

FOUR YEAR UNDERGRADUATE PROGRAM (NEP-2020)

Program: Bachelor in Science (2024 -28)

DISCIPLINE – COMPUTER SCIENCE

SESSION – 2024 -25

DSC -01 to 08		DSE -01 to 12	
Code	Title	Code	Title
CSSC -01T	Computer Fundamental and Operating System	CSSE -01	Data Communication and Networking
CSSC -01P	Lab 1: Operating Systems (DOS, Windows, Linux)	CSSE -02	Computer System Architecture
CSSC -02T	Programming in C++	CSSE -03	Cyber Security and Cyber Law
CSSC -02P	Lab 2: Programming in C++	CSSE -04	Introduction to Artificial Intelligence
CSSC -03T	Data Structure	CSSE -05	Computer Graphics
CSSC -03P	Lab 3: Data Structure Using C++	CSSE -06T	Machine Learning
CSSC -04T	Relational Database Management System	CSSE -06P	Lab 8: Machine Learning
CSSC -04P	Lab 4: Relational Database Management System (Oracle/MySQL)	CSSE -07	Software Engineering
CSSC -05T	Programming in Java	CSSE -08	Theory of Computation
CSSC -05P	Lab 5: Programming in Java	CSSE -09	Soft Computing
CSSC -06T	Web Technology	CSSE -10	Advanced Operating Systems
CSSC -06P	Lab 6: Web Technology	CSSE -11	Cloud Computing
CSSC -07T	Programming in Python	CSSE -12	Major Project
CSSC -07P	Lab 7: Programming in Python		
CSSC -08T	Fundamental of IoT and Applications		
CSSC -08P	Lab 9: Fundamental of IoT and Applications		
DGE -01 & 02		VAC	
CSGE -01T	Computer Fundamental and Operating System	CSVAC-01	Artificial Intelligence
CSGE -01P	Lab 1: Operating System (DOS, Windows, Linux)		SEC
CSGE -02T	Programming in C++	CSSEC-01	Multimedia and Animation
CSGE -02P	Lab 2: Programming in C++		

Program Outcomes (PO):

- Gain a complete exposure to the theories and practices of Computer science.
- Get transformed into a skilled learner and active programmer, enabling the students to focus on their

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higher studies.

- Value computer professionals and programmers.
- Explore how the concepts and applications of Computer science lead to innovative thinking with a problem-solving attitude.

Program Specific Outcomes (PSO):

- Understand the basic Computer knowledge and practical application in operating system.
- Understanding the concept of programming and develop program in C++.
- Understanding the concept of data structure and implementation with C++.
- Understanding the concept of DBMS and implementation in MySQL /Oracle.
- Understanding the concept of OOPs and Java programming and develop program in Java.
- Understanding the concept of web technology and its implementation with HTML/CSS/DHTML/PHP.
- Understand the basic concept of internet of things (IOT).
- Understanding the basic concept of cyber security and cyber law.
- Understanding the basic concept of Artificial Intelligence.

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Dr. Anil Sharma

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Dr. Swati Jain

C.R. Khadley

Sushil Kumar Saha

Dr. V.K. Singh

Dr. Arzmita Shukla Sharma

Dr. Anil Sharma

Shashidhar Arora

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CURRICULUM STRUCTURE

SCHEME

PROGRAM: B.SC.

DISCIPLINE: COMPUTER SCIENCE

Semester	Course Type	Course Code	Course Title	Total Credit	Total Marks	
					Max	Min
1 st Semester	DSC (Major/Core)	CSSC-01T	Computer Fundamental and Operating System	3	100	40
		CSSC-01P	Lab 1: Operating Systems (DOS, Windows and Linux)	1	50	20
2 nd Semester	DSC (Major/Core)	CSSC-02T	Programming in C++	3	100	40
		CSSC-02P	Lab 2: Programming in C++	1	50	20
3 rd Semester	DSC (Major/Core)	CSSC-03T	Data Structure	3	100	40
		CSSC-03P	Lab 3: Data Structure Using C++	1	50	20
	DSE	CSSE-01	Data Communication and Networking	4	100	40
4 th Semester	DSC (Major/Core)	CSSC-04T	Relational Database Management System	3	100	40
		CSSC-04P	Lab 4: Relational Database Management System (Oracle/MySQL)	1	50	20
	DSE	CSSE-02	Computer System Architecture	4	100	40
5 th Semester	DSC (Major/Core)	CSSC-05T	Programming in Java	3	100	40
		CSSC-05P	Lab 5: Programming in Java	1	50	20
	DSE	CSSE-03	Cyber Security and Cyber Law	4	100	40
6 th Semester	DSC (Major/Core)	CSSC-06T	Web Technology	3	100	40
		CSSC-06P	Lab 6: Web Technology	1	50	20
	DSE	CSSE-04	Introduction to Artificial Intelligence	4	100	40
7 th Semester	DSC (Major/Core)	CSSC-07T	Programming in Python	3	100	40
		CSSC-07P	Lab 7: Programming in Python	1	50	20

