



श्री Davara University

Established under Chhattisgarh Private Universities (Establishment and Operation) Act, 2005

BCA

SEMESTER-I

Programme Curriculum



SEMESTER I

S.NO	COURSE CODE	COURSE TITLE	TEACHING HOURS PER WEEK				EXAMINATION SCHEME				TOTAL MARKS
			L	T	P	C	THEORY		PRACTICAL		
DSE CORE SUBJECTS							EX	IN	EX	IN	
1.	CASC-01	Discrete Mathematics	3	1	0	4	70	30	-	-	100
2.	CASC-02T	Computer Fundamental and MS Office	3	-	0	3	70	30	-	-	100
3.	CASC-03T	Operating System	3	-	0	3	70	30	-	-	100
GENERAL ELECTIVE											
4.	PSGE-01	Introduction to Political Theory	4	-	0	4	70	30	-	-	100
VALUE ADDITION COURSE											
5.	VAC-16	Library and Information (ICT)	2	0	0	2	35	15	-	-	50
ABILITY ENHANCEMENT COURSE											
6.	AEC-01	Communicative English	2	0	0	2	35	15	-	-	50
PRACTICAL LAB											
7.	CASC-02P	MS-Office	-	-	2	1	-	-	35	15	50
8.	CASC-03P	Operating System	-	-	2	1	-	-	35	15	50
Total Credit: 20							Total Marks: 600				



FOUR YEAR UNDERGRADUATE PROGRAM (2024-28) DEPARTMENT OF COMPUTER APPLICATION COURSE CURRICULUM

PART-A:Introduction		
Program: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-I	Session: 2024-2028
Course Code	CASC-01	
Course Title	Discrete Mathematics	
Course Type	DSC (Discipline Specific Course)	
Prerequisite	As per program	
Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able</p> <ul style="list-style-type: none"> Analyze logical propositions via truth tables. Understand sets and perform operations and algebra on sets Determine properties of relations, identify equivalence and partial order relations, sketch relations Understand the fundamentals of Boolean algebra and its applications in switching circuit designing. Understand and apply the group theory. Understand the various graph theoretic concepts and familiarize with their applications 	
Credit Value	4 Credits	1 Credit = 15 Hours - Learning & Observation
Total Marks	Max. Marks:100	Min marks -40
PART -B: Content of the Course		
Total No. of Teaching-Learning Periods (01 Hr. per period)-60 Periods (60 Hours) No. of Topics (Course contents)		
Unit	Topics(Course Content)	No. of Period
I	Sets and Relations, POSET and Lattices: Definitions, Types of Sets, Operations on Sets, Inclusion and Exclusion Principle, Cartesian Product and properties, Relation, Types of Relation, Equivalence Relation, Partial Order Relation, Function: Injective, Subjective, Bi-ejectives Mapping, Properties of partially ordered sets (Poset), Hasse diagrams, Maximal and minimal elements, Join Semi lattice, Meet Semi lattice, Sub-lattices, Distributive lattices: Complemented Lattice	15
II	Mathematical Logic, Boolean Algebra and switching circuits: Propositional	15



	Logic, Logical Connector, Boolean algebras, Properties of Boolean Algebra, Conjunctive and Disjunctive Normal forms, Boole's Expansion Theorem, Boolean polynomials, Minimal forms of Boolean polynomials, Quine-McCluskey method, Karnaugh diagrams, Switching Circuits and their Applications.	
III	Group Theory: Definition and Properties: Semi group, Monoid, Group, Sub-Group, Abelian Group, Finite and Infinite Group, Product and Quotient of Algebraic Structure, lag ranges theorem, Rings, Integral Domain, Field, Applications of Group theory.	15
IV	Graphs: Definition, examples and basic properties of graphs, Königsberg seven bridge problem; Subgraphs, Pseudographs, Complete graphs, Planarity Graph. Cyclic, Chromatic Number, Handshaking Theorem, Bipartite graphs, Isomorphism of graphs, Paths and circuits, Eulerian circuits, Hamiltonian cycles, Adjacency matrix, Weghted graph, Travelling salesman problem, shartest path and Dijkstra's algorithm., Graph	15

PART-C: Learning Resources

Books Recommended:

- B. A. Davey & H. A. Pries Jey (2002). Introduction to Lattices and Order (2nd edition). Cambridge University Press.
- Edgar G. Goodaire & Michael M. Parameter (2018). Discrete Mathematics with Graph Theory (3rd edition). Pearson Education.
- Rudolf Lidl & Günter Pilz (1998). Applied Abstract Algebra (2nd edition). Springer.
- Kenneth H. Rosen (2012). Discrete Mathematics and its Applications: With Combinatorics and Graph Theory (7th edition). McGraw-Hill.
- C. L. Liu (1985). Element's of Discrete Mathematics (2nd edition). McGraw-Hill.

Online Resources:

- SWAYAM Portal: Online Lectures on Discrete Mathematics
- https://onlinecourses.swyam2.ac.in/coc20_ma02/preview
- NPTEL YouTube Channel: Online Lectures on Discrete Mathematics
- https://youtube.com/playlist?list=PL0862D1A947252D20&si-salitYdT4Z_Js
- NPTEL YouTube Channel: Online Lectures on Discrete Mathematics
- https://youtube.com/playlist?list=PLEAYkSg4uSQ2Wfe_M4QEZUSRdx2ZcFziO&i=q1UcKDC34RMWcCz

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 marks
 Continuous Internal Assessment (CIA): 30 Marks.
 End Semester Exam (ESE): 70 marks

Continuous Internal Assessment (CIA):	Internal test/Quiz:-20 & 20 Assignment /seminar-10	Better marks out of the two test/Quiz+ obtained marks in
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(By Course Teacher)	Total marks:-30	assignment shall be considered against 30 marks.
End Semester Exam (ESE):	Two section- A&B Section A:Q1. Objective-10 marks: Q2. Short answer type-5x4=20 marks Section B: Descriptive answer type questions, 1 out of 2 from each unit-4x10=40 marks	



FOUR YEAR UNDERGRADUATE PROGRAM (2024- 28) DEPARTMENT OF COMPUTER APPLICATION COURSE CURRICULUM

PART-A:Introduction		
Program: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-I	Session: 2024-2028
Course Code	CASC-02T	
Course Title	Computer Fundamental and MS office	
Course Type	DSC (Discipline Specific Course)	
Prerequisite	As per program	
Course Learning Outcomes (CLO)	After Completing this course, students will be able to:	
	<ul style="list-style-type: none"> Study and use of basic concepts and terminology of information technology. Organize files and documents on storage devices. Acquire knowledge of ICT and Internet applications. Develop information technology solutions by evaluating user requirements in advance trends of IT Acquire knowledge of MS-Excel, MS-PowerPoint and MS-Access. 	
Credit Value	3 Credits	1 Credit = 15 Hours - Learning & Observation
Total Marks	Max. Marks:100	Min marks -40
PART -B: Content of the Course		
Total No. of Teaching-Learning Periods (01 Hr. per period)-45 Periods (45 Hours) No. of Topics (Course contents)		
Unit	Topics(Course Content)	No. of Period
I	<p>Introduction to Computer: History of computer, Generations and Classification, Basic Anatomy of Computer: Block Diagram, Central Processing Unit (CPU): Function of each Unit, Memory: Primary, Cache, Flash, Software and its needs, Types of S/W: System Software and Application Software, Types of Programming Language: Machine Language, Assembly Language, High Level Language their advantages and disadvantages, Language Processors/Translators: Assembler, Interpreter and Compiler, Fundamental of Information Technology: Data and Information, Concept of IT Application of IT, What is ICT?, Components of ICT, Impact of ICT in Society.</p> <p>Advanced Trends in IT: Cloud Technology, Virtual LAN Technology, M-Commerce. Nanotechnology, Virtual Reality, 3-D Printing, Internet of Things (IoT), Artificial Intelligence (AI), Machine Learning (ML), Cloud Computing, Quantum Computing, G Suite, GoI digital initiatives in higher education: SWAYAM, Swayam Prabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, e-Yantra and NPTEL.</p>	12



II	<p>MS-Word: Introduction to word processing software and its features, Creating new document, Saving documents, Opening and Printing documents. Home Tab: Setting fonts, Paragraph settings, Various styles (Normal, No spacing, Heading1, Heading2, Title, Strong), Find & Replace, Format painter, Copy paste and paste special. Insert Tab: Pages, Tables, Pictures, Clipart, Shapes, Header & Footer, Word Art, Equation and Symbols. Page Layout Tab: Page setup, Page Background, Paragraph (indent and spacing). Mailing Tab: Create Envelops and Labels, Mail Merge. Review Tab: Spelling and Grammar check, New comment, Protect document, View Tab: Document views, Zoom, Window (New window, Split, Switch window).</p>	11
III	<p>MS-Excel: 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), Sort and Filter options, Data validation, Group and ungroup. Review Tab: Protect sheet, Protect workbook, and Share workbook. View Tab: Page breaks, Page layout, Freezing Panes, Split and hide.</p>	11
IV	<p>Working with PowerPoint and MS-Access</p> <p>PowerPoint: Introducing PowerPoint, Use of PowerPoint 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. Design Tab: Page setup options, Slide orientation, Applying various themes, Selecting background style and formatting it. Animations Tab: Custom animation for entrance, Exit and emphasis, Applying slide transition, Setting transition speed and sound, Animation on rehearse timing. Slideshow & View Tab: Start slide, Show options, and Setup options. View tab: Presentation views, Colors and Window option.</p> <p>MS-Access: Introduction to DBMS, features of DBMS, creating blank databases, Saving it in accdb format, Defining data type in MS Access, Creating tables, creating reports, query wizard.</p>	11

PART-C: Learning Resources

Books Recommended:

- Computer Fundamentals, P.K. Sinha, BPB Publication, Sixth Edition.
- Fundamentals of Information Technology, Chetan Shrivastava, Kalyan Publishers.
- Fundamentals of Computers, V. Rajaraman, PHI Sixth Edition.
- Computer Fundamentals and Office Automation, Dr. Santosh Kumar Miri, Iterative International Publisher IIP.
- Computer Fundamentals Architecture and Organization, B. Ram, New Age International Publishers, Fifth Edition.
- Fundamentals of Information Technology, Alexis Leon and Mathews Leon, Vikash Publication.

Books Recommended:

- Introduction to Information Technology, V. Rajaraman, PHI publication.
- Fundamental of IT, Leon and Leon, Leon Tec world.



- Introduction to Information Technology, Aksoy and Denardis, Cengage learning. Computers Today, Suresh K. Basandra, Galgotia Publications.
- OFFICE 2013 in Simple Steps, Kogent Solution Inc., DremTech Press.
- Information Technology The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.
- Access 2010 in Simple Steps by Kogent Learning Solutions Inc.

