normal text 11
 - Finally take a print out.
5. Type the following letter exactly as given below,
Before start of typing, set up page in the following format
- Page Size: A4 with Landscape Orientation
 - Left Margin: 2” Right Margin: 1” Top Margin: 0.5”

Computer Stream after 12th



COMPUTER

- **Science Stream**
 - B.Sc. (Computer Science)
 - B.Sc. (IT)
 - BCA
 - B.E. (Computer Science)
 - B.E. (Information Technology)
- **Commerce Stream**
 - BCCA
 - B. Com (Information Technology)

[If Computer Picture is not loaded on your computer, then simply select one of the pictures loaded in clip-art]

6. Write a letter to publisher for supplying the list of books along with book details. For ex.
To,
The Publisher,
Das Ganu
Prakashan, Nagpur.

R/Sir,
Supply following title of books at the earliest.

Sr.No.	Title	Author	No. of Copies
1	Information System	S.Kishor	10
2	Information Technology	S. Kishor	15
3	Principle of Business Management	S. Kishor	12
4	Financial Accounting	Dr. Kishor Mohrir	13

Thanking you,

Date: < Insert System Date >

Yours

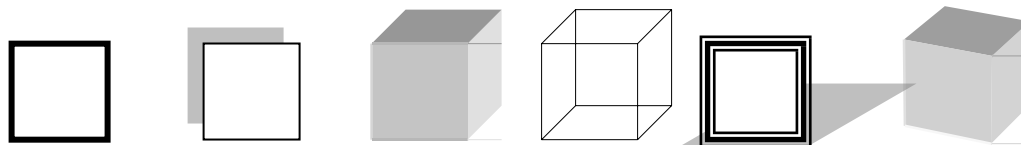
Principal
(Dr. WWW)

Perform Following option

- i. Take a printout
 - ii. Assume Librarian forget to enter one of the entries of book so, kindly add it between number 3 and 4 say,
4 Business Economics Gurbir Kaur Khalsa
 - iii. Replace author name S. Kishor by S.B. Kishor at once.
 - iv. Finally print the copy of this document with following settings,
 - Left Margin = 1.75"
 - Right Margin = 1"
 - Top Margin = 1.5"
 - Bottom Margin = 1"
 - v. Assume Librarian forget to enter one of the entry of book so, kindly add it between number 3 and 4 say,
4 Business Economics Gurbir Kaur Khalsa
 - vi. Replace author name S. Kishor by S.B. Kishor at once.
 - vii. Finally print the copy of this document with following settings,
 - Left Margin = 1.75"
 - Right Margin = 1"
 - Top Margin = 1.5"
 - Bottom Margin = 1"
7. Using Mail-Merge write a letter to all selected candidate for their final admission on specific date say (30-June) at XYZ Institute, with necessary documents at 10 AM.
Name should be highlighted while course and date of commencing class should be underlined
8. Create a document and while saving give a security to open the saved document.
Take a screen shot while opening it.
9. Draw the following shape using rectangle option found in Drawing Toolbar



And generate following types of box by copying and formatting above box



B.Sc. I (Computer Science)

For Semester I

Open Elective

1. Fundamentals of Computer

Max. Marks: 40/Credits: 2

Program Learning Outcomes:

1. Understand the different generations of computers and their characteristics.
2. Understand the memory hierarchy and the different types of memory, including RAM, ROM, PROM, EPROM, EEPROM, flash, and cache.
3. Understanding the windows operating system and its usage.
4. Understand the various tools to manage window.

Unit I: Generation of Computer & Number System

Computer Generation: Generations of Computer, Characteristics of a Computer

Basic Components of Digital Computers: Block Diagram. CPU: Functions of Each Unit: Primary Memory, ALU, and CU. Bus: Data, Control, and Address Bus.

Number Systems: Binary, Octal, Decimal, Hexadecimal, Their Conversions, ASCII, BCD, EBCDIC.

Translators: Compiler, Interpreter, and Assembler. Source and object Program.

Unit II: Memory & I/O Devices Memory

Memory hierarchy, RAM, Static & dynamic RAM, Flash, and Cache. **Storage Devices:** Hard Disk, Pen Drive, Blu-Ray, and SSD, Concept of Google Drive

Input Devices: Keyboard, Mouse, Touch Screen, Voice Input, MICR, OCR, Barcode Reader, and Flatbed Scanner. Output Devices: VDU, Printers: Dot Matrix, Laser and Inkjet.

UNIT – III: Windows

Operating System, Classification of Operating System based on task (Single User Single Task, Single User Multiple Task, and Multi-User Multiple Task), Features of Windows, GUI, Operating with Windows, Desktop, Taskbar, and Windows Explorer.

UNIT – IV: Control Panel

Control Panel: Administrative Tools - Data Source, Date and Time, Display, Device Manger, Mouse, Programs and Features, User Accounts. Recycle Bin **Windows Accessories:** Calculator, Notepad, Paint, System Information, Disk Defragmentation, Disk Cleanup

Text Books:

1. Anil B. Chaudhari, “The Art of programming through flowcharts & algorithm”, Firewall Media, Laxmi Publication, New Publication.
2. Dr. S. B. Kishor, “Information & Communication Technology”, Das Ganu Publication,
3. Alexis And Mathews Leon. “Fundamentals of Information Technology”, [Leon Press, Chennai & Vikas Publishing House Pvt. Ltd, New Delhi]

B.Sc. I (Computer Science)

For Semester I

Open Elective

2. Ms–WORD

Max. Marks: 40/Credits: 2

Program Learning Outcomes:

1. Understand the basic and advanced functionalities of MS Word.
2. Develop skills to create, edit, and format documents and learn to use templates, styles, and themes.
3. Master the use of tables, graphics, and other multimedia elements.
4. Implement document automation through mail merge and macros.
5. Collaborate on documents using review and track changes features.

Unit I : Office Automation

Introduction to Office, Need of Office Automation, Office Automation System, Basic operation in Ms-Office Software tools, Word processing, Ms-Word, Features of word processor, limitation of Ms-word

Unit II : Starting Word

Starting Word, Document window, Elements of Document window: Working with keyboard, Mouse operation, Main tabs and its option with their uses,

File tab: Creating new document, understanding template, saving document, protecting documents, Print preview, printing document, Closing and opening documents, Understanding recent,

Home Tab & Design tab: Designing document, Operating on Text, Selection, Cut, Copy, Paste, Format painter, Font, Super and subscript, change case, Paragraph, Bullet and numbering, Find and Replace, Go to,

Unit III: Insert objects and Page Layout

Adding cover page, page break, working with table, inserting picture/digital photo, clipart, object, Symbol, Bookmark, Hyperlink, Header and footer, Page number, inserting text box, Text direction, Drop cap, Date and Time,

Design and Page Layout tab: Themes, border and shading, Water mark, Page color,

Page setup (Margin, orientation, size, Columns)

Unit IV: Mailing and View Tab

Review and View: Spelling and Grammar, Language, Thesaurus, Word count, comment. Various types of view, Window group, Macro

Text Book

1. Dr. S. B. Kishor, “MS-Office with Office Automation”, DAS GANU Prakashan, ISBN: 978-93-81660-67-6
2. Joan Lambert, “Microsoft Word 2016 Step by Step”, Microsoft Press,
3. Dr. Ramesh Bangia, “Step By Step Microsoft Office Word 2010”, Khanna Book Publishing

References

1. Rohit Khurana, “Mastering MS Office: Computer Skill Development”, Vikas Publishing House

B.Sc. I (Computer Science)

For Semester I

Open Elective

3. Fundamental of Computing

Max. Marks: 40/Credits: 2

Program Learning Outcomes:

1. Understand the different generations of computers and their characteristics.
2. Understand the memory hierarchy and the different types of memory, including RAM, ROM, PROM, EPROM, EEPROM, flash, and cache.
3. Understand the classification of operating systems based on tasks, including single-user single-task, single-user multi-task, and multi-user multi-task systems.
4. Provides a comprehensive overview of computer viruses.