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	DSE	CSSE-05	Computer Graphics	4	100	40
		CSSE-06T	Machine Learning	3	100	40
		CSSE-06P	Lab 8: Machine Learning	1	50	20
		CSSE-07	Software Engineering	4	100	40
		CSSE-08	Theory of Computation	4	100	40
8 th Semester	DSC (Major/Core)	CSSC-08T	Fundamental of IoT and Applications	3	100	40
		CSSC-08P	Lab 9: Fundamental of IoT and Applications	1	50	20
	DSE	CSSE-09	Soft Computing	4	100	40
		CSSE-10	Advanced Operating Systems	4	100	40
		CSSE-11	Cloud Computing	4	100	40
		CSSE-12	Major Project	4	100	40

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COURSE CURRICULUM

Session: 2024-2025

5	Course Learning Outcomes (CLO)	After Completing this course, students will be able to: • 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.
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7	Total Marks	Max. Marks: 100	Min Passing Marks: 40
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Total No. of Teaching-Learning Periods (01 Hr. per period) - 45 Periods (45 Hours)

Unit	Topics (Course contents)	No. of Period
I	Indian knowledge System and Computer Science : Number System in India-Historical evidence, Salient aspect of Indian Mathematics, Bhuta-Samkhya system, Katapayadi system, pingala and the binary system, Sulbha Sutra as modern arithmetic and numerical mathematics. Fundamental of Computer: History of computer, Generation of computer, Types of Computers, Block diagram of CPU, Digital and Analogue computers and its evolution. Major components of digital computers, Types of digital computers, Memory addressing capability of CPU, Microprocessors, Single chip Microcomputer, Users interface, hardware, software and firmware, Number system & Computer Codes.	13
II	Peripheral devices: I/O Devices-KeyBoard, Mouse, Monitor, Impact and Non-Impact Printers, Plotters, Scanner, other Input/output devices I/O Port, Programmable and Non-Programmable I/O port, Inbuilt I/O ports, Parallel and Serial ports, USB, IEEE 1394, AGP, Serial data transfer scheme, Microcontroller, Signal Processor, I/O processor, Arithmetic Processor.	11
III	Memory: Memory hierarchy, Primary and Secondary Memory, Cache memory, Virtual Memory, Direct Access storage devices (DASD) Destructive and Non-destructive Readout, Program and data memory, Memory Management Unit (MMU).	10
IV	Operating System Concepts: Evolution of Operating Systems: Types of operating systems. Introduction to DOS, History Booting process of DOS, Internal and External commands of DOS, File Structure of DOS. Windows Operating System: History, Version of Windows, Basics of Windows, Windows Explorer, Windows Accessories, Control Panel. Introduction to Linux Operating System, Structure of Linux, Linux command cd, md, rm, mv, cp, ls, cat, find, grep, head, tail.	11

Keywords Computer, Input /Output Devices, Memory, Operating System, DOS, Linux.

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PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- P.K. Sinha, Computer Fundamentals, BPB Publication, Sixth Edition.
- V. Rajaraman, Fundamentals of Computers, PHI Sixth Edition.
- B. Ram, Computer Fundamentals Architecture and Organization, New Age International Publishers, Fifth Edition.
- Raja Raman V. Fundamental of Computers, Prentice Hall of India, New Delhi.
- Peter Baer Galvin, Greg Gagne, Operating System Concepts – Abraham Silberschatz, 8th edition, Wiley-India, 2009.