Online Resources:

- Introduction to Computer Fundamental from W3school:
<https://www.w3schools.blog/computer-fundamentals-tutorial>
- Introduction to MS-Word from W3school:
<https://www.w3schools.blog/ms-word-tutorial>
- Introduction to MS-Excel from W3school:
https://www.w3schools.com/excel/excel_introduction.php
- Introduction to MS-PowerPoint from W3school:
<https://www.w3schools.blog/powerpoint-tutorial>
- Introduction to MS-Access from W3school:
https://www.w3schools.com/sql/sql_ref_msaccess.asp
- Fundamentals of Computers & Information Technology (in Hindi):
<https://www.mcu.ac.in/wp-content/uploads/2020/04/1PGDCA1-Unit-I-Fundamentals-of-Computers-Information-Technology.pdf>
- Fundamentals of Computers & Information Technology (in Hindi):
https://hte.rajasthan.gov.in/dept/dte/board_of_technical_education,_rajasthan/government_polytechnic_coll_ege_hanumangarh/uploads/doc/fundamental-final-rkd.pdf
- Information and Computers Technology:
https://cbseacademic.nic.in/web_material/doc/2014/11 ICT-IX.pdf.pdf
- Microsoft Office (in Hindi):
<https://www.scribd.com/document/534988849/9-Microsoft-office-in-hindi-www-GkNotesPDF-com>
- MS-OFFICE:
<https://www.rgyesm.org/uploads/books/MICROSOFT-OFFICE-BOOK.pdf>
- MS-OFFICE: Hindi Notes:
<https://www.copaguide.com/2020/04/ms-office-topics.html>
- Microsoft Office Full Crash Course:
<https://www.youtube.com/watch?v=SH4oyV5AJ6A>

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 marks

Continuous Internal Assessment (CIA): 30 Marks.

End Semester Exam (ESE): 70 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal test/Quiz:-20 & 20 Assignment /seminar-10 Total marks:-30	Better marks out of the two test/Quiz+ obtained marks in assignment shall be considered against 30 marks.
End Semester Exam (ESE):	Two section- A&B Section A: Q1. Objective-10 marks: Q2. Short answer type-5x4=20 marks Section B: Descriptive answer type question, 1 out of 2 from each unit- 4x10=40 marks	



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FOUR YEAR UNDERGRADUATE PROGRAM (2024-28) DEPARTMENT OF COMPUTER APPLICATION COURSE CURRICULUM

PART-A:Introduction		
Program: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-I	Session: 2024-2028
Course Code	CASC-03T	
Course Title	Operating System	
Course Type	DSC (Discipline Specific Course)	
Prerequisite	As per program	
Course Learning Outcomes (CLO)	At the end of this course, the students will be able <ul style="list-style-type: none">• Understand the concept of operating system.• Understand the disk operating system.• Work with DOS using DOS command.• Understand the Windows operating system.• Understand the Linux operating system.	
Credit Value	3 Credits	1 Credit = 15 Hours - Learning & Observation
Total Marks	Max. Marks:100	Min marks -40
PART -B: Content of the Course		
Total No. of Teaching-Learning Periods (01 Hr. per period)-45 Periods (45 Hours) No. of Topics (Course contents)		
Unit	Topics(Course Content)	No. of Period
I	Operating System Concepts: Evolution of Operating Systems, Types of operating systems, Operating system structure. Generations of Operating System, Function and Services of Operating System, System Boot, System Programs, Protection and Security of Operating System.	12
II	Disk Operating System: Introduction to DOS, History of DOS, Booting process of DOS, File & directory structure and naming rules, DOS system files. Internal commands of DOS-DIR, CLS, VER, VOL, DATE, TIME, COPY, TYPE, REN, DEL CD, MD, RD, PATH etc. External Commands CHKDSK, XCOPY, PRINT, DISKCOPY, DISKCOMP, DOSKEY, TREE, MOVE, LABEL, APPEND, FORMAT, SORT, FDISK, BACKUP, EDIT, MODE, ATTRIB. HELP, SYS.	11
III	Windows: Windows Operating System: History, Version and features of Windows,	11



	Basics of Windows, Windows concepts, Windows Structure, Desktop, Taskbar, Start Menu, working with files and folders, create, copy, delete, renaming and moving files and folders, working with recycle bin restoring deleted files, emptying the recycle bin, searching files and folders. Windows Explorer, Windows Accessories, Control Panel, Print Manager and Installing Printers. My computer, Media Player, Sound Recorder, Volume Control. Advanced features of Windows- Managing Hardware & Software Add or remove Hardware devices to/from computer, Add/remove programs, Backup, Clipboard Viewer, Disk Defragmenter, Drive Space, Scandisk, System Information windows update.	
IV	Linux: Linux introduction, Advantages, Features of Linux, Basic Architecture of Unix/Linux system, Kernel, Shell, Linux File system, Linux standard directories. Partitioning the Hard drive for Linux, Installing the Linux system, System, startup and shut-down process, How Linux works, Linux GUI, Linux Desktop, Linux command cd, md, mm, mv, zp, ls, cat, find, grep, head, and tail.	11

PART-C: Learning Resources

Books Recommended:

- Peter Baer Galvin, Greg Gagne, Operating System Concepts - Abraham Silberschatz, 8th edition, Wiley-India, 2009.
- Andrew S. Tanenbaum, Modern Operating Systems, 3rd Edition, PHI
- Elmasri, Carrick, Levine, Operating Systems: A Spiral Approach - TMH Edition
- Akshay Singh, Operating System, RGCSM Publications
- Rusell A Stultz, MS DOS 6.22, BPB Publications
- Brain Underdahl, Teach yourself Windows 2000, Wiley Publications.
- Peter Norton, Maximizing Windows, Teachmedia.
- Ray Duncan, Advances MS-DOS Programming, BPB
- Ray Yao, Shell Scripting in 8 Hours

Online Resources:

- Fundamentals of Computer, Windows Operating System: <https://vikaspedia.in/education/digital-literacy/it-literacy-courses-in-associating-with-msup/computer-fundamentals>
- Introduction to Operating System: <https://www.w3schools.in/operating-system/tutorials/>
- Introduction to Operating System: <https://www.javatpoint.com/windows>
- Windows: <https://www.javatpoint.com/windows>
- Linux: <https://www.javatpoint.com/what-is-linux>
- DOS: <https://www.geeksforgeeks.org/ms-dos-operating-system/>
- DOS: <https://www.javatpoint.com/ms-dos-operating-system>

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 marks
 Continuous Internal Assessment (CIA): 30 Marks.
 End Semester Exam (ESE): 70 marks

Continuous Internal Assessment (CIA):	Internal test/Quiz:-20 & 20 Assignment /seminar-10	Better marks out of the two test/Quiz+ obtained marks in
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(By Course Teacher)	Total marks:-30	assignment shall be considered against 30 marks.
End Semester Exam (ESE):	Two section- A&B Section A:Q1. Objective-10 marks: Q2. Short answer type-5x4=20 marks Section B: Descriptive answer type question, 1 out of 2 from each unit-4x10=40 marks	

**FOUR YEAR UNDERGRADUATE PROGRAM (2024-28)
DEPARTMENT OF COMPUTER APPLICATION
COURSE CURRICULUM**

PART-A:Introduction		
Program: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-I	Session: 2024-2028
Course Code	CASC-02P	
Course Title	Lab 1-MS Office	
Course Type	Practical	
Prerequisite	As per program	
Course Learning Outcomes (CLO)	At the end of this course, the students will be able <ul style="list-style-type: none"> Gain Practical knowledge of MS-Office. Organize files and documents on storage devices. Acquire knowledge of ICT and Internet applications. Develop information technology solutions by evaluating user requirements in advance trends of IT. Acquire knowledge of MS-Excel, MS-PowerPoint and MS-Access. 	
Credit Value	1Credits	1 Credit = 30 Hours – Lab practical’s & training
Total Marks	Max. Marks:50	Min marks -20
PART -B: Content of the Course		
Total No. of Learning Training / Performance Periods (01 Hr. per period)-30 Periods (30 Hours)		
Module	Topics(Course Content)	No. of Period
List of practical's Experiments	Application of Information Technology 1. How to create mail in a Gmail account? Write the uses of Inbox, Sent, Outbox, Draft, Spam and Trash labels. 2. How to design Google form? Write the steps with appropriate windows. 3. How to use social media platforms like twitter, Facebook and YouTube?	30



4. How to use social media platforms like Facebook, Twitter and WhatsApp?
 5. How to use Google spreadsheets, Google Slides and Google forms?
 6. How to share files between mobile phone and computer system/Laptop using Bluetooth?
-

MS-Word

1. Prepare a grocery list having four columns (Serial number, the name of the product, quantity and price) for the month of April, 06.
 - Font specific actions for Title (Grocery List): 14-point Arial font in bold and italics.
 - The headings of the columns should be in 12-point and bold.
 - The rest of the document should be in 10-point Times New Roman.
 - Leave a gap of 12-points after the title.
2. Create a telephone directory.
 - The heading should be 16-point Arial Font in bold.
 - The rest of the document should use 10-point font size.
 - Other headings should use 10-point Courier New Font.
 - The footer should show the page number as well as the date last updated.
3. Design a time-table form for your college.
 - The first line should mention the name of the college in 16-point Arial Font and should be bold.
 - The second line should give the course name/teacher's name and the department in 14-point Arial.
 - Leave a gap of 12-points.
 - The rest of the document should use 10-point Times New Roman font.
 - The footer should contain your specifications as the designer and date of creation.
4. XYZ Publications plan to store lease an e-book design dapper your syllabus. Design the First page of the book as per the given specifications.
 - The title of the book should appear in bold using 20-point Arial font.
 - The name of the author and his qualifications should be in the center of the page in 16-point Arial font.
 - At the bottom of the document should be the name of the publisher and address in 16-point Times New Roman.
 - The details of the offices of the publisher (only location) should appear in the footer.
5. Create the following one page documents.
 - Compose a note inviting friends together at your house, including a list of



things to bring with them.

- Design a certificate in landscape orientation with a border around the document.
- Design a Garage Sale sign.
- Make an assignment outlining your rules for your bedroom at home, using a numbered list.

6. Create the following documents:

- A newsletter with a headline and 2 columns in portrait orientation, including at least one image surrounded by text.
- Use a newsletter format to promote upcoming projects or events in your classroom or college.

7. Convert following text to a table, using comma as delimiter Type the following as shown (do not bold).

Color, Style, Item
Blue, A980, Van
Red, X023, Car
Green, YL724, Truck
Name, Age, Sex
Bob, 23, M
Linda, 46, F
Tom, 29, M

8. Enter the following data into table below:

Salesperson	Dolls	Trucks	Puzzles
Kennedy, Sally	1327	1423	1193
White, Pete	1421	3863	2934
Pillar, James	5214	3247	5467
York, George	2190	1278	1928
Banks, Jennifer	1201	2528	1203
Atwater, Kelly	4098	3079	2067
Pillar, James	5214	3247	5467
York, George	2190	1278	1928
Banks, Jennifer	1201	2528	1203
Atwater, Kelly	4098	3079	2067

Add a column Region (values: S, N, N, S, S, S) between the Salesperson and Dolls columns to the given table Sort your table data by Region and within Region by Sales person in ascending order:

In this exercise, you will add a new row to your table, place the word



- Total at the bottom of the Sales person column, and sum the Dolls, Trucks, and Puzzles columns.
9. Wrapping of text around the image.
 10. How to install MS-Office in Windows operating system.
 11. How to convert word, excel and PowerPoint into pdf & pdf to word.
 12. How to merge and split pdf files.