Unit I: Generation of Computer & Number System

Computer Generation: Generations of Computer, Characteristics of a Computer

Basic Components of Digital Computers: Block Diagram. CPU: Functions of Each Unit: Primary Memory, ALU, and CU. Bus: Data, Control, and Address Bus.

Number Systems: Binary, Octal, Decimal, Hexadecimal, Their Conversions, ASCII, BCD, EBCDIC.

Translators: Compiler, Interpreter, and Assembler. Source and object Program.

Unit II: Memory & I/O Devices Memory

Memory hierarchy, RAM, Static & dynamic RAM, Flash, and Cache. **Storage Devices:** Hard Disk, Pen Drive, Blu-Ray, and SSD, Concept of Google Drive.

Input Devices: Keyboard, Mouse, Touch Screen, Voice Input, MICR, OCR, Barcode Reader, and Flatbed Scanner. **Output Devices:** VDU, Printers: Dot Matrix, Laser and Inkjet.

UNIT – III: Windows

Operating System, Classification of Operating System based on task (Single User Single Task, Single User Multiple Task, and Multi-User Multiple Task), Features of Windows, GUI, Operating with Windows, Desktop, Taskbar, and Windows Explorer.

UNIT IV: Computer Virus

Computer Viruses: Definition, types of viruses, Properties and characteristics of virus, Infection methods, Prevention method from viruses, antivirus software, Firewalls

Text Books:

- 1) Dr. S. B. Kishor, "Information & Communication Technology", Das Ganu Publication, ISBN: 978-93-81660-73-7
- 2) Aksoy, "Introduction to Information Technology", Cengage, ISBN: 9788131505915
- 3) Dr. Madhulika Jain, Shashank & Satish Jain, "Information technology Concepts", BPB Publication, New Delhi, ISBN-- 8176562769

References:

- 1) Rao, "Information Technology for Real World Problem", Universities Press, ISBN- 978-81-7371-734-5
- 2) Kamlesh Agarwal", WAP the NET", MacMillan Publication.

B.Sc. I (Computer Science)

For Semester I

Open Elective

4. Google Docs

Max. Marks: 40/Credits: 2

Program Learning Outcomes:

1. Master the Basic and Advanced Document Creation Skills.
2. Learn effective Collaboration and Communication.
3. Learn how to Integrate Google Docs with Other Tools.
4. Implement Advanced Features and Ensure Document Security.

Unit I: Introduction to Google Docs:

Google Docs, History and evolution of Google Docs, benefits of using Google Docs, Navigating the interface, Menus and toolbars, Document creation and management, Creating a new document, Importing and exporting documents

Unit II: Basic Editing and Formatting

Text formatting (bold, italic, underline, fonts), Paragraph formatting (alignment, line spacing, indentation), Using styles and headings, customizing styles and headings, using columns and page breaks, Inserting and formatting tables

Unit III: Advanced Editing and Collaboration

Adding images and shapes, Inserting and editing charts and graphs, Embedding videos, Collaboration Tools :- Sharing documents with others, Setting permissions and access levels, Using comments and suggestions. Real-Time Collaboration: Tracking changes and version history, Working simultaneously with multiple users

Unit IV: Integrating Google Docs with Other Tools

Connecting with Google Drive, Sheets, Slides, and Forms, Using Google Calendar and Gmail for document management

Advanced Document Design: Creating and using templates, Customizing headers and footers
Security and Privacy: Understanding document security features, Managing sharing settings

Books:

1. "Google Docs: A Step-by-Step Guide" by Timothy G. Owen
2. "Google Docs Made Easy: Learn How to Use Google Docs Like a Pro" by James Bernstein
3. "Google Drive & Docs In 30 Minutes (2nd Edition)" by Ian Lamont
4. "Google Workspace User Guide: From Gmail to Docs and Drive - Maximizing Your Google Workspace" by Andy Hodges
5. "The Ultimate Guide to Google Docs" by Robert Renke

B.Sc. I (Computer Science)

For Semester I

VSC

Google Tools

Max. Marks 40 / Credits: 2

Program Learning Outcomes:

1. Understand the fundamentals of Google Drive. Learn how to organize files and folders effectively.
2. Understanding of data analysis techniques using Google Forms, including generating summary statistics and visualizing responses.
3. Foster a positive online learning environment that promotes respectful communication and collaboration among students

In Practical, following points should be cover

- **Introduction to Google Chrome:** Introduction, manage browsing history, creating bookmark, managing extension. **Google Drive:** Overview of Google Drive, Benefits of cloud storage, creating a Google account, Navigating the Google Drive interface, creating folders and subfolders, organizing files with labels and colors, Using search and filters effectively, File versioning and revision history.
- **Google Photos:** Introduction, Uploading & deleting the photos to Google. **Google Calendar:** Introduction, Scheduling the event, updating and deleting the Event. **Google Classroom:** Basic, creating a classroom, joining the classroom, create classes, assignments, announcements, send emails, and share videos and links via Google Classroom.
- **Introduction to Google Form** - Introduction, Signing in to Google Apps, Accessing Forms from Google Drive, creating a New Form, Adding, modify, reorder Questions to a Form, previewing a Form, creating a New Form Using a Template,
- Changing Presentation Options, Modifying the Theme and Background Colors, setting up a Form as a Quiz, Adding an Answer Key, Adding Feedback to Answers, Changing Options for Releasing Grades, Collaboration of form, sharing link of form, Add-on to form.

Lab: Perform the Following Practical Questions, Write the steps for each and put the screenshots in Practical record

1. Describe the process of managing your browsing history in Google Chrome. How can you view, search, and delete specific entries in your browsing history?
2. Explain how to create a new bookmark in Google Chrome and how to organize bookmarks into folders for better management.
3. How do you manage extensions in Google Chrome? Include the steps to install, disable, and remove an extension.
4. Describe the steps to create a Google account, which is necessary to use Google Drive.
5. Explain how to create folders and subfolders in Google Drive to organize your files. How can you label and color-code these folders?
6. How can you use search and filters effectively in Google Drive to find specific files? Describe the steps.
7. How do you upload photos to Google Photos from your mobile device? Explain the steps involved in uploading both individual photos and entire photo albums.
8. Describe how to delete photos from Google Photos. Include the steps to delete individual photos, multiple photos at once, and entire albums.
9. How can you schedule an event in Google Calendar? Walk through the steps to create a new event, including specifying the event title, date, time, location, and additional details.
10. Explain how to update an existing event in Google Calendar. Include the steps to change the event date, time, location, and description.
11. Describe the process of deleting an event from Google Calendar. Walk through the steps to delete a single event and a recurring event.
12. How do you create a new classroom in Google Classroom? Provide step-by-step instructions, including naming the classroom, adding students, and selecting the class subject.
13. Explain how to create assignments and announcements in Google Classroom. Include the steps to create a new assignment with instructions, due date, and attachments, as well as how to post announcements to the class stream.
14. Explain the process of signing in to Google Apps and accessing Google Forms from Google Drive. Provide step-by-step instructions for users new to Google Apps.
15. How do you create a new Google Form from scratch? Provide detailed instructions on creating a form, including adding questions, modifying question types, and reordering questions.
16. How can you preview a Google Form before sharing it with respondents? Describe the steps to preview a form and ensure its layout and functionality meet your expectations.