Reference Books Recommended:

- Chetan Shrivastava, Fundamentals of Information Technology, Kalyan Publishers.
- Dr. Santosh Kumar Miri, Computer Fundamentals and Office Automation, Iterative International Publisher IIP.
- Alexis Leon and Mathews Leon, Fundamentals of Information Technology, Vikash Publication.
- Leon and Leon, Fundamental of IT, Leon Tec world.
- Aksoy and Denardis, Introduction to Information Technology, Cengage learning.
- Suresh K. Basandra, Computers Today, Galgotia Publications.
- Dennis P. Curtin, Kim Foley, Kunai Sen and Cathleen Morin, Information Technology – The breaking wave, TMH.
- Kogent Solution Inc., OFFICE 2013 in Simple Steps, DremTech Press.
- Kogent Learning Solutions Inc., Access 2010 in Simple Steps
- 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

Online Resources:

- Indian Knowledge System and computer Science from Swayam portal
https://onlinecourses.swayam2.ac.in/imb23_mg53/preview
- Fundamentals of Computer :
<https://www.w3schools.blog/computer-fundamentals-tutorial>
- Fundamentals of Computer, Memory:
https://www.tutorialspoint.com/computer_fundamentals/index.htm
- Fundamentals of Computer, Windows Operating System :
<https://vikaspedia.in/education/digital-literacy/it-literacy-courses-in-associating-with-msup/computer-fundamentals>
- Fundamentals of Computer:
<https://nptel.ac.in/courses/106/103/106103068/>
- Introduction to Operating System:
<https://www.w3schools.in/operating-system/tutorials/>
- Introduction to Operating System:
<https://www.javatpoint.com/windows>
- Peripheral Devices
<https://www.tutorialspoint.com/what-are-peripheral-devices>
- Windows :
<https://www.javatpoint.com/windows>
- Linux:
<https://www.javatpoint.com/what-is-linux>

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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-(2): 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
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End Semester Exam (ESE):	Two section - A & B Section A: Q1. Objective -- 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks Section B: Descriptive answer type qts., 1 out of 2 from each unit-4x10=40 Marks
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Amr. Sub
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Shelinda
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FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction			
Program: Bachelor in Science (CS) (Certificate / Diploma / Degree)		Semester - I	Session: 2024-2025
1	Course Code	CSSC-01P	
2	Course Title	Lab 1: Operating Systems (DOS, Windows, Linux)	
3	Course Type	Practical	
4	Prerequisite	As per program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • 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.	
6	Credit Value	1 Credits	Credit =30 Hours Laboratory or Field Learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

PART -B: Content of the Course

Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)

Module	Topics (Course contents)	No. of Period
List of Practical Experiment	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. 4. Demonstrate all external DOS Commands with output. 5. Introduction to Windows and Familiarity with its controls. 6. Study and use of Desktop, my computer, recycle bin, Task bar. 7. Working with Files and Folder. 8. Use of various window applications: Calculator, notepad and MS-Paint. 9. Explaining control panel options. 10. Working with printers. 11. Create a file using Linux command. 12. Write a Linux command which lists all files and directories. 13. Demonstrate use of grep command. 14. Create Directory using Linux command and create 3 different files in this directory. 15. Delete above created files and directory using Linux command. 16. Explaining various flavors of Linux.	30
Note: Concerned teacher can add additional practical exercises as per requirement.		

Keywords DOS, Windows, Linux.

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Kiran Singh

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Sanku

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(Shresh Thakur)

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Om

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Shreenu

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Anshu Singh

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Yash

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PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Russell A Stultz, MS DOS 6.22 BPB Publications
- Brain Underdahl, Teach yourself Windows 2000, Wiley Publications.

Reference Books Recommended:

- Peter Norton, Maximizing Windows, Teachmedia.
- Ray Duncan, Advances MS-DOS Programming, BPB
- Akshay Singh, Operating System, RGCSM Publications
- Ray Yao, Shell Scripting in 8 Hours

Online Resources:

- DOS: <https://www.javatpoint.com/ms-dos-operating-system>
- Windows: <https://www.javatpoint.com/windows>
- Linux: <https://www.javatpoint.com/what-is-linux>
- Fundamentals of Computer, Windows Operating System:
<https://vikaspedia.in/education/digital-literacy/it-literacy-courses-in-associating-with-msup/computer-fundamentals>
- DOS: <https://www.geeksforgeeks.org/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-(2):	10 & 10	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 Marks
	Assignment/Seminar + Attendance -	05	
	Total Marks -	15	
End Semester Exam (ESE):	Laboratory / Field Skill Performance: On spot Assessment		Managed by Course teacher as per lab. status
	A. Performed the Task based on lab. work	- 20 Marks	
	B. Spotting based on tools & technology (written)	- 10 Marks	
	C. Viva-voce (Based on principle/technology)	- 05 Marks	