MS-Excel

1. Enter the Following data in Excel Sheet

REGIONAL SALES PROJECTION						
State	Qtr1	Qtr2	Qtr3	Qtr4	Qtr Total	Rate Amount
Delhi	2020	2400	2100	3000	15	
Punjab	1100	1300	1500	1400	20	
U.P.	3000	3200	2600	2800	17	
Haryana	1800	2000	2200	2700	15	
Rajasthan	2100	2000	1800	2200	20	
TOTAL						
AVERAGE						

- a. Apply Formatting as follow:
Title in TIMES NEW ROMAN
FontSize-14
Remaining text-ARIAL, FontSize-10
State name and Qtr. Heading Bold, Italic with Gray Fill Color.
Numbers in two decimal places.
Qtr. Heading in center Alignment.
Apply Border to whole data.
- b. Calculate State and Qtr. Total
- c. Calculate Average for each quarter
- d. Calculate Amount = Rate*Total.

2. Given the following worksheet

	A	B	C	D
1	Roll No.	Name	Marks	Grade
2	1001	Sachin	99	
3	1002	Sehwag	65	
4	1003	Rahul	41	
5	1004	Sourav	89	
6	1005	Harbhajan	56	



Calculate the grade of these students on the basis of following guidelines:

If Marks Then Grade

≥ 80	A+
> 60 and < 80	A
≥ 50 and < 60	B
< 50	F

3. Given the following worksheet

	A	B	C	D	E	F	G
1	Salesman	Sales in (Rs.)					
2	No.	Qtr1	Qtr2	Qtr3	Qtr4	Total	Commission
3	S001	5000	8500	12000	9000		
4	S002	7000	4000	7500	11000		
5	S003	4000	9000	6500	8200		
6	S004	5500	6900	4500	10500		
7	S005	7400	8500	9200	8300		
8	S006	5300	7600	9800	6100		

Calculate the commission earned by the salesman on the basis of following Candidates:

If Total Sales Then Commission

< 20000	0% of sales
> 20000 and < 25000	4% of sales
> 25000 and < 30000	5.5% of sales
> 30000 and < 35000	8% of sales
≥ 35000	11% of sales

The total sales are the sum of sales of all the four quarters.

4. Company XYZ Ltd. pays a monthly salary to its employees who consist of basic salary, allowances & deductions. The details of allowances and deductions are as follows:

- HRA Dependent on Basic
- 30% of Basic if Basic ≤ 1000
- 25% of Basic if Basic > 1000 & Basic ≤ 3000
- 20% of Basic if Basic > 3000
- DA Fixed for all employees, 30% of Basic
- Conveyance Allowance (CA)
 - Rs 50/- if Basic is ≤ 100
 - Rs 75/- if Basic > 1000 & Basic ≤ 2000
 - Rs 100/- if Basic > 1000 /-
- Entertainment Allowance
 - NIL if Basic is ≤ 1000
 - Rs 100/- if Basic > 1000



Deductions

- Provident Fund
6% of Basic
- Group Insurance Premium
Rs 40/- if Basic is ≤ 1500
Rs 60/- if Basic > 1500 & Basic ≤ 3000
Rs 80/- if Basic > 3000

Calculate the following :

$$\text{Gross Salary} = \text{Basic} + \text{HRA} + \text{DA} + \text{CA} + \text{EA}$$

$$\text{Total Deduction} = \text{Provident Fund} + \text{Group Insurance Premium}$$

$$\text{Net Salary} = \text{Gross Salary} - \text{Total Deduction}$$

5. Create Payment Table for a fixed Principal amount, variable rate of interests and time in the form at below:

No. of Installments	5%	6%	7%	8%	9%
3	XX	XX	XX	XX	XX
4	XX	XX	XX	XX	XX
5	XX	XX	XX	XX	XX
6	XX	XX	XX	XX	XX

6. Use an array formula to calculate Simple Interest for given principal amounts given the rate of Interest and time

Rate of Interest	8%
Time	5 Years
Principal	Simple Interest
1000	?
18000	?
5200	?

7. The following table gives a year wise sale figure of five salesmen in Rs.

Salesman	2019	2020	2021	2022
S1	10000	12000	20000	50000
S2	15000	18000	50000	60000
S3	20000	22000	70000	70000



S4	30000	30000	100000	80000
S5	40000	45000	125000	90000

- Calculate total sale year wise.
- Calculate the net sale made by each salesman
- Calculate the maximum sale made by the salesman
- Calculate the commission for each salesman under the condition.
 - If total sales > 4, 00,000 give 5% commission on total sale made by the salesman.
 - Otherwise give 2% commission.
- Draw a bar graph representing the sale made by each salesman.
- Draw a pie graph representing the sale made by a salesman in 2000.

8. Enter the following data in Excel Sheet

PERSONAL BUDGET FOR FIRST QUARTER

Monthly Income(Net): 1,475

EXPENSES	JAN	FEB	MARCH QUARTER TOTAL	QUARTER AVERAGE
Rent	600.00	600.00	600.00	
Telephone	48.25	43.50	60.00	
Utilities	67.27	110.00	70.00	
Credit Card	200.00	110.00	70.00	
Oil	100.00	150.00	90.00	
AV to Insurance	150.00			
Cable TV	40.75	40.75	40.75	
Monthly Total				

- Calculate Quarter total and Quarter average.
- Calculate Monthly total.
- Surplus = Monthly income-Monthly total.
- What would be the total surplus if monthly income is 1500.
- How much does the telephone expense for March differ from quarter average?
- Create a 3D column graph for telephone and utilities.
- Create a pie chart for monthly expenses.

9. Enter the following data in Excel Sheet



TOTAL REVENUE EARNED FOR SAM'S BOOK STALL

Publisher Name	1997	1998	1999	2000	Total
A	Rs. 1,000.00	Rs. 1100.00	Rs. 1,300.00	Rs. 800.00	
B	Rs. 1,500.00	Rs. 700.00	Rs. 1,000.00	Rs. 2,000.00	
C	Rs. 700.00	Rs. 900.00	Rs. 1,500.00	Rs. 600.00	
D	Rs. 1,200.00	Rs. 500.00	Rs. 200.00	Rs. 1,100.00	

- Compute the total revenue earned.
- Plot the line chart to compare the revenue of all publishers for 4 years.
- Chart Title should be Total Revenue of Sam's Book stall (1997-2000)*
- Give appropriate categories and value axis title.

10. Generate 25 random numbers between 0 & 100 and find their sum, average and count. How many no. are in the range 50-60.

MS-Power Point

1. Do the following task:

- Start a new blank presentation
- Your first slide is going to be a Title Slide
- Write the Text as in the preview below:
 - Lighthouse Co Ltd
 - Make the Font of "Lighthouse" Arial Black and Size 88
- Insert a second slide this should be with a layout of Bulleted List
- Write the Text as in preview below
- [Title]: Lighthouse Co Ltd
- [Body]:
 - Mission Statement
 - Company Objectives
 - Management Team
 - Employees
 - Sales

Make the Font Color of the Points to Green

Insert a third slide that should be an Organization Chart.

Include the following people in the chart:

- David Brent, General Manager
- Tim Canterbury, Head of Sales
- Gareth Keenan, Assistant to the General Manager
- Dawn Tinsley, Human Resources Manager



Add a fourth slide and this should be a Table Chart.

The chart should look like the following:

New Products	Discontinued Products
Digital Cameras	8mm Cameras
Ultra Slim Video Camera	8x Zoom Video Camera
25" Plasma TVs21"	Black and White TVs
DVD Recorders	Video Players
7.1 Dolby Surround Systems	2 channel stereo systems

- Make the titles New Products and Discontinued Products with a shadow effect and centered in the cell. Widen columns to fit Text as above.

The Fifth slide should be a Chart slide. The chart should be a bar chart, and include the following data must be used to form the chart:

	January	February	March	April
TVs	20	27	90	75
DVDs	30	38	34	31
WiFiEquipments	45	46	45	43
Video Recorders	25	29	15	40

- Change the colours of the chart so that the series of bars are red, yellow, pink, and green.
- Add a light coloured background to all slides in the presentation.
- Add also Transition effects between each slide and also different effects for all text and pictures in the presentation.
- Reverse the order of the second and third slides
- Save the presentation as Light House Ltd.

2. Do the following:

Load your Presentation Application and start a new presentation

- The first slide is a Title Slide. Select the appropriate layout and enter the title: Annual Food Fair
- Add the subtitle: A Celebration of Eating
- Insert a small, red circle at the bottom right of the title slide.



- Change the font color for the whole title and subtitle to blue, and apply a text shadow effect just to the words Food and Fair
- Insert a second slide to the presentation, selecting a layout appropriate for a series of bullet points, and using the title: The Menu. Enter the following text:
 - i. Chocolate Desserts
 - ii. Cakes and Puddings
 - iii. Roast Meals
 - iv. Using Pasta Creatively
- Change the line spacing for these bullet points to 1.5 lines.
- Increase the font size for the words The Menu in the title.
- Add a footer with your name and the text: Food Fair so they both appear on every slide, and number all the slides. (Make sure the number is not obscured by the red circle on the title slide)
- Insert a third slide, which is to be an organization chart. Use the title Meet The Team. Enter: Maggie Peet, Manager at the top of the chart, and show the following three as reporting to Maggie Peet: Brian Webb, Bookings; Janine Newton, Publicity; Gregg Brown, Accounts
- Embolden the text in the title of the third slide, and change the font to Arial.
- Apply a light coloured background to all the slides in the presentation
- On the third slide, insert an image suitable for the topic of food from an image library. Reduce the size of the image and place it where it will not interfere with text.
- Save the presentation as foodfair.
- Print the presentation with three slides per page, and close the presentation.

3. Do the followings:

- Load your Presentation Application and start a new presentation
- The first slide is a Title Only Slide. Select the appropriate layout and enter the title: Cook Family Cruises.