17. What is a Google Forms template, and how can you use it to create a new form quickly? Provide instructions on creating a new form using a template.
18. Describe the process of adding and modifying questions in a Google Form. Include instructions for adding different question types, such as multiple choice, short answer, and dropdown.
19. How do you create a new Google Form using a template? Provide step-by-step instructions for selecting a template and customizing it to suit your needs.
20. Explain how to change presentation options in Google Forms to customize the way questions are displayed to respondents. Include instructions for adjusting settings such as progress bar visibility, question shuffle, and required question indication.
21. How do you modify the theme and background colors of a Google Form to match your branding or personal preferences? Provide step-by-step instructions for selecting a theme and customizing background colors.
22. Describe how to set up a Google Form as a quiz, enabling features such as point values and correct answer feedback. Provide instructions for accessing quiz settings and enabling grading.
23. How can you add an answer key to a quiz in Google Forms to automatically grade responses? Walk through the steps for assigning correct answers to quiz questions.
24. Explain how to add feedback to answers in a Google Form quiz to provide learners with additional information or guidance based on their responses. Provide instructions for entering feedback for correct and incorrect answers.
25. How do you change options for releasing grades in a Google Form quiz? Describe the available options for releasing grades immediately after submission or later manually.
26. How can you collaborate on a Google Form with other users, share the form link, and integrate add-ons to enhance its functionality? Provide instructions for collaborating, sharing, and adding add-ons to a Google Form.

B.Sc. I (Computer Science)

For Semester I

SEC

Information Communication Technology

Max. Marks: 40/Credits: 2

Program Learning Outcomes:

1. Identify and explain the basic components of digital computers, including CPU, primary memory, ALU, CU, and instruction format.
2. Understand the concept of memory hierarchy and the different types of memory.
3. Understand the goals and applications of computer networks in business and home environments.
4. Learn about the development languages used for creating websites on the WWW.

Unit I: Generation of Computer & Number System

Computer Generation: Generations of Computer, Characteristics of a Computer

Basic Components of Digital Computers: Block Diagram. CPU: Functions of Each Unit: Primary Memory, ALU, and CU. Bus: Data, Control and Address Bus.

Number Systems: Binary, Octal, Decimal, Hexadecimal, Their Conversions, ASCII, BCD, EBCDIC.

Translators: Compiler, Interpreter, and Assembler. Source and object Program.

Unit II: Memory & I/O Devices Memory

Memory hierarchy, RAM, Static & dynamic RAM, Flash, and Cache. **Storage Devices:** Hard Disk, Pen Drive, Blu-Ray, and SSD, Concept of Google Drive.

Input Devices: Keyboard, Mouse, Touch Screen, Voice Input, MICR, OCR, Barcode Reader, and Flatbed Scanner. Output Devices: VDU, Printers: Dot Matrix, Laser and Inkjet.

Unit III: Computer Networks

Computer Network: Application, Network terminology, Topologies: Linear, Circular. **Types of Networks:** LAN, WAN, MAN. Repeaters, Bridge, Routers, Brouters and Gateway.

Unit IV: Internet Services

Internet services (Introduction only): WWW – Web browser, URL, Internet search engines, Uses of Internet.

Latest Trends in Computer: Artificial Intelligence, Robotics, Difference between Artificial intelligence and Human brain, Block Chain Technology, Machine learning.

Text Books:

1. Anil B. Chaudhari, “The Art of programming through flowcharts & algorithm”, Firewall Media, Laxmi Publication, New Publication.
2. Dr. S. B. Kishor, ” Information & Communication Technology”, Das Ganu Publication, ISBN: 978-93-81660-73-7
3. Alexis And Mathews Leon, “Fundamentals of Information Technology” by [Leon Press, Chennai & Vikas Publishing House Pvt. Ltd, New Delhi]

B.Sc. I (Computer Science)
For Semester I
VEC

Sr. No.	Name of subject
1	I.P.R.(Intellectual Property Rights)
2	Environmental studies
3	Constitution of India
4	Indian Democracy, Election and Good Governance
5	D.P.R. Writing

Note :- Only one, 2 credits VEC to be chosen from the above

For Syllabus visit www.unigug.ac.in

B.Sc. I (Computer Science)
For Semester I
AEC

Name of subject
English / Supplementary English
OR
Marathi
OR
Hindi
OR
Pali
OR
Bengali

Note :- 1) Student shall opt English OR Supplementary English in Semester –I and any one from Marathi, Hindi, Pali and Bengali in Semester- II and Vice a Versa

For Syllabus visit www.unigug.ac.in

B.Sc. I (Computer Science)
For Semester I
IKS

For Syllabus visit www.unigug.ac.in

B.Sc. - I (Computer Science)
Semester – II
Syllabus

B.Sc. I (Computer Science)

For Semester II

Core Subject

Programming with 'C'

Max. Marks: 40 Credits: 2

Program Learning Outcomes:

1. Understand the history and importance of the C programming language.
2. Familiarize with the basic structure of C programming.
3. Understand and apply conditional statements in C, including if-else, nested if, else-if ladder, and switch statements.
4. Apply looping statements in C, such as for loop, while loop, and do-while loop.

UNIT – I: Introduction to C

Basic Structure of 'C' programming, Documentation using Comments

History of C, **Application of 'C'**, C-Character Set, Tokens, Keyboards, Constants and Variables, Identifiers, Data types, Type Casting (Implicit & Explicit Conversion), Type Modification

Operators and Expressions – Arithmetic, Operator Precedence and Associativity, Relational, Logical, Assignment, Increment and Decrement Operator, Updating Assignment Operator, Logical Operator, Conditional operator, Bitwise, and Special Operators. Typedef.

UNIT – II: I/O Statement

Input and Output statements in C, Unformatted function, formatted function, formatted output functions with format specifications (%d, %f, %g, %s, %c, %o, %h), Backslash Characters, Field width in printf() statement, Declaring Symbolic Constants, Library functions: Maths, character, and string handling Functions.

UNIT-III: Conditional Statement

Conditional Statement: unidirectional statement, bi-directional statement, nested if, else-if ladder, empty statement, switch, break statement, various problems based on conditional statement.

UNIT – IV: Looping Statements

Looping Statement: Need of Looping Statement, for statement, Comma Operator, while and do-while statement, infinite loop, Jump Construct: break, continue, goto, exit(), Nested loop, Various problems based on the looping statement. **Arrays:** Definition, Initialization of array, Writing and Reading data from an array, various problem based on array, Searching & Sorting, Merging, Two-Dimensional array (Matrix Addition, Multiplication, Transpose).

Text Books:

- 1) Dr. S. B. Kishor, "Programming in C", Das Ganu Prakashan
- 2) E. Balguruswami, "Programming in ANSI C", TMH, 2009, ISBN-978-0-07-0648220/0-0-0-70-0648220-0.

References:

- 1) Rajaraman, "COMPUTER PROGRAMMING IN C", PHI, 2002, ISBN-81-203- 0859-X.
- 2) K. R. Venugopal and S.R. Prasad," Mastering C", TMH, 2008, ISBN-13:978-0-07-061667-7/10:0-07-06-1667-1.

Practical on 'C'

Marks: 50 / Credit 02

Lab: A following practical's can be Perform Using Open Source 'C' Compiler / Any other Standard Compiler.

Case Study 1: Loan Decision Support System

Problem: You're a loan officer at a bank and need to quickly assess potential borrowers' interest payments on loans. You need a program to calculate both simple interest and compound interest for different loan amounts, interest rates, and repayment periods. This helps you present borrowers with clear options and choose the most suitable loan terms for them.

Input: Loan amount, interest rate, repayment period **Output:** Simple interest and compound interest for the loan

Case Study 2: Travel Weather App

Problem: You're developing a travel weather app. Users from various countries might be unfamiliar with the local temperature format. The app needs a program to convert Celsius temperatures displayed in weather forecasts to Fahrenheit for users in regions that prefer that format.

Input: Temperature in Celsius from a weather forecast **Output:** Temperature converted to Fahrenheit displayed in the app

Case Study 3: Inventory Management System

Problem: You're working on an inventory management system. Products might be stored in different units (e.g., boxes, meters). The system needs a program to swap unit values when users enter or display product quantities. This ensures consistency and avoids errors.

Input: Quantity in one unit (e.g., number of boxes) **Output:** Quantity converted to another unit (e.g., total meters) displayed in the system

Case Study 4: Delivery Distance Estimation

Problem: You're building an online delivery service. Customers need to know estimated delivery times based on distance. The system needs a program to convert user-provided distances in kilometers to more user-friendly units like meters for shorter distances or feet and inches for very small items.

Input: Distance in kilometers entered by the customer **Output:** Distance converted to meters, feet, and inches displayed on the delivery confirmation page

Case Study 5: Land Surveyor's Helper Tool

Problem: You're a land surveyor and need to calculate the area of irregularly shaped plots of land. Sometimes, you only have two side lengths and an angle measurement. The program helps you quickly calculate the area and missing side length for more efficient land surveying.

Input: Two side lengths and the included angle of a land plot **Output:** Area of the land plot and the length of the missing side

Case Study 6: Online Voting System Validation

Problem: You're developing an online voting system. To ensure only eligible voters can participate, the system needs a program to check if a user's entered age is even or odd (assuming the voting age is even, like 18). This is a simple check to prevent accidental mistakes or potential fraud attempts.

Input: User's entered age **Output:** System validation message indicating eligibility (even age) or ineligibility (odd age)

Case Study 7: Online Event Planning Tool

Problem: You're building an online event planning tool. Users might be planning events for years that fall in the future. The tool needs a program to determine whether an entered year is a leap year, which can affect event dates (e.g., February has 29 days in leap years).

Input: Year entered by the user for event planning **Output:** System message indicating "Leap Year" or "Not a Leap Year" to help users adjust their event schedules if necessary.

Case Study 8: Ballistics Calculator (Educational Use)

Problem: You're developing an educational ballistics simulation program. The program calculates the trajectory of a projectile based on factors like launch angle and initial velocity. The quadratic formula is used within these calculations to find the projectile's height at different points in its flight path.

Input: Launch angle and initial velocity of the projectile **Output:** (Not directly displayed to the user) The program uses the quadratic formula internally to calculate the projectile's trajectory for visualization or further analysis.

Case Study 9: Interactive Fitness App

Problem: You're creating an interactive fitness app. The app tracks workout repetitions and calculates the total burned calories based on the exercise type and the user's weight. The app might use a switch statement to handle different exercise types (e.g., push-ups, squats, jumping jacks) and apply the appropriate calorie burn calculation for each.

Input: User selects the exercise type from a menu **Output:** The app displays the total burned calories based on the selected exercise and the user's weight.

Case Study 10: Personalized Learning Platform

Problem: You're developing a personalized learning platform that adjusts difficulty levels based on user performance. The program might use a loop to iterate through multiplication tables and a switch statement to check user answers. Based on the number of correct answers, the difficulty level (higher or lower multiplication tables) can be adjusted for optimal learning.

Input: User's answers to multiplication problems **Output:** (Not directly displayed) The program uses loops and switch statements internally to assess user performance and adjust the difficulty level of subsequent problems.

Case Study 11: Data Visualization Tool

Problem: You're building a data visualization tool. The tool helps users understand trends and patterns in data sets. The program can use loops to iterate through data points and calculate squares and cubes for each value. This information can then be used to create charts and graphs that visually represent the data.

Input: Data set provided by the user **Output:** A visual representation (chart or graph) of the data, including squares and cubes of each data point, for improved data analysis.

Case Study 12: Online Password Strength Checker

Problem: You're working on an online password strength checker. The program analyzes the complexity of a user's password and assigns a strength rating. The program might use loops to iterate through the password characters and check for a combination of uppercase, lowercase, numbers, and special characters. The factorial function can be used internally to calculate the number of possible password combinations with varying lengths and complexities.

Input: User's entered password **Output:** Password strength rating displayed on the screen, based on factors like password length and character variety. (The factorial calculation might not be directly visible to the user.)

Case Study 13: Stock Market Analysis Tool (Educational Use)

Problem: You're creating an educational stock market analysis tool. The program simulates the growth of a stock investment over time. The program might use loops to iterate through years or investment periods and calculate the compounded interest earned on the initial investment. The Fibonacci sequence could be used to represent a hypothetical stock price growth pattern (not a real-world prediction).

Input: Initial investment amount and desired investment period **Output:** A simulated chart or table showing the growth of the investment over time, based on a compounded interest calculation and potentially a Fibonacci sequence pattern for educational purposes.

Case Study 14: Progress Tracking in Online Learning Platforms

Problem: You're developing an online learning platform that tracks student progress. The platform might use loops to iterate through learning modules and display a visual representation (pyramid) of a student's completed modules. The number of completed modules would be reflected in the number of rows displayed in the pyramid.

Input: User completes a learning module **Output:** The platform updates the student's progress bar or displays a pyramid where completed modules are filled in, providing a visual representation of their learning journey.

Case Study 15: Design Tool Pattern Printing

Problem: You're building a design tool that allows users to create patterns. The tool needs a program to generate patterns based on user-defined symbols (like asterisks) and repetition. Loops can be used to repeat the symbol printing in a specific arrangement to create the desired pattern.

Input: User selects a symbol (e.g., asterisk) and the number of repetitions for each row **Output:** The design tool displays the user-defined pattern on the screen, allowing for creative exploration and pattern generation.