- Add a small blue rectangle at the top left of this slide.
- Change the font color for the whole title to red, and apply a text shadow effect just to the word Cruises.
- Insert a second slide to the presentation, selecting a layout appropriate for a series of bullet points, and using the title: Our Itinerary. Enter the following text:
 - a. Canary Islands
 - b. Mediterranean
 - c. Greek Islands
- Change the line spacing for these bullet points to 2 lines. Increase the font size of the word Itinerary in the title. Add a footer with your name and the text: Cruise Information so they both appear on every slide, and number all the slides.
- Insert a third slide, which is to be a graph. Use the title Our Market Share. Use the following data to produce a pie chart: Cook 54%; Jackson 28%; Wilson 12%; Bennett 5%
- Embolden the text in the title of the third slide, and change the font to Arial.
- Apply a different background to each slide in the presentation. On the third slide, insert an image suitable for the topic of holidays from an image library. Reduce the size of the image and place it where it will not interfere with text.
- Add a 4-slide containing nothing but the text: Travel with us for less!!
- Save the presentation as a holiday.
- Print the presentation with 4 slides per page, and close the presentation.

4. Creating an animation looks like the leaf is falling in a tree.

MS-Access

1. Create a database named "college" and perform the following tasks:
 - A. Create a table named "student" having following fields:
 - Class, Roll no and Name with these Information i.e., Field Name, Data type and Description
 - B. Fill at least 5 records.
 - C. Prepare a query to display all records and Name should be in ascending order.
2. Create the employee table in MS-Access with the referential integrity-foreign



key.

Note: This is a tentative list; the teachers' concern can add more program as per requirement.

Note: Concerned teacher can add additional experiment as per requirement

PART-C: Learning Resources

Books Recommended:

- Computer Fundamentals, P. K. Sinha, BPB Publication, Sixth Edition.
- Fundamentals of Information Technology, Chetan Shrivastava, Kalyan Publishers.
- Fundamentals of Computers, V. Rajaraman, PHI Sixth Edition.
- Computer Fundamentals and Office Automation, Dr. Santosh Kumar Miri, Iterative International Publisher IIP.
- Computer Fundamentals Architecture and Organization, B. Ram, New Age International Publishers, Fifth Edition.
- Fundamentals of Information Technology, Alexis Leonand Mathews Leon, Vikash Publication.

- Introduction to Information Technology, V. Rajaraman, PHI publication.
- Fundamental of IT, Leonand Leon, Leon Tecworld.
- Introduction to Information Technology, Aksoy and Denardis, Cengage learning.
- Computers Today, Suresh K. Basandra, Galgotia Publications.
- Information Technology Cathleen Morin, TMH. The breaking wave, Dennis P.Curtin, Kim Foley, Kunai
- OFFICE 2013 in Simple Steps, Kogent Solution Inc., Drem Tech Press.
- Access 2010 in Simple Steps by Kogent Learning Solutions Inc.

Online Resources:

- IntroductiontoComputerFundamentalfromW3school:<https://www.w3schools.blog/computer-fundamentals-tutorial>
- IntroductiontoMS-WordfromW3school:<https://www.w3schools.blog/ms-word-tutorial>
- IntroductiontoMS-ExcelfromW3school:https://www.w3schools.com/excel/excel_introduction.php
- IntroductiontoMS-PowerPointfromW3school:<https://www.w3schools.blog/powerpoint-tutorial>
- Introduction to MS-Access from W3school:https://www.w3schools.com/sql/sql_refmsaccess.asp
- FundamentalsofComputers&InformationTechnology (inHindi):<https://www.mcu.ac.in/wp-content/uploads/2020/04/1PGDCA1-Unit-I-Fundamentals-of-Computers-Information-Technology.pdf>.
- FundamentalsofComputers&InformationTechnology (inHindi):https://hte.rajasthan.gov.in/dept/dte/board_of_technical_education,_rajasthan/government_polytechnic_college_hanumangarh/uploads/doc/fundamental-final-rkd.pdf.
- InformationandComputersTechnology:<https://cbseacademic.nic.in/webmaterial/doc/2014/11ICT-IX.pdf.pdf>.
- Microsoft Office(inHindi):<https://www.scribd.com/document/534988849/9-Microsoft-office-in-hindi-www-GkNotesPDF-com>.



- MS-OFFICE:
<https://www.rgyesm.org/uploads/books/MICROSOFT-OFFICE-BOOK.pdf>.
- MS-OFFICE: Hindi Notes: <https://www.copaguide.com/2020/04/ms-office-topics.html>.
- Microsoft OfficeFullCrashCourse
:<https://www.youtube.com/watch?v=SH4oyV5AJ6A>

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 marks

Continuous Internal Assessment (CIA): 15 Marks.

End Semester Exam (ESE): 35 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal test/Quiz:-10 & 10 Assignment /seminar-05 Total marks:-15	Better marks out of the two test/Quiz+ obtained marks in assignment shall be considered against 15 marks.
End Semester Exam (ESE):	Laboratory/field skill performance: on spot Assessment A. Performed the task based on lab work- 20 marks B. Spotting based on tools & technology(written)-10marks C. Viva-voce(based on principle/technology)- 5 marks	



FOUR YEAR UNDERGRADUATE PROGRAM (2024-28) DEPARTMENT OF COMPUTER APPLICATION COURSE CURRICULUM

PART-A:Introduction		
Program: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-I	Session: 2024-2028
Course Code	CASC-03P	
Course Title	Lab 2-Operating System	
Course Type	Practical	
Prerequisite	As per program	
Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able</p> <ul style="list-style-type: none"> • Understand the fundamental concepts of DOS, Windows and Linux • Operating System. • Understand basics of DOS commands and its types. • Understand features of Windows Operating system. • Understand comparative features of DOS and Windows Operating systems. Explore functionality of Linux. 	
Credit Value	1Credits	1 Credit = 30 Hours – Lab practical's & training
Total Marks	Max. Marks:50	Min marks -20
PART -B: Content of the Course		
Total No. of Learning Training / Performance Periods (01 Hr. per period)-30 Periods (30 Hours)		
Module	Topics(Course Content)	No. of Period
List of practical'sE xperiments	<ol style="list-style-type: none"> 1. Demonstrate different Directory naming listing structure with all options. 2. Create one file and rename file using DOS command 3. Demonstrate all Internal DOS Commands with Output. 2. Demonstrate all external DOS Commands with output. 3. Introduction to Windows and Familiarity with its controls. 4. Study and use of Desktop, my computer, recycle bin, Task bar. 5. Working with Files and Folder. 6. Use of various window applications: Calculator, notepad and MS-Paint. 7. Explaining control panel options. 8. Working with printers. 9. Create a file using Linux command. 10. Write a Linux command which lists all files and directories. 11. Demonstrate use of grep command. 12. Create Directory using Linux command and create 3 different files in this directory. 	30



- | | | |
|--|---|--|
| | 13. Delete above created files and directory using Linux command.
14. Explaining various flavors of Linux.
Note: Concerned teacher can add additional experiment as per requirement | |
|--|---|--|

PART-C: Learning Resources

Books Recommended:

- Peter Baer Galvin, Greg Gagne, Operating System Concepts - Abraham Silberschatz, 8th edition, Wiley-India, 2009.
- Andrew S. Tanenbaum, Modern Operating Systems, 3rd Edition, PHI
- Elmasri, Carrick, Levine, Operating Systems: A Spiral Approach - TMH Edition
- Akshay Singh, Operating System, RGCSM Publications
- Rusell A Stultz, MS DOS 6.22, BPB Publications
- Brain Underdahl, Teach yourself Windows 2000, Wiley Publications.
- Peter Norton, Maximizing Windows, Teachmedia.
- Ray Duncan, Advances MS-DOS Programming, BPB
- Ray Yao, Shell Scripting in 8 Hours

Online Resources:

- Fundamentals of Computer, Windows Operating System: <https://vikaspedia.in/education/digital-literacy/it-literacy-courses-in-associating-with-msup/computer-fundamentals>
- Introduction to Operating System: <https://www.w3schools.in/operating-system/tutorials/> Introduction to Operating System: <https://www.javatpoint.com/windows>
- Windows: <https://www.javatpoint.com/windows>
- Linux: <https://www.javatpoint.com/what-is-linux>
- DOS: <https://www.geeksforgeeks.org/ms-dos-operating-system/> DOS: <https://www.javatpoint.com/ms-dos-operating-system>

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 marks
 Continuous Internal Assessment (CIA): 15 Marks.
 End Semester Exam (ESE): 35 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal test/Quiz:-10 & 10 Assignment /seminar-05 Total marks:-15	Better marks out of the two test/Quiz+ obtained marks in assignment shall be considered against 15 marks.
End Semester Exam (ESE):	Laboratory/field skill performance: on spot Assessment A. Performed the task based on lab work- 20 marks B. Spotting based on tools & technology(written)-10marks C. Viva-voce(based on principle/technology)- 5 marks	



FOUR YEAR UNDERGRADUATE PROGRAM (2024-28) DEPARTMENT OF COMPUTER APPLICATION COURSE CURRICULUM

PART-A:Introduction		
Program: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-I	Session: 2024-2028
Course Code	PSSC-01	
Course Title	Introduction to Political Theory	
Course Type	DSC (Discipline Specific Course)	
Prerequisite	As per program	
Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able</p> <ul style="list-style-type: none"> ➤ Create the understanding of the concept of political science, and methodology. ➤ Evaluate the concept of state, Its theories of norm, functions and relation with individuals. ➤ Analyses the basic concepts of Political Science like liberty, right, sovereignty. ➤ Apply the knowledge of democracy and democratic norms, the functional machinery of electoral democracy like political party system and pressure groups Rule of State as welfare agency, and as an agency of social change. 	
Credit Value	4 Credits	1 Credit = 15 Hours - Learning & Observation
Total Marks	Max. Marks:100	Min marks -40
PART -B: Content of the Course		
Total No. of Teaching-Learning Periods (01 Hr. per period)-60 Periods (60 Hours) No. of Topics (Course contents)		
Unit	Topics(Course Content)	No. of Period
I	Political Science-Initial Political science Concept, nature, Scope Power, Authority meaning, characteristics, types. Legitimacy concept, relationship of power, authority and legitimacy Study methods of political science, Behaviouralism and post-behaviouralism.	15
II	State State: Concept, Development of State, Essential Elements Theories of origin state- Divine, power theory, social contract and evolutionary theory, Theories of functions of state- Marxist, liberal, neo- liberal, pluralist, theory, Law Definition Source, Classification Public welfare state Nationalism, Concept, types.	15



III	<p>Concept Sovereignty concept, types, Characteristics. Principles Meaning, types major Theories, Duties. Freedom Meaning Types, Positive and Negative Theory of Freedom Equality Meaning type and relation to freedom Political Obligation, Justice Concept, types. Democracy Concept, types, Merits and demerits, Principles of democracy Necessary conditions for the success of Democracy.</p>	15
IV	<p>State in Function Forms of Government Unitary and Federal, Parliamentary and Presidential Totalitarianism Concept, types Organs of Government Legislature, Executive and Judiciary Theory of Separation of Powers and Checks and Balances Constitution meaning and kinds, Political Party meaning, kinds, major theories, merits and demerits, Pressure Groups meaning, kinds and technique Public Opinion, Social Justice Theory of Representation</p>	15

PART-C: Learning Resources

Books Recommended:

- 1) Ambadatt Pant Harimohan Jain Madan Gopal (1985): Fundamentals of Political Science, Central Publishing House Allahabad. U.P.
- 2) Sandhu Gyan Singh (1986) Political Theory Hindi Medium Implementation Directorate, Delhi University, New Delhi
- 3) Johari J C (1986) Basic principles of political science, Sahitya Bhavan, Agra.
- 4) Rajeev and Ashok Acharya (Ed) Political Theory A Flag, Delhi Pearson, 2008
- 5) Kumar, Sanjeev (Ed.) Understanding of Political Theory, Delhi: Orient Black Swan, 2019
- 6) Hussain Shakeel (2018) Conceptual Introduction to Political Theory. Chhattisgarh State Hindi Granth Academy, Raipur.
- 7) K. K. Mishra (2010) Political Theory, S. Chand Publishing Delhi, PDF Available
- 8) O P Gouba (2014) An Introduction to Political Theory, MacMillan Publishers, Delhi

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 marks
 Continuous Internal Assessment (CIA): 30 Marks.
 End Semester Exam (ESE): 70 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal test/Quiz:-20 & 20 Assignment /seminar-10 Total marks:-30	Better marks out of the two test/Quiz+ obtained marks in assignment shall be considered against 30 marks.
End Semester Exam (ESE):	Two section- A&B Section A: Q1. Objective-10 marks: Q2. Short answer type-5x4=20 marks Section B: Descriptive answer type questions, 1 out of 2 from each unit- 4x10=40 marks	



FOUR YEAR UNDERGRADUATE PROGRAM (2024-28) DEPARTMENT OF COMPUTER APPLICATION COURSE CURRICULUM

PART-A:Introduction		
Program: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-I	Session: 2024-2028
Course Code	VAC-16	
Course Title	Library And Information (ICT)	
Course Type	VAC (Value Addition Course)	
Prerequisite	As per program	
Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able</p> <ul style="list-style-type: none"> To provide knowledge about basics of ICT. To introduce students with network technology, library automation and software packages. To make the students acquainted with the applications of computers in Libraries and Information Centers 	
Credit Value	2 Credits	1 Credit = 30 Hours – Lab practical’s & training
Total Marks	Max. Marks: 50	Min marks -20
PART -B: Content of the Course		
Total No. of Learning Training / Performance Periods (01 Hr. per period)-30 Periods (30 Hours)		
Unit	Topics(Course Content)	No. of Period
I	Fundamentals of ICT <ul style="list-style-type: none"> Meaning, Definition, Components, Channels and Applications. Computer Basics: Definition, Characteristics, Components, Generations and Classification of Computers Computer Hardware: Overview of various Input, Output and Storage Devices Computer software: Types: System Software and Application Software Basics of Operating Systems and Programming Languages 	8
II	Networks Technology Network - Types, Topology and Components Internet- Concept, Services and Applications of Internet in Library and Information Centers.	8
III	Computer Applications in Libraries and Information Centers <ul style="list-style-type: none"> Concept, pre-requisites/planning and need of Library Automation Automation of Housekeeping Operations: Acquisition, Cataloguing, Circulation, Serial Control and OPAC. 	8
IV	Library Automation Software packages <ul style="list-style-type: none"> Commercial Software packages: SOUL, LibSys, DelPlus etc. (Basic Features) Open Source Software packages: KOHA, New-GenLib, e-granthalayaetc.(Basic Features) 	6



PART-C: Learning Resources

Books Recommended:

1. Arvind Kumar. Ed. (2006). Information technology for all (2 vols.). New Delhi: Anmol
2. Bansal, S.K.(2005). Information technology and globalization, New Delhi: A.P.H. Publishing Corporation.
3. Basandra,S.K(2002). Computers today, New Delhi: Golgotia
4. Carter, R. (1987). The Information technology hand book, London: Heinemann.
5. Croucher, P.(1996). Communications and networks. 2nd ed. New Delhi: Affiliated East West.
6. Curtin, D.P. & others: Information technology: The breaking wave. New Delhi: TMH, LatestEdition.
7. Decson, E. (2000). Managing with Information technology. Great Britan: KoganpageLtd.

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 marks
Continuous Internal Assessment (CIA): 15 Marks.
End Semester Exam (ESE): 35 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal test/Quiz:-10 & 10 Assignment /seminar-05 Total marks:-15	Better marks out of the two test/Quiz+ obtained marks in assignment shall be considered against 15 marks.
End Semester Exam (ESE):	Two section- A&B Section A: Q1. Objective-3 marks; Q2. Short answer type-3x4=12 marks Section B: Descriptive answer type questions, 1 out of 2 from each unit- 4x5=20 marks	



FOUR YEAR UNDERGRADUATE PROGRAM (2024-28) DEPARTMENT OF COMPUTER APPLICATION COURSE CURRICULUM

PART- A: Introduction		
Program: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-I	Session-2024-28
Course Code	DUENGAEC-01	
Course Title	Communicative English	
Course Type	AEC (Ability Enhancement Course)	
Prerequisite	As per program	
Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able to</p> <ul style="list-style-type: none"> • Understand and apply the use of Articles and Tenses in day to day life. • Analyze the power of imagination and creativity and critically appreciate the poems. • Identify and develop different types of writing skills. • Appreciate and value the use of idioms and phrases as enriching elements of language expression. 	
Credit Value	2 Credit	Credit = 15 hours – learning and observation
Total Marks	Max. Marks:50	Min. Marks:20
PART -B: Content of the Course		
Total No. of Teaching-learning Periods(01 Hr. per period) 30 Periods (30 Hours)		
Unit	Topics(Course Content)	No. of Period
I	Prose: 1. Darshana Dholakia: Baa-My Mother- A Person, A Woman 2. Anita Desai :A Devoted Son 3. Rabindranath Tagore: The Home Coming	08
II	Poetry: William Wordsworth: The Solitary Reaper Robert Lee Frost: Stopping by the Woods on a Snowy Evening	07
III	Letter Writing 1. Formal Letter 2. Informal Letter Composition 1. Describing a Place or a Person 2. Writing a Biographical Sketch 3. Narrating an Event or Experience	08
IV	Writing Skills Word Formation, Idioms and Phrases Coordination and Subordination, One Word Substitutes Grammar : 1. Articles 2. Tenses	07



PART-C: Learning Resources

Books Recommended:

1. Flamingo: A textbook for college students publication: Macmillan Publishers.
1. Essential English Grammar, 2nd Edition by Raymond Murphy, Cambridge Publication
2. English Grammar in use 5th Edition by Raymond Murphy, Cambridge Publication
3. Advanced English Grammar by Martine Hewings Cambridge University Press.

Online Resources

e-Resources /e-books and e-learning portals

- i) <https://enlishsummary.com/devoted-son-summary-anita=desai>
- ii) <https://litmarked.com/the-homecoming-by-rabindranath-tagore-summary>
- iii) <https://www.litcharts.com/poetry/william-wordsworth/the-solitary-reaper>
- iv) <https://www.sparknotes.com/poetry/frost/section10>
- v) <https://www.wikihow.com/Write-a-Biographical-Sketch>
- vi) <https://study.com/learn/lesson/composition-writing-rules-format.html>
- vii) <https://www.thelearninglab.com.sg/blog/2021/02/how-to-write-an-impressive-composition/>

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 marks

Continuous Internal Assessment (CIA) 15 marks

End Semester Exam (ESE): 35 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz –(2): 10 & 10 Assignment / Seminar + Attendance – 05 Total Marks - 15	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 marks
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End Semester Exam (ESE):	Two section- A&B Section A: Q1. Objective-3 marks; Q2. Short answer type-3x4=12 marks Section B: Descriptive answer type questions, 1 out of 2 from each unit-4x5=20 marks
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FOUR YEAR UNDERGRADUATE PROGRAM (2024-28) DEPARTMENT OF COMPUTER APPLICATION COURSE CURRICULUM

PART- A: Introduction		
Program: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-I	Session-2024-28
Course Code	DUAC-01	
Course Title	Bridge Course	
Course Type	Additional Subject(Only for Non-Mathematics students)	
Prerequisite	As per program	
Course Learning Outcomes (CLO)	At the end of this course, the students will be able <ul style="list-style-type: none">Analyze logical propositions.Understand sets and perform operations and algebra on sets.Determine properties of relations; identify equivalence and partial order relations.Understand permutation, Trigonometry.Understand the combination, Geometry, Statistics.	
Total Marks	Max. Marks:50	Min. Marks:20
PART -B: Content of the Course		
Unit	Topics(Course Content)	No. of Period
1	Algebra: Partial fractions, Arithmetic Progression & Geometric Progression. Determinants and matrices, Inverse matrix.	7
2	Permutation: combination, method of induction, Binomial Theorem for positive integral index. And any index (without proof), Exponential and logarithmic series.	8
3	Trigonometry: Measurement of angles, Trigonometric ratios, simple formula, compound angles, Trigonometric ratios of multiple and sub multiple angles. Height and Distance, Inverse Function	7
4	Geometry: Locus, Cartesian coordinate system, Distance formula, Section formula, Slope of a straight line various forms, Angle between two lines, pair of straight lines, parabola, ellipse and hyperbola.	5
5	Statistics: Frequency Distribution, Measures of central tendency, Mean. Median, Mode, G.M., H.M., Interquartile range, Mean deviation, Standard deviation.	8
PART-C: Learning Resources		
Books Recommended: <ul style="list-style-type: none">Mathematic (class XI and XII)R.D.SHARMA YOUNGBODH Mathematics, (class XI and XII)		
PART -D: Assessment and Evaluation		



Suggested Continuous Evaluation Methods:		
Maximum Marks: 50 marks		
Continuous Internal Assessment (CIA) 15 marks		
End Semester Exam (ESE): 35 marks		
Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz –(2): 10 & 10 Assignment / Seminar + Attendance – 05 Total Marks - 15	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 marks
End Semester Exam (ESE):	Two section- A&B Section A: Q1. Objective-3 marks; Q2. Short answer type-3x4=12 marks Section B: Descriptive answer type questions, 1 out of 2 from each unit-4x5=20 marks	



श्री Davara University

Established under Chhattisgarh Private Universities (Establishment and Operation) Act, 2005