Case Study 16: Collaborative Project Management

Problem: You're working on a collaborative project management tool. The tool needs to calculate the greatest common divisor (GCD) of tasks (represented by integers) to ensure efficient task breakdown and assignment among team members. A smaller GCD indicates tasks can be further divided into smaller, more manageable subtasks.

Input: Estimated effort (in hours) required for two interdependent tasks **Output:** The tool calculates the GCD (greatest common divisor) internally, which helps project managers break down tasks into subtasks that can be effectively assigned to team members based on their availability.

Case Study 17: Online Number Guessing Game

Problem: You're creating an online number guessing game. The game might use loops to generate a random number within a specific range and use the Armstrong number property (sum of digits raised to the power of the number of digits equals the number itself) as a challenge for players to guess. The program would check if the player's guess matches the Armstrong number within the generated range.

Input: User's guess for the secret number **Output:** The game provides feedback on the user's guess, indicating if it's higher, lower, or correct. The Armstrong number property adds an extra layer of challenge compared to a simple random number guessing game.

Case Study 18: Data Security - Identifying Prime Numbers for Encryption

Problem: You're working on a data security application. The program might use loops to iterate through numbers and check for primality (having exactly two divisors: 1 and itself). Prime numbers are used in encryption algorithms to scramble data securely. Finding large prime numbers is computationally expensive, but this case study focuses on identifying them within a specific range.

Input: Not directly applicable (the program operates internally) **Output:** The program identifies prime numbers within a given range (10 to 100) and potentially uses them in encryption algorithms (not directly visible to the user) to secure data transmission or storage.

B.Sc. I (Computer Science)

For Semester II

Open Elective – Group A

1. Video Conferencing and Tools

Max. Marks: 40/Credits: 2

Program Learning Outcomes:

1. This vocational course aims to provide participants with a comprehensive understanding of the creation, management, and promotion of webinars using various tools and platforms.
2. Students will learn the essential skills to design, plan, and execute effective webinars for diverse purposes, such as online education, marketing, and product demonstrations.

Unit I – Webinar Essentials

Exploring Video Conferencing, Webinar Significance, Offline vs. Online Comparison, Defining Webinar Goals, Target Audience & Topic Selection, Scheduling & Platform Setup, Feature Testing, Webinar & Live Stream Link Sharing, Social Media Promotion, Invitation Distribution, and Participant Data Collection.

Unit II - Tools & Troubleshooting for Video Conferencing

Essential Video Conferencing Equipment, Webcam and Microphone Quality, Internet Connection Requirements, Choosing Presentation Software, Selecting Headsets or Microphones for Clear Audio, Testing Audio and Video, Customizing Backgrounds, Webinar Recording Settings (Platform/YouTube), Webinar Management, and Troubleshooting Common Technical Issues.

Unit III: Engaging VC Management & Post-Webinar Strategies

Initiating Video Conferencing, Adding Participants and Co-hosts, Configuring Audio and Video Settings, Recording the Session, Screen Sharing Types, Presenting Content with Visual Aids, Incorporating Interactive Activities like Polls and Quizzes, Managing Q&A and Chatbox Interactions, Concluding the Webinar, Tips for Success, and Capturing Images During Webinars.

Unit IV: Post-Webinar Strategies & Impact

Introduction, Importance of Post-Webinar Feedback, Methods for Collecting Feedback, Retaining Attendee Engagement, Evaluating Webinar Analytics, Utilizing YouTube Analytics, Assessing Success with KPIs, Certificate Distribution, and Promoting Webinars Post-Event.

Text Books:

1. "Video Conferencing for Dummies" by Clark A. Howard and Heidi V.M. Hayes
2. "The Webinar Handbook: How to Promote, Deliver and Follow Up Successful Webinars" by Debra Ruh

B.Sc. I (Computer Science)
For Semester II
Open Elective – Group A
2. MS- Excel

Max. Marks 40 / Credits: 2

Program Learning Outcomes:

1. Master the creation of pivot tables for dynamic data analysis. Understand how to create visually appealing charts and graphs to present insights effectively.
2. Understand common functions such as SUM, AVERAGE, IF, VLOOKUP, and COUNTIF.
3. Explore nested functions and array formulas for complex calculations.
4. Understand how to integrate Excel with other Microsoft Office applications such as Word and PowerPoint.

UNIT-I : Working with Spreadsheet

Introduction to Spreadsheet, Features of Ms-Excel, Basic of MS-Excel, navigating around the Worksheet, Ribbon, Ribbon Tab, Formatting Features, Copying Data Between Worksheets, Entering and Editing Cell Entries. Sorting and Filtering, Protect a worksheet, Absolute, Mixed and Relative Referencing

UNIT-II: Functions

Basic Functions: - Sum, Average, Max, Min, Count, Sumif, Countif,

Text Functions: Upper, Lower, Proper, Left, Mid, Right, Trim, Len, Exact, Find.

Date and Time Functions: - Today, Now, Day, Month, Year, Date, Weekday.

UNIT III Charts: -Introduction to Charts, Various type of Charts (Column Chart, Pie Chart, Line chart, Bar chart), Creation of Charts, Editing and Formatting Charts, Whatif Analysis, Group, Ungroup, Subtotal, Goal Seek.

UNIT IV : Advanced Data Analysis

Pivot Tables: Creating and Managing PivotTables, Using Slicers and Timeline for Data Filtering. Data

Validation: Setting Data Validation Rules, Using Drop-Down Lists, Handling Invalid Data Entries.

What-If Analysis: Using Scenarios, Data Tables, Solver for Complex Problem Solving.

Text Books

- 1) Dr. S.B. Kishor, “MS- Office”, Das Ganu Prakashan
- 2) K.K. Bajaj, “Office Automation”, MacMillan, ISBN 13: 9780333929278
- 3) Sanjay Saxena, “MS Office in a Nutshell”, Vikas Pub., 2011, ISBN-978-81-259- 5036-3
- 4) Rutkosky, Seguin, Audrey “Microsoft Office”, BPB, ISBN-10:81-8333-228-5/13:978-81-8333-228-6

References:

- 1) Gini Courier, Annelte Marquis, “Microsoft Office”, BPB, ISBN: 8176560839
- 2) S. Jaiswal, “IT Today Encyclopaedia”, Galgotia, ISBN: 9788175152700
- 3) Sanjay Saxena, “A First Course in Computers”, Vikas Pub., ISBN : 9788125914440

B.Sc. I (Computer Science)
For Semester II
Open Elective – Group B
1. Basics of Internet

Max. Marks 40 / Credits: 2

Program Learning Outcomes:

1. Understand the origins and key milestones in the development of the Internet.
2. Understand fundamental Internet-related terms and differentiate between the Internet and the World Wide Web.
3. Explore structure and function of URLs and domain names.

Unit 1: Introduction to the Internet

History and Evolution of the Internet: The origins of the Internet: ARPANET and early networks, Key milestones in Internet development, The impact of the Internet on society and technology. **Basic Internet Terminology:** Definitions of common terms: Internet, World Wide Web, Browser, Server, Differentiating between the Internet and the World Wide Web, Understanding URLs and Domain Names.

Unit II: Internet Protocols and Architecture

Understanding Protocols: What are protocols? The OSI Model, Understanding IP addressing and subnetting, **Routing and Switching:** Basic concepts of routing and switching, Difference between routers and switches

Unit III: Web Technologies

Web Browsers and Search Engines: Functions and features of web browsers, How search engines work. **HTML and CSS:** Basics of HTML: Structure of an HTML document, common tags, Introduction to CSS.