BCA

SEMESTER-II

Programme Curriculum



SEMESTER II

S.NO	COURSE CODE	COURSE TITLE	TEACHING HOURS PER WEEK				EXAMINATION SCHEME				TOTAL MARKS
			L	T	P	C	THEORY		PRACTICAL		
DISCIPLINE SPECIFIC CORE			L	T	P	C	EX	IN	EX	IN	TOTAL MARKS
1.	CASC-04	Digital Electronics	3	1	0	4	70	30	-	-	100
2.	CASC-05T	Programming in C++	3	-	0	3	70	30	-	-	100
3.	CASC-06T	Data Structure	3	-	0	3	70	30	-	-	100
GENERAL ELECTIVE											
4.	DUECOSC-02	Basics of Indian Economy	4	-	0	4	70	30	-	-	100
ABILITY ENHANCEMENT COURSE											
5.	DUHIAEC-01	Hindi	2	-	0	2	35	15	-	-	50
SKILL ENHANCEMENT COURSE											
6.	CASEC-01	Artificial Intelligence	2	-	-	2	35	15	-	-	50
PRACTICAL LAB											
7.	CASC-05P	Programming in C++	-	-	2	1	-	-	35	15	50
8.	CASC-06P	Data Structure	-	-	2	1	-	-	35	15	50
Total Credit: 20							Total Marks: 600				



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FOUR YEAR UNDERGRADUATE PROGRAMME (2025-29)

DEPARTMENT OF COMPUTER APPLICATION

COURSE CURRICULUM

PART-A:Introduction			
PROGRAMME: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)		Semester-II	Session: 2025-2029
Course Code	CASC-04		
Course Title	Digital Electronics		
Course Type	DSC (Discipline Specific Course)		
Prerequisite	As per PROGRAMME		
Course Learning Outcomes (CLO)	At the end of this course, the students will be able <ul style="list-style-type: none">• To understand fundamental concept of Digital electronic.• Understand how computer system identifies the data inside.• To understand and examine the structure of various number system.• To perform basic arithmetic calculations in binary and hexadecimal.• The ability to understand, analyze and design various combinational and sequential circuit.• To identify the basic requirement according to the specification for to a newly customized digital circuit and design it in a cost effective manner.		
Credit Value	4 Credits	1 Credit = 15 Hours - Learning & Observation	
Total Marks	Max. Marks:100	Min marks -40	
PART -B: Content of the Course			
Total No. of Teaching-Learning Periods (01 Hr. per period)-60 Periods (60 Hours) No. of Topics (Course contents)			
Unit	Topics (Course Content)		No. of Period
I	Number System and Data Representation: Introduction of number system (binary, decimal, octal, hexadecimal), inter – conversion between number systems, arithmetic operations, complements in number system, representation of numeric data (binary representation of integers, fixed point and floating point data representation), codes and its classification(weighted codes and its types like NBCD, non weighted codes like (Excess -3 code Gray Code etc.) alphanumeric code like (ASCII, UNICODE, EBCDIC, etc), Error detecting code like (parity bit coding techniques) Error Correcting codes like (hamming code)		15
II	BOOLEAN ALGEBRA: Boolean algebra and basic operations, sum of product, product of sum, simplification of Boolean expression using simplification techniques: Boolean laws and K-Map. FUNDAMENTALS OF DIGITAL CIRCUIT DESIGN: Digital logic families and its properties, Logic gate and its types, Construction of basic digital circuits using fundamental gates as well as Universal gates, simplification of digital circuit. Types of digital circuits (combinational circuits, sequential circuits)		15



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III	COMBINATIONAL CIRCUIT: Adder (half adder, full adder, N bit adder), Subtractor (half subtractor, full subtractor, N bit subtractor), Decoder, Encoder, Multiplexer, De-multiplexer, Comparator, Code Convertor SEQUENTIAL CIRCUIT: Multivibrators / Latch, Flip- flop and its types (S R flip flop, D Flip Flop, J K Flip Flop, T Flip Flop, Master Slave Flip Flop), Register and its types, Counters and its types.	15
IV	MICROPROCESSORS: Introduction of microprocessor, evolution of microprocessor, basic components in microprocessor, basic microprocessor instruction, addressing modes, designing of eight-bit microprocessor (8085 microprocessor). designing of 16-bit microprocessor(8086 microprocessor)	15
Keywords	Number System, Logic Gates, Combinational Circuits, Sequential Circuits, flip-flop, Registers, Counters, Microprocessors	

Name and Signature of Convener & Members of CBoS

PART-C: Learning Resources

Text Books, Reference Books and Others

Text books recommended:

- D. Nasib, S Gill, J.B. Dixit, Digital Design and computer organization, Laxmi Publication
- K.K Neniwal, Digital Electronics(Hindi), Paperback Publication

Reference Books Recommended:

- M. Morris Mano, Digital Logic and computer design
- A. K, Maini, Digital Electronics Principles, Devices and Application, John Wiley and Sons,Ltd.

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks
 Continuous Internal Assessment (CIA): 30 Marks.
 End Semester Exam (ESE): 70 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal test/Quiz:-20 & 20 Assignment /seminar-10 Total marks:-30	Better marks out of the two test/Quiz+ obtained marks in assignment shall be considered against 30 marks.
End Semester Exam (ESE):	Two section- A&B Section A: Q1. Objective-10 marks: Q2. Short answer type-5x4=20 marks Section B: Descriptive answer type question, 1 out of 2 from each unit- 4x10=40 marks	

Name and Signature of Convener & Members of CBoS.



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FOUR YEAR UNDERGRADUATE PROGRAMME (2025-29)

DEPARTMENT OF COMPUTER APPLICATION

COURSE CURRICULUM

PART-A: Introduction		
PROGRAMME: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-II	Session: 2025-2025
Course Code	CASC-05T	
Course Title	Programming in C++	
Course Type	DSC (Discipline Specific Course)	
Prerequisite	As per PROGRAMME	
Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able</p> <ul style="list-style-type: none"> To understand the fundamental concept of object oriented Programming. Write Programming related to concept of object oriented Programming. Define function, class, and to create own libraries. Write Programs for file handling. Develop small Programs to solve real world Problem. 	
Credit Value	3 Credits	1 Credit = 15 Hours - Learning & Observation
Total Marks	Max. Marks:100	Min marks -40
PART -B: Content of the Course		
Total No. of Teaching-Learning Periods (01 Hr. per period)-45 Periods (45 Hours) No. of Topics (Course contents)		
Unit	Topics (Course Content)	No. of Period
I	Introduction and Programming concepts: Definition of PROGRAMME, 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 PROGRAMME, C Tokens: Identifiers, Keywords, Constants, Variables, Operators, Data Types, Control structure: Conditional and looping statements, Operator Precedence and Associativity, Array and its types, Pointer, Functions: Standard, Library and User defined functions, function prototype, Call by value and Call by reference, recursive functions, String functions.	12
II	Introduction to Object Oriented Programming: Concept of object oriented Programming, Features C++, Structure of C++ PROGRAMME, Data types, structure, class and objects, Access Specifiers: Private, Public, Protected, inline functions, static data and static functions. Constructor: Default constructor, Copy constructor, Parameterized constructor, Destructor.	11
III	Inheritance: Definition, Concept of base and derived class, Types of Inheritance: Single, Multilevel, Multiple. Hierarchical and Hybrid Inheritance Polymorphism: Definition, Compile time polymorphism: Function overloading, Operator overloading, constructor overloading, Runtime polymorphism: Virtual Function, pure virtual function. Inline function, friend function, friend class.	11



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IV	Input-Output and File Handling: I/O classes, File and Stream classes, Char I/O, String I/O, Object I/O, File Pointer, Opening and Closing file. Exception Handling and Standard Template Library: Definition, Exception basics, try, catch and throws keywords, Template.	11
Keywords	Token, Identifier, Keyword, Array, Function, Class, Object, Polymorphism, Inheritance, Constructor, Template.	

Name and Signature of Convener & Members of CBoS

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Y. Kanetkar Let us C++, BPB Publication
- E. Balaguruswamy, Programming in C++, Tata McGraw Hill
- R. Kumar, Object Oriented Programming with C++, Prakhar Publication (Hindi)
- Dhupiya, Lakhyani, C++ Programming Alka Publications, Ajmer (Paperback, Dhupiya, Lakhyani) (Hindi)

Reference Books Recommended:

- Peter Juliff, PROGRAMMEDesign, PHI publication,
- Yashwant Kanetkar, Let Us C: BPB Publication.
- E. Balaguruswamy Programming in ANSI C, Tata McGraw Hill.

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 marks

Continuous Internal Assessment (CIA): 30 Marks.

End Semester Exam (ESE): 70 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal test/Quiz:-20 & 20 Assignment /seminar-10 Total marks:-30	Better marks out of the two test/Quiz+ obtained marks in assignment shall be considered against 30 marks.
End Semester Exam (ESE):	Two section- A&B Section A: Q1. Objective-10 marks: Q2. Short answer type-5x4=20 marks Section B: Descriptive answer type question, 1 out of 2 from each unit- 4x10=40 marks	
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FOUR YEAR UNDERGRADUATE PROGRAMME (2025-29)
DEPARTMENT OF COMPUTER APPLICATION
COURSE CURRICULUM

PART-A: Introduction		
PROGRAMME: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-II	Session: 2025-2029
Course Code	CASC-05P	
Course Title	Programming in C++	
Course Type	Practical	
Prerequisite	As per PROGRAMME	
Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able</p> <ul style="list-style-type: none"> To understand the fundamental concept of object oriented programming. Write PROGRAMMEs related to concept of object oriented Programming. Define function, class, and to create own libraries. Write Programs for file handling. Develop small Programs to solve real world Problem. 	
Credit Value	1 Credits	1 Credit = 30 Hours – Lab practical’s & training
Total Marks	Max. Marks:50	Min marks -20
PART -B: Content of the Course		
Total No. of Teaching-Learning Periods (01 Hr. per period)-45 Periods (45 Hours) No. of Topics (Course contents)		
Module	Topics(Course Content)	No. of Period
List of practical’s Experiments	<ol style="list-style-type: none"> 01. Write a PROGRAMME in C++ for addition of two numbers using float data type. 02. Write a PROGRAMME in C++ to find the biggest number between two numbers. 03. Write a PROGRAMME in C++ to find the factorial value of any entered number using do- while loop. 04. Write a PROGRAMME in C++ for various arithmetic operations using switch case statements. 05. Write a PROGRAMME in C++ for Multiplication of two 3X3 matrices. 06. Write a PROGRAMME in- C++ to store five books of information using-structure. 07. Write a PROGRAMME in C++ to store six employee information using union. 08. Write a PROGRAMME in C++ to calculate simple interest using call by value and call by reference method. 09. Write a PROGRAMME in C++ to find the sum and average of five numbers using class and objects. 10. Write a PROGRAMME in C++ to multiply two numbers using private and 	30