Unit IV: Internet Security and Privacy

Fundamentals of Internet Security: Basic concepts of cyber security, **Common threats:** Viruses, malware, phishing, Best practices for online security, Emerging trends in cyber security

Text Books

- 1) Anurag Seetha, "Fundamentals of Internet and Web Technology", University Science Press
- 2) Raj Kamal, "Internet and Web Technology", McGraw Hill Education

B.Sc. I (Computer Science)
For Semester II
Open Elective – Group B
2. Google Sheet

Max. Marks 40 / Credits: 2

Program Learning Outcomes:

1. Understand the basic features and layout of the Google Sheets interface.
2. Explore various formatting options to enhance the appearance of data, including fonts, colors, borders, and alignment.
3. Understand the concept of formulas and how they are used to perform calculations in Google Sheets.

Unit I: Getting Started with Google Sheets

Introduction to Google Sheets: Overview of Google Sheets and its advantages, Navigating the Google Sheets interface, Creating and opening Google Sheets. **Basic Data Entry and Formatting:** Entering and editing text, numbers, and dates, Basic formatting options (fonts, colors, borders), Adjusting row heights and column widths.

Unit II: Basic Formulas and Functions

Basic Formulas and Functions: Introduction to formulas and cell references, Basic functions (SUM, AVERAGE, MIN, MAX). Understanding and using the autofill feature. **Saving and Sharing:** Saving Google Sheets in different formats, Sharing Google Sheets with others, Understanding permissions and collaboration features.

Unit III: Intermediate Functions and Data Management

Intermediate Functions: Logical functions (IF, AND, OR). **Data Management:** Sorting and filtering data, Creating and using named ranges, Data validation techniques.

Unit IV: Data Visualization

Creating advanced charts (scatter plots, histograms, sparklines), Customizing chart elements (titles, labels, legends), Designing interactive dashboards, **Data Import and Export:** Importing data from external sources (CSV, Excel), Exporting Google Sheets data.

Text Books

- 1) Bittu Kumar, “Mastering MS Office and Google Docs”, V&S Publishers
- 2) Ramesh Bangia, “Digital Literacy: Concepts and Applications”, Laxmi Publications
- 3) Rohit Khurana, Ravishankar Sharma, “Computer Fundamentals and Office Automation”, Vikas Publishing House

B.Sc. I (Computer Science)
For Semester II
VSC

Web Designing Using HTML

Max. Marks 40 / Credits: 2

Program Learning Outcomes:

1. Learn the basic concepts of web design and development.
2. Understand the structure and components of a web page.
3. Gain knowledge about the internet, web servers, and web browsers.
4. Develop the ability to create well-structured HTML documents.

In Practical, following points should be cover

- **Basic of HTML and Tag Introduction to HTML** - Introduction, Features of HTML, Advantages & Disadvantages of HTML, HTML Editors, Step to Create and View HTML Document, Basic Structure of HTML Program **Tags & Attributes**-Nesting of Tags, Classification of HTML Tags, Block Formatting Tags. **List** - Introduction to Lists, Unordered List, Ordered List, Definition List, Nested List, Difference Between Ordered and Unordered List.
- **Working with HTML Linking** - Introduction, Type of Hyperlink Creation, Working with Links, Pathname and Types, Types of Linking or Anchors. **Graphics in Web Page** - Image Tag, Align Images, Embedding Inline Images and External Images. **Tables** - Basic table tags and their related attribute **Frames**- Frames, <Frame> and <Frameset> tags and related attributes.
- **Advanced HTML Form designs**, Form Controls, Text controls, password fields, radio buttons, and check boxes. Reset and submit buttons, form control selection, option processing and text area.
- **Introduction to CSS:** Concept of CSS, Creating of Style sheet, CSS Properties, CSS Styling (Background, Text Format, Controlling Fonts), Working with block elements and objects, Working with Lists and Tables, CSS Id and Class, Box Model (Introduction, Border properties, Padding Properties, Margin properties).

Lab: Practical Questions (Use any Text Editor, like Notepad++, Sublimetext, etc.)

1. Write a HTML Code for the Demonstration of Logical and physical (Formatting) style tags.
2. Write a HTML Code for the Demonstration of Level of Headings and Block Alignment.
3. Write a HTML Code for the Demonstration of the Font Face, Color and Size. And address tag.
4. Write a HTML Code for the Demonstration of HR Tag and Alignment.
5. Write a HTML Code for the Demonstration of Ordered and unordered list.
6. Write a HTML Code for the Demonstration of internal linking.
7. Write a HTML Code for the Demonstration of use of table.
8. Write a HTML Code for the Demonstration of browsing by category.

9. Write a HTML Code for the Demonstration of designing a simple form.
10. Write a HTML Code for the Demonstration of the Master page to link another page.
11. Write a HTML Code for the Demonstration of Link to Web Page.
12. Write a HTML Code for the Demonstration of Compose Mail.
13. Write a HTML Code for the Demonstration to show or load inline image say waterfall.JPG.
14. Write a HTML Code for the Demonstration of Image Hyperlink.
15. Write a HTML Code for the Demonstration of cell padding attributes.
16. Write a HTML Code for the Demonstration the use of element selector, id selector and class selector with CSS.
17. Write a HTML Code for the Demonstration of Navigation (with Dropdown) with CSS.
18. Write a HTML Code to Create a CSS Grid.
19. Write a HTML Code to style the element which is not empty with CSS.
20. Write a HTML Code to Create a CSS based Zebra Striped table.

B.Sc. I (Computer Science)
For Semester II
SEC

Data Analysis using Excel

Max. Marks: 40/Credits: 2

Program Learning Outcomes:

1. Master the creation of pivot tables for dynamic data analysis. Understand how to create visually appealing charts and graphs to present insights effectively.
2. Understand common functions such as SUM, AVERAGE, IF, VLOOKUP, and COUNTIF.
3. Explore nested functions and array formulas for complex calculations.
4. Understand how to integrate Excel with other Microsoft Office applications such as Word and PowerPoint.

UNIT-I : Working with Spreadsheet

Introduction to Spreadsheet, Features of Ms-Excel, Basic of MS-Excel, navigating around the Worksheet, Ribbon, Ribbon Tab, Formatting Features, Copying Data Between Worksheets, Entering and Editing Cell Entries. Sorting and Filtering, Protect a worksheet, Absolute, Mixed and Relative Referencing

UNIT-II: Functions

Basic Functions: - Sum, Average, Max, Min, Count, Sumif, Countif,

Text Functions: Upper, Lower, Proper, Left, Mid, Right, Trim, Len, Exact, Find.

Date and Time Functions: - Today, Now, Day, Month, Year, Date, Weekday.

UNIT III Charts: -Introduction to Charts, Various type of Charts (Column Chart, Pie Chart, Line chart, Bar chart), Creation of Charts, Editing and Formatting Charts, Whatif Analysis, Group, Ungroup, Subtotal, Goal Seek.

UNIT IV : Advanced Data Analysis

PivotTables : Creating and Managing PivotTables, Using Slicers and Timeline for Data Filtering. Data

Validation: Setting Data Validation Rules, Using Drop-Down Lists, Handling Invalid Data Entries.