- public member functions.
11. Write a PROGRAMME in C++ to print structure like this using scope resolution operator
1
2
123
1234
12345
 12. Write a PROGRAMME in C++ for constructor and Destructor.
 13. Write a PROGRAMME in C++ for multiple inheritance.
 14. Write a PROGRAMME in C++ for operator overloading.
 15. Write a PROGRAMME in C++ for friend class and friend function.
 16. Write a PROGRAMME in C++ for virtual function and virtual class.
 17. Write a PROGRAMME in C++ for Exception Handling.
 18. Write a PROGRAMME in C++ to open and close a file using file Handling.
 19. Given two ordered arrays of integers, write a PROGRAMME to merge the two-arrays to get an ordered array.
 20. WAP to display Fibonacci series (i) using recursion, (ii) using iteration
 21. WAP to calculate Factorial of a number (i) using recursion, (ii) using iteration
 22. WAP to calculate GCD of two numbers (i) with recursion (ii) without recursion.
 23. Create a Matrix class using templates. Write menu-driven PROGRAMME to perform following Matrix Operations (2-D array implementation): a) Sum b) Difference c) Product d) Transpose
 24. Create the Person class. Create some objects of this class (by taking information from the user). Inherit the class Person to create two classes Teacher and Student class. Maintain the respective information in the classes and create, display and delete objects of these two classes (Use Runtime Polymorphism).
 25. Create a class Triangle. Include overloaded functions for calculating area. Overload assignment operator and equality operator.
 26. Create a class Box containing length, breadth and height. Include following methods in it:
 - a) Calculate surface Area
 - b) Calculate Volume
 - c) Increment, operator (both prefix & postfix)
 - d) Decrement, Overload Overload ++ operator (both prefix & postfix)
 - e) Overload operator == (to check equality of two boxes), as a friend function
 - f) Overload Assignment operator
 - g) Check if it is a Cube or cuboid
 27. Create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
 28. Write a PROGRAMME to retrieve the student information from the file created in the previous question and print it in the following format: Roll No. Name Marks
 29. Copy the contents of one text file to another file, after removing all whitespaces.
 30. Write a PROGRAMME for exception handling.
 31. Write a PROGRAMME to insert data into file and to display it.
- Note: Concerned teacher can add additional experiment as per requirement



Name and Signature of Convener & Members of CBoS

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Y. Kanetkar Let us C++, BPB Publication
- E. Balaguruswamy, Programming in C++, Tata McGraw Hill
- R. Kumar, Object Oriented Programming with C++, Prakhar Publication (Hindi)
- Dhupiya, Lakhyani, C++ Programming Alka Publications, Ajmer (Paperback, Dhupiya, Lakhyani) (Hindi)

Reference Books Recommended:

- Peter Juliff, PROGRAMME Design, PHI publication,
- Yashwant Kanetkar, Let Us C: BPB Publication.
- E. Balaguruswamy Programming in ANSI C, Tata McGraw Hill.

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 marks

Continuous Internal Assessment (CIA): 15 Marks.

End Semester Exam (ESE): 35 marks

Continuous Internal Assessment (CIA):
(By Course Teacher)

Internal test/Quiz:-10 & 10
Assignment /seminar-05
Total marks:-15

Better marks out of the two
test/Quiz+ obtained marks in
assignment shall be considered
against 15 marks.

End Semester Exam (ESE):

Laboratory/field skill performance: on spot Assessment
A. Performed the task based on lab work- 20 marks
B. Spotting based on tools & technology(written)-10marks
C. Viva-voce(based on principle/technology)- 5 marks

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FOUR YEAR UNDERGRADUATE PROGRAMME (2025-29)

DEPARTMENT OF COMPUTER APPLICATION

COURSE CURRICULUM

PART-A: Introduction		
PROGRAMME: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-II	Session: 2025-2029
Course Code	CASC-06T	
Course Title	Data Structure	
Course Type	DSC (Discipline Specific Course)	
Prerequisite	As per Programme	
Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able</p> <ul style="list-style-type: none"> Understand and fundamental of data structure. Utilize various algorithms for real world problem solving. Understand about data management in computer memory. Apply stack, queue, lists, trees, and graphics form real world. Understand how various data structure can be used to implement through any Programming language. 	
Credit Value	3 Credits	1 Credit = 15 Hours - Learning & Observation
Total Marks	Max. Marks:100	Min marks -40
PART -B: Content of the Course		
Total No. of Teaching-Learning Periods (01 Hr. per period)-45 Periods (45 Hours) No. of Topics (Course contents)		
Unit	Topics(Course Content)	No. of Period
I	<p>Introduction and Basic Concepts: Introduction, Fundamentals of Algorithms, Data types: Primitive, Non-Primitive Absent Data Type (ADT), Classification of Data Structure: Linear and Nonlinear Data Structure. Array: Arrays and its types, Memory allocation and address calculations of Array, Sparse Array. Linked List: Types of Linked List and various Operations Like INSERT, DELETE, TRAVERSE. Introduction and Application of Stack and Queue.</p>	12
II	<p>Stack: Definition, Operations PUSH, POP, Implementations using Array and Linked list, Applications of Stack: Infix, Prefix, Postfix representation and conversion using Stack, Postfix expression evaluation using Stack, Recursion using Stack.</p> <p>Queue: Definition, Types of Queues: Priority Queue, Circular queue, Double Ended Queue, operations of Queue INSERT, DELETE, TRAVERSE, Implementation Queue using Array and Linked list, Applications of Queue</p>	11



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III	Tree: Definition of Trees and their types, Binary trees, Properties of Binary trees and operations Insertion, deletion, searching and traversal algorithm: preorder, post order, in-order traversal, Binary Search Trees, Implementations, AVL Trees. Graph: Definition of Graph and their types, Adjacency and Incident (matrix & linked list) Representation of graphs, Graph Traversal - Breadth first Traversal, Depth first Traversal, Connectivity of Graphs; Weighted Graphs, Shortest Path Algorithm, Spanning Tree, Minimum Spanning Tree, Kruskal's and Prim's Algorithms	11
IV	Sorting Methods: Types of Sorting Selection Sort, Insertion Sort, Bubble Sort, Quick Sort, Merge Sort, Radix Sort. Searching: Linear search, Binary search.	11
Keywords	Data, ADT, Array, Linked List, Stack, Queue, Tree, Graph, Searching, Sorting.	

Name and Signature of Convener & Members of CBoS

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Michael T, Goodrich Data Structure and algorithm in C++, Wiley
- Horowitz and Sahani fundamentals of data structure computer Science Press

Reference Books Recommended:

- Alfred v. Aho, data structure and algorithm
- Jean Paul Trembley and Paul Sorenson

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 marks
 Continuous Internal Assessment (CIA): 30 Marks.
 End Semester Exam (ESE): 70 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal test/Quiz:-20 & 20 Assignment /seminar-10 Total marks:-30	Better marks out of the two test/Quiz+ obtained marks in assignment shall be considered against 30 marks.
End Semester Exam (ESE):	Two section- A&B Section A: Q1. Objective-10 marks: Q2. Short answer type-5x4=20 marks Section B: Descriptive answer type question, 1 out of 2 from each unit-4x10=40 marks	

Name and Signature of Convener & Members of CBoS.



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FOUR YEAR UNDERGRADUATE PROGRAMME (2025-29)

DEPARTMENT OF COMPUTER APPLICATION

COURSE CURRICULUM

PART-A: Introduction		
PROGRAMME: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-II	Session: 2025-2029
Course Code	CASC-06P	
Course Title	Lab 4-Data Structure Lab	
Course Type	Practical	
Prerequisite	As per Programme	
Course Learning Outcomes (CLO)	<p>At the end of this course, the students will be able</p> <ul style="list-style-type: none"> • Understand and fundamental of data structure. • Utilize various algorithms for real world problem solving. • Understand about data management in computer memory. • Apply stack, queue, lists, trees, and graphics form real world. • Understand how various data structure can be used to implement through any Programming language. 	
Credit Value	1 Credits	1 Credit = 30 Hours – Lab practical's & training
Total Marks	Max. Marks:50	Min marks -20
PART -B: Content of the Course		
Total No. of Teaching-Learning Periods (01 Hr. per period)-45 Periods (45 Hours) No. of Topics (Course contents)		
Module	Topics(Course Content)	No. of Period
List of practical's Experiments	01. Write a PROGRAMME to create a square matrix, fill the data inside and print the diagonal elements. 02. Write a PROGRAMME to perform addition and subtraction on two matrices. 03. Write a PROGRAMME to perform multiplication on two matrices. 04. Write a PROGRAMME to perform insertion, deletion of nodes from the end in singly linked list. 05. Write a PROGRAMME to perform insertion and deletion of nodes from the end in a circular doubly linked list. 06. Write a PROGRAMME to perform push and pop operations in stack, where stack should be created using array. 07. Write a PROGRAMME to perform push and pop operation in stack, where stack should be created linked list. 08. Write a PROGRAMME to calculate factorial of given number using stack. 09. Write a PROGRAMME to perform insertion and deletion of data items in queue. Queue should be implemented by using a linked list. 10. Write a PROGRAMME to perform insertion and deletion of data items in queue. Queue should be implemented by using arrays. 11. Write a PROGRAMME to demonstrate functioning of a double ended queue. 12. Write a PROGRAMME to read the postfix arithmetic expression and evaluate its value using the stack.	30



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	<ol style="list-style-type: none"> 13. Write a PROGRAMME to show how to handle the overflow and underflow situation in stack. 14. Write a PROGRAMME to convert infix notation-based expression into the postfix notation-based expression using the stack. 15. Write a PROGRAMME to implement the concept of priority-based element traversing using priority queue. 16. Write a PROGRAMME to create binary search tree using the concept of linked list and array, suppose data set will be given at the run time. 17. Write a PROGRAMME to create a binary tree with any data set and traverse the data items in pre-order, in-order and post-order manner using recursion. 18. Write a PROGRAMME to perform deletion of any data item from the binary search tree. 19. Write a PROGRAMME to find the height of any tree. 20. Write a PROGRAMME to create any given undirected graph using the adjacency matrix, and print each node/element with list of its adjacent elements. 21. Write a PROGRAMME to find the height of any given tree. 22. Write a PROGRAMME to traverse the element of given graph according BFS and DFS. 23. Write a PROGRAMME to find the minimum spanning tree of any given graph. 24. Write a PROGRAMME to search any run time given element from the array of 10 elements in the array are unsorted. 25. Write a PROGRAMME to demonstrate the binary search. 26. Write a PROGRAMME to find the smallest and largest element in any array. 27. Write a PROGRAMME to arrange the data items of any array in ascending order. 28. Write a PROGRAMME to arrange the data items of any array in descending order using quick sort. 	
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Keywords	Keyword: Array, Linked List, Stack, Queue, traversing, Tree, Graph, Searching, Sorting, Hashing.
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Name and Signature of Convener & Members of CBoS

PART-C: Learning Resources

Text Books, Reference Books and Others

<p>Text Books</p> <ul style="list-style-type: none"> • Michael T, Goodrich Data Structure and algorithm in C++,Wiley • Horowitz and Sahani fundamentals of data structure computer Science Press <p>Reference Books Recommended:</p> <ul style="list-style-type: none"> • Alfred v. Aho, Data Structure and Algorithm • Jean Paul Trembley and Paul Sorenson
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PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:		
Maximum Marks:	50 marks	
Continuous Internal Assessment (CIA):	15 Marks.	
End Semester Exam (ESE):	35 marks	

Continuous Internal	Internal test/Quiz:-10 & 10	Better marks out of the two
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Assessment (CIA): (By Course Teacher)	Assignment /seminar-05 Total marks:-15	test/Quiz+ obtained marks in assignment shall be considered against 15 marks.
End Semester Exam (ESE):	Laboratory/field skill performance: on spot Assessment A. Performed the task based on lab work- 20 marks B. Spotting based on tools & technology(written)-10marks C. Viva-voce(based on principle/technology)- 5 marks	
Name and Signature of Convener & Members of CBoS.		



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FOUR YEAR UNDERGRADUATE PROGRAMME (2025-29)

DEPARTMENT OF ECONOMICS

COURSE CURRICULUM

PART-A: Introduction		
PROGRAMME: Bachelor in Arts (Certificate/Diploma/Degree Honors)	Semester-II	Session: 2025-2029
Course Code	DUECOSC-02	
Course Title	Basics of Indian Economy	
Course Type	Discipline Specific Course	
Pre-requisite(if any)	As per Programme	
Course Learning Outcomes (CLO)	After completion of the course, the student shall be able to. <ul style="list-style-type: none">➤ The students learn about the state of Indian Economy pre and post independence.➤ The student's gets and understanding about the planning process and achievement in Indian Economy.➤ The student will come to know about social problem like over population, un education, poor health, malnutrition, poverty and unemployment.➤ It covers the topics like industrial development, foreign trade in India, role of different factors and their significance.➤ The students learn about various industries and infrastructure development of Chhattisgarh.	
Credit Value	4 Credits	Credit =60 Hours-learning & Observation
Total Marks	Max. Marks:=100	Min Passing Marks: 40
PART -B: Content of the Course		
Total No. of Teaching-learning Periods (01 Hr. per period) -45 Periods (45 Hours)		
Unit	Topics (Course contents)	No. of Period
I	An Introduction To Indian Economy 1. Indian Economy At The Time Of Independence 2. Post Independence Indian Economy 3. Development Through Five Year Plans 4. NITI Aayog 5. New Economic Reforms	15
II	Demography 1. Demographic Trends Of India 2. Issues Of Education, Health, Malnutrition And Migration. 3. Poverty And Inequality 4. Unemployment & Occupational Distribution	15
III	Agriculture 1. Nature & Importance Of Agriculture 2. Agriculture Production & Productivity 3. Major Problems In Indian Agriculture 4. Land Use Pattern & Land Reforms 5. New Agriculture Strategies & Green Revolution	15



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IV	Industry & Foreign Trade 1. Industrial Growth & Productivity 2. Industrial Policy & Economic Reforms 3. Micro, Small & Medium Industries (MSME) 4. Problems Of Small Scale Industries 5. Public Enterprises In India 6. Role Of Foreign Trade In India's Development	15
Keywords	Political theory, state, sovereignty, right, they, democracy, constitution, party.	
Signature of Convener & Members (CBoS)		

PART-C: Learning Resources

Text Books, Reference Books and Others

Text books and Reference Books recommended:

- Uma Kapila ,India Economy: Performance & Policies, Academic Foundation
- Datt, Ruddar & K.P.M. Sundharam, Indian Economy S. Chand & Co. new Delhi
- Mishra & Puri, Indian Economy, Himalaya Publishing House
- Govt. of India, Economic Survey (Various Issues), Govt. of India
- Brahmanand, P.R. & V.R. Panchmukhi (Eds), The development process of the Indian Economy, Himalaya Publishing, Mumbai

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks

Continuous Internal Assessment (CIA): 30 Marks.

End Semester Exam (ESE): 70 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal test/Quiz:-20 & 20 Assignment /seminar-10 Total marks:-30	Better marks out of the two test/Quiz+ obtained marks in assignment shall be considered against 30 marks.
End Semester Exam (ESE):	Two section- A&B Section A: Q1. Objective-10 marks: Q2. Short answer type-5x4=20 marks Section B: Descriptive answer type question, 1 out of 2 from each unit- 4x10=40 marks	

Name and Signature of Convener & Members of CBoS.



PART-A: Introduction		
PROGRAMME: Department of Science (Certificate/Diploma/Degree Honors)	Semester-II	Session:2025-2029
Course Code	DUHIAEC-01	
Course Title	Hindi	
Course Type	AEC (Ability Enhancement Course)	
Pre-requisite(if any)	As per PROGRAMME	
Course Learning Outcomes (CLO)	1- विद्यार्थी हिन्दी भाषा एवं व्याकरण संबंधी ज्ञान से समृद्ध होंगे। 2- भाषा ज्ञान के माध्यम से भारतीय संस्कृति एवं भावनात्मक एकता के महत्व को समझने की क्षमता विकसित हो सकेगी। 3- मुहावरे एवं लोकोक्तियाँ का महत्व समझ सकेंगे। 4- व्यंग्य, निबंध एवं कविता विधा से परिचित होंगे। 5- निबंध लेखन एवं अपठित गद्यांश के माध्यम से विद्यार्थियों का बौद्धिक विकास हो सकेगा।	
Credit Value	2 Credits	Credit = 15 Hours – Learning & Observation
Total Marks	Max. Marks:=50	Min PassingMarks:20
PART-B: Content of the Course		
TotalNo.ofTeaching-learningPeriods (1 hours perperiod)-30Periods(30 Hours)		
Unit	Topics(Course Contents)	No. of Period
I	रचनाएं भारतवंदना-सूर्यकांत त्रिपाठी 'निराला' (कविता) भोलाराम का जीव-हरिशंकर परसाई (व्यंग्य) चोरी और प्रायश्चित्त-महात्मा गांधी(निबंध)	8
II	हिन्दी व्याकरण एवं शब्द रचना उपसर्ग, प्रत्यय, संधि, समास पर्यायवाची शब्द, विलोम शब्द, अनेकार्थी शब्द, समश्रुत शब्द, अनेकशब्दों के लिए एक शब्द	7
III	हिन्दी व्याकरण एवं रचनापक्ष मुहावरे एवं लोकोक्तियाँ पारिभाषिक शब्दावली एवं हिन्दी में पदनाम, शब्दशुद्धि, वाक्य शुद्धि	8
IV	रचनात्मक लेखन निबंध लेखन अपठित गद्यांश (नोट-विद्यार्थी को किसी एक विषय पर निबंध व प्रदत्त गद्यांश का शीर्षक तथा सारांश लिखना होगा।)	7
Keywords		
Signature of Convener & Members (CBoS)		
PART-C: Learning Resources		



Text Books, Reference Books and Others

- 1- भारतीयता के अमर स्वर –डॉ. धनंजय वर्मा, मध्य प्रदेश हिन्दी अकादमी
- 2- आधुनिक हिन्दी व्याकरण और रचना–डॉ वासुदेवनंदन
- 3- हिन्दी भाषा और व्यवहार–डॉ. गंगाचरण त्रिपाठी
- 4- हिन्दी व्याकरण माला–डॉ. के. आर. गहिया, डॉ.विमलेश शर्मा
- 5- हिन्दी व्याकरण–कामता प्रसाद गुरु

Online Resources-

- <http://libgmm.com>
- www.bookspace.in
- <http://www.gkexams.com>

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 marks

Continuous Internal Assessment (CIA): 15 Marks.

End Semester Exam (ESE): 35 marks

**Continuous Internal Assessment (CIA):
(By Course Teacher)**

**Internal test/Quiz:-10 & 10
Assignment /seminar-05
Total marks:-15**

**Better marks out of the two
test/Quiz+ obtained marks in
assignment shall be considered
against 15 marks.**

End Semester Exam (ESE):

**Two section- A&B
Section A: Q1. Objective-05 marks: Q2. Short answer type-5x2=10 marks
Section B: Descriptive answer type question, 1 out of 2 from each unit-
4x5=20 marks
Total = 35 marks**

Name and Signature of Convener & Members of CBoS.



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FOUR YEAR UNDERGRADUATE PROGRAMME (2025- 29)

DEPARTMENT OF COMPUTER APPLICATION

COURSE CURRICULUM

PART-A: Introduction		
PROGRAMME: Bachelor in Computer Application (Certificate/Diploma/Degree/Honors)	Semester-II	Session: 2025-2029
Course Code	CASEC-01T	
Course Title	Artificial intelligence	
Course Type	SEC (Skill Enhancement Course)	
Prerequisite	As per PROGRAMME	
Course Learning Outcomes (CLO)	At the end of this course, the students will be able <ul style="list-style-type: none">To understand the basics of AI.To understand problem solving techniques in AI.To aware AI Tools.Explore application in various domains.	
Credit Value	2 Credits	1 Credit = 15 Hours - Learning & Observation
Total Marks	Max. Marks:50	Min marks -20
PART -B: Content of the Course		
Total No. of Teaching-Learning Periods (01 Hr. per period)-45 Periods (45 Hours) No. of Topics (Course contents)		
Unit	Topics (Course Content)	No. of Period
I	Introduction: overview of artificial intelligence (AI), Foundation of AI, Areas and application of AI in various Domains, AI in India, Impact and examples of AI, Future of AI.	7
II	Advanced AI: basic concept of machine learning, deep learning, computer vision, natural language processing, speech recognition, generative AI application.	7
III	AI Tools: conversational AI: ALEXA, CORTANA, SIRI, etc., AI tools for content generation, image creation, presentation, video editing etc.	8
IV	Application of AI: agriculture, healthcare, environment, teaching, learning, ecommerce, industry, research etc.	8
Keywords	Token, Identifier, Keyword, Array, Function,	
Name and Signature of Convener & Members of CBoS		
PART-C: Learning Resources		
Text Books, Reference Books and Others		
<ul style="list-style-type: none">Artificial Intelligence: A Modern Approach <i>Stuart Russell & Peter Norvig</i>		



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- **Artificial Intelligence**
Elaine Rich & Kevin Knight
- **Artificial Intelligence: Foundations of Computational Agents**
David L. Poole & Alan K. Mackworth
- **Machine Learning**
Tom M. Mitchell
- **Pattern Recognition and Machine Learning**
Christopher M. Bishop
- **Deep Learning**
Ian Goodfellow, Yoshua Bengio & Aaron Courville
- **Artificial Intelligence Basics: A Non-Technical Introduction**
Tom Taulli

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 marks

Continuous Internal Assessment (CIA): 15 Marks.

End Semester Exam (ESE): 35 marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal test/Quiz:-10 & 10 Assignment /seminar-05 Total marks:-15	Better marks out of the two test/Quiz+ obtained marks in assignment shall be considered against 15 marks.
End Semester Exam (ESE):	Two section- A&B Section A: Q1. Objective-05 marks: Q2. Short answer type-5x2=10 marks Section B: Descriptive answer type question, 1 out of 2 from each unit- 4x5=20 marks Total = 35 marks	
Name and Signature of Convener & Members of CBoS.		