What-If Analysis: Using Scenarios, Data Tables, Solver for Complex Problem Solving.

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- 1) Dr. S.B. Kishor, "MS- Office", Das Ganu Prakashan
- 2) K.K. Bajaj, "Office Automation", MacMillan, ISBN 13: 9780333929278
- 3) Sanjay Saxena, "MS Office in a Nutshell", Vikas Pub., 2011, ISBN-978-81-259- 5036-3
- 4) Rutkosky, Seguin, Audrey "Microsoft Office", BPB, ISBN-10:81-8333-228-5/13:978-81-8333-228-6

References:

- 1) Gini Courier, Annelte Marquis, "Microsoft Office", BPB, ISBN: 8176560839
- 2) S. Jaiswal, "IT Today Encyclopaedia", Galgotia, ISBN: 9788175152700
- 3) Sanjay Saxena, "A First Course in Computers", Vikas Pub., ISBN : 9788125914440

Practice: Practical Should be Perform Using Ms-Excel / Google Sheet

1. Prepare following table in a worksheet using MS-Excel.

Name	Basic	DA	HRA	Gross Pay	PF	Net Pay
Rahul	10000					
Sachin	20000					
Nilesh	15000					
Bharti	25000					

Perform following operations: -

1. Complete the table using formulas
 - $DA = \text{Basic} * 27 \%$
 - $Hra = \text{Basic} * 10 \%$
 - $PF = \text{Basic} * 12.5 \%$
 - $Gross\ Pay = \text{Basic} + DA + HRA$
 - $Net\ Pay = \text{Gross Pay} - PF$
2. Give the Proper Heading.
3. Take the printout in landscape orientation

2) Enter following data in MS-Excel worksheet.

Name	Date of joining	Salary	Designation
Rahul	Jan-05	10000	Peon
Sachin	Oct-10	20000	Accountant
Nilesh	Jan-05	15000	Clerk
Bharti	Dec-09	25000	Manager

Perform following operations: -

1. Copy the above data and place in sheet2 and sort the table in the ascending order or date of joining and give proper heading.
2. Copy the above data and place in sheet3 and sort the table in the ascending order or date of joining followed by order of name and give proper heading.
3. Copy all the above data to sheet4 and take printout

3) Prepare following using MS-Excel.

Players	Match 1	Match 2	Match 3	Average	Highest Score	Sum
Sehwag	78	43	91			
Sachin	45	77	62			
Yuvraj	65	80	37			
Dhoni	34	15	46			
Raina	23	75	55			

Perform following: -

1. Calculate Average and High score of each player using AVERAGE & MAX function
2. Calculate total score of each match using SUM function.
3. Sort above records in descending order on the basis of average.
4. Take the printout in landscape orientation

- 4) Prepare the Mark sheet of IT subject on the basis of 3 Unit test. Each of 30 Marks and perform following,
1. Calculate total marks, Average and Grade
 2. Auto format to the above table.
 3. Take the printout
- 5) Prepare the multiplication using
- 1) Relative cell reference
 - 2) Absolute cell reference.

Multiplicand	Multiplier	Product using Relative	Product using Absolute
13	1		
	2		
	3		
	:		
	:		
	10		

- 6) Create profit and prepare a column chart in MS-EXCEL using the data.

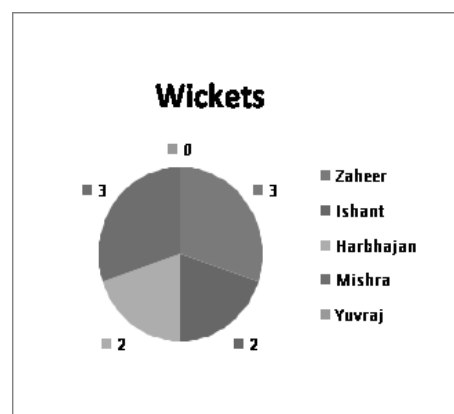
Month	Net Sales	Actual Cost	Profit
Jan. 10	22000	18000	
Feb. 10	245005	9555	
Mar. 10	32450	24850	

Perform following operations: -

1. Find the profit
2. Give a chart title "Profit Report"
3. Take the printout.

- 7) Draw Pie chart of following excel sheet.

Bowler	Over	Maiden	Runs	Wickets
Zaheer	10	2	22	3
Ishant	10	1	36	2
Harbhajan	10	0	48	2
Mishra	10	0	37	3
Yuvraj	10	0	43	0



Case Studies to be solve in the practical lab

8. Personal Budget Management

- Problem: You want to track your monthly expenses and analyze your spending habits to create a more effective budget plan.
- Task: Create an Excel spreadsheet to input your expenses for various categories (e.g., groceries, utilities, entertainment). Use functions like SUM to calculate total expenses and charts to visualize spending trends over time.

9. Sales Analysis for a Small Business

- Problem: A small business owner wants to analyze monthly sales data to identify top-performing products and optimize inventory management.
- Task: Create an Excel spreadsheet to input sales data for different products over several months. Use functions like AVERAGE, MAX, MIN, and charts to identify sales trends and determine the best-selling products.

10. Inventory Management for Retail Store

- Problem: A retail store manager needs to track inventory levels for different products and reorder items when stock runs low.
- Task: Create an Excel spreadsheet to input inventory data, including product names, quantities, and reorder points. Use functions like SUM and charts to monitor inventory levels and identify items that need to be reordered.

11. Workout Tracker for Fitness Enthusiasts

- Problem: Fitness enthusiasts want to track their workouts and progress over time to achieve their fitness goals.
- Task: Create an Excel spreadsheet to input workout data, including exercise names, sets, reps, and weights lifted. Use functions like SUM and charts to visualize progress and identify areas for improvement.

12. Project Management for Freelancers

- Problem: Freelancers need to track project timelines, deadlines, and expenses to ensure timely delivery and budget management.
- Task: Create an Excel spreadsheet to input project details, including tasks, deadlines, and expenses. Use functions like TODAY to track project timelines and expenses, and charts to visualize project progress.

13. Travel Expense Tracker for Business Trips

- Problem: Business professionals need to track expenses incurred during business trips for reimbursement and tax purposes.
- Task: Create an Excel spreadsheet to input travel expenses such as transportation, lodging, meals, and miscellaneous costs. Use functions like SUM to calculate total expenses and charts to visualize spending categories.

14. Stock Portfolio Analysis for Investors

- Problem: Investors want to track the performance of their stock portfolio and analyze returns over time.
- Task: Create an Excel spreadsheet to input stock holdings, purchase prices, and current market values. Use functions like SUM, AVERAGE, and charts to analyze portfolio performance and identify profitable investments.

15. Meal Planning and Grocery Shopping List

- Problem: Individuals or families want to plan meals for the week and create a grocery shopping list to minimize food waste and save time.
- Task: Create an Excel spreadsheet to input meal plans for each day of the week, including recipes and required ingredients. Use functions like CONCATENATE to generate a consolidated shopping list and charts to track meal costs.

16. Home Budget Tracker for Household Finances

- Problem: Families want to manage their household finances by tracking income, expenses, and savings goals.
- Task: Create an Excel spreadsheet to input monthly income sources, fixed expenses (e.g., rent, utilities), variable expenses (e.g., groceries, entertainment), and savings contributions. Use functions like SUM and charts to analyze spending patterns and track progress towards savings goals.

17. Employee Time Tracking for Freelancers or Small Businesses

- Problem: Freelancers or small business owners need to track employee work hours for payroll processing and project billing.
- Task: Create an Excel spreadsheet to input employee work hours, including start and end times for each day. Use functions like SUM to calculate total hours worked and charts to visualize employee productivity over time.

18. Gardening Planner for Home Gardeners

- Problem: Home gardeners want to plan and track their gardening activities, including planting schedules, harvest dates, and crop yields.
- Task: Create an Excel spreadsheet to input planting schedules for different crops, including seed varieties and planting dates. Use functions like TODAY to track growth stages and harvest dates, and charts to visualize crop yields over time.

19. Event RSVP Tracker for Party Hosts

- Problem: Party hosts need to manage guest lists, track RSVPs, and plan seating arrangements for social events like weddings or birthday parties.
- Task: Create an Excel spreadsheet to input guest names, contact information, and RSVP status (e.g., attending, not attending, undecided). Use functions like COUNTIF to track RSVP responses and conditional formatting to highlight confirmed guests.

20. Event Planning for Social Gatherings

- Problem: Event planners need to organize guest lists, budgets, and schedules for social gatherings like weddings or parties.
- Task: Create an Excel spreadsheet to input guest lists, budgets, and schedules for the event. Use functions like COUNT and charts to manage guest lists and track expenses.

B.Sc. I (Computer Science)
For Semester II
VEC

Sr. No.	Name of subject
1	I.P.R. (Intellectual Property Rights)
2	Environmental studies
3	Constitution of India
4	G.S.T.
5	Indian Democracy, Election and Good Governance
6	D.P.R. writing

Note :- Only one, 2 credits subject VEC to be chosen from the above.

For Syllabus visit www.unigug.ac.in

B.Sc. I (Computer Science)
For Semester II
AEC

Name of subject
English / Supplementary English
OR
Marathi
OR
Hindi
OR
Pali
OR
Bengali

Note: - 1) Student shall opt English OR Supplementary English in Semester –I and any one from Marathi, Hindi, Pali and Bengali in Semester- II and Vice a Versa.

2) For Syllabus visit www.unigug.ac.in

Appendix 1

Evaluation Rules

1. The internal assessment marks shall be awarded by the concerned teacher/Head of Dept.
2. The internal assessment marks shall be sent to the University after the Assessment in the prescribed format and as directed/notified by the University.
3. General guidelines for Internal Assessment are:
 - a) The internal assessment marks assigned to each theory paper on the basics of the performance in any two assignments as described below and selected by the concerned teacher and same must be conveyed to students at the beginning.
 1. Class Test / Model Examination
 2. Certification from IIT Spoken Tutorial / Swayam / NPTEL / PARAKH etc.
 3. Online Test
 4. Theory Assignments
 5. Programming Assignments
 6. Study tour / Industrial visits / Field Work
 7. Group discussions
 8. Participation in Conference/ Webinar / Seminar /Poster Competition/ Presentation
 9. Publishing Research Paper / Review Paper
 10. Participation in Departmental Activities
 11. Participation in Seminar/Workshop/Competition/Course organized by the university / other college/ Associations.
 - b) The concerned teacher/department/college shall have to keep a record of all the above activities until six months after the declaration of the results of that semester.

A) Practical Assessment:

Time: Minimum 2 Hours 30 Min. for conducting the practical examination subject to the condition of the availability of computers and printers at the center.

Marks Distribution: A practical mark will be allocated together by the Internal & External Examiner as per the following format on the date of Examination as notified.

Sr. No.	Particulars	Max. Marks	
		Internal	External
a.	Writing, Execution, and Printout of Program-I	08	12
b.	Writing Program-II	04	06
c.	Practical Record	04	06
d.	Viva Voce	04	06
Total (Max. 50 Marks)		20	30

Note:1) The Written work should be completed within max. 45 minutes.

2) For execution and taking printout max. 45 minutes is reserved.

B) Paper Assessment: Theory papers will be held as per the schedule given by the university and the examinee needs to score a minimum of 40% of marks to clear the paper including internal assessment marks while in practical students' needs to score min. 50% for passing.

Appendix 2

Practical Examination

1. Each practical carry 50 marks. The question should be asked from the list of practical as given in the syllabi of respective subjects.
2. Practical performance shall be jointly evaluated by the External and Internal Examiner. A practical mark will be submitting by the Internal & External Examiner on the date of Examination.
3. In case of discrepancy, the External Examiner's decision shall be final.
4. The duration of the practical examination will be a Minimum of 2 Hours and 30 Min.
5. The Practical Record of every student shall carry a certificate as shown below, duly signed by the teacher-in-charge and the Head of the Department. If the student fails to submit his / her certified Practical Record duly signed by the Teacher-In-Charge and the Head of the Department, he/she shall not be allowed to appear for the Practical Examination and no Marks shall be allotted to the student.
6. The certificate template shall be as follows:

CERTIFICATE
Name of the College / Institution: _____ Name of the Department: _____
This is to certify that this Practical Record contains the bonafide record of the practical work of Mr. / Mrs. / Ku. _____ of B.Sc.(Computer Science) _____ Semester _____ during the academic year ____.
The candidate has satisfactorily completed the practical's prescribed for the course by Gondwana University, Gadchiroli for the subject _____
Dated : __ / __ / _____
Signature of the teacher who taught the examinee
1. _____ 2. _____
Head of the Department

Appendix-3

The Pattern of Question Paper

General Rules and Regulations regarding a pattern of question paper for the semester-end examination is as given below:

1. There will be four units in each paper.
2. The maximum marks for each theory paper will be 80/40.
3. The question paper will consist of five questions, each of 16/8 marks.
4. Four questions will be based on four units with internal choice.
5. The fifth question will be compulsory with questions from each of the four units having equal weightage and there will be no internal choice.

B.Sc. (Computer Science) I/II/III/IV Semester – I/II/III/IV/V/VI/VII/VIII	
Paper: Name of Paper	
Time: 3 / 2 Hours]	[Max. Marks: 80 / 60/ 40
Note: 1) All questions are compulsory and carry equal marks. 2) Draw Neat and Labeled diagrams and use supporting data wherever necessary. 3) Avoid vague answers and write specific points/answers related to questions.	
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Q 1	
Either (From Unit 1)	
a)	8/6/4
b)	8/6/4
Or	
c)	8/6/4
d)	8/6/4
Q 2	
Either (From Unit 2)	
a)	8/6/4
b)	8/6/4
Or	
c)	8/6/4
d)	8/6/4
Q 3	
Either (From Unit 3)	
a)	8/6/4
b)	8/6/4
Or	
c)	8/6/4
d)	8/6/4
Q 4	
Either (From Unit 4)	
a)	8/6/4
b)	8/6/4
Or	
c)	8/6/4
d)	8/6/4
Q 5 Solve all questions	
a) (From Unit 1)	4/3/2
b) (From Unit 2)	4/3/2
c) (From Unit 3)	4/3/2
d) (From Unit 4)	4/3/2