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FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION SCIENCE
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (CS) (Certificate / Diploma / Degree/Honors)		Semester - II	Session: 2021-2025
1	Course Code	CSSC-02T	
2	Course Title	Programming in C++	
3	Course Type	DSC (Discipline Specific Course)	
4	Prerequisite	As per program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Understand the fundamentals of object oriented programming. • Write programs related to concept of object oriented program • Define functions, class and to create own Libraries. • Write programs for file handling. • Develop small programs to solve real world problems.	
6	Credit Value	3 Credits	Credit = 15 Hours - Learning & Observation
7	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	Introduction and Programming Concepts : Definition of Program, Source file, Object file, Executable file, Header file, Language Translator- Assembler, Interpreter, Compiler, Testing, Debugging, Linker and Loader, Algorithms, Flow Charts, History of C language, Structure of C program , 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 of C++, Structure of C++ program, 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 and Polymorphism: 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
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.	

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PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Peter Juliff, Program Design, PHI Publications.
- Yashwant Kanetkar, Let us C: BPB Publications.
- E. Balaguruswamy, Programming in ANSI C, Tata McGraw Hill

Reference Books Recommended:

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

Online Resources:

- Introduction to C and C++ from SWAYAM/NPTEL
https://onlinecourses.nptel.ac.in/noc22_cs103/preview
<https://www.youtube.com/watch?v=KG4hjVDw-p8&list=PLmp4ylk-B4KrM9uOEduPIVFUkU3jNc6D2&index=2>
- Constant and Inline Function through NPTEL:
<https://www.youtube.com/watch?v=pX6LufLso2M&list=PLmp4ylk-B4KrM9uOEduPIVFUkU3jNc6D2&index=10>
- Pointer and Reference NPTEL
<https://www.youtube.com/watch?v=GtsBZ5e1-cE&list=PLmp4ylk-B4KrM9uOEduPIVFUkU3jNc6D2&index=12>
- Function Overloading NPTEL
<https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4ylk-B4KrM9uOEduPIVFUkU3jNc6D2&index=13>
- Operator Overloading NPTEL
<https://www.youtube.com/watch?v=0jpOwc4d-FE&list=PLmp4ylk-B4KrM9uOEduPIVFUkU3jNc6D2&index=17>
- Dynamic Memory Management NPTEL
<https://www.youtube.com/watch?v=lkFK2X6qlc0&list=PLmp4ylk-B4KrM9uOEduPIVFUkU3jNc6D2&index=18>
- Class and Object NPTEL
https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEduPIVFUkU3jNc6D2&index=24
- Access Specifiers NPTEL
https://www.youtube.com/watch?v=6ki_W7cXdM0&list=PLmp4ylk-B4KrM9uOEduPIVFUkU3jNc6D2&index=22
- Constructor and Destructor NPTEL
https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEduPIVFUkU3jNc6D2&index=24
- C++ different topics from W3School
<https://www.w3schools.com/Cpp/default.asp>
- C++ different topics from Javatpoint
<https://www.javatpoint.com/cpp-tutorial>

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

Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 30 Marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz-(2): 20 +20 Assignment / Seminar - 10 Total Marks - 30
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End Semester Exam (ESE):	Two section - A & B Section A: Q1. Objective - 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks Section B: Descriptive answer type qts. 1 out of 2 from each unit-4x10=40 Marks
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FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION SCIENCE
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (CS) (Certificate / Diploma / Degree)		Semester - II	Session: 2024-2025
1	Course Code	CSSC-02P	
2	Course Title	Lab 2: Programming in C++	
3	Course Type	DSC	
4	Prerequisite	As per program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: - Understand the fundamental programming concepts and methodologies which are essential to create good C++ programs. - Code, test, and implement a well-structured, robust computer program using the C++ programming language. - Write reusable modules (collections of functions). - Understand design/implementation issues involved with variable allocation and binding, control flow, types, subroutines, parameter passing. - Develop an in-depth understanding of functional, logic, and object-oriented programming paradigms.	
6	Credit Value	1 Credits	Credit = 30 Hours Laboratory or Field Learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

PART -B: Content of the Course

Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)

Total No. of learning-Training/Performance Periods: 30 Periods (30 Hours)		
Module	Topics (Course contents)	No. of Period
List of Practical Experiment s.	1. Write a program in C++ for addition of two numbers using float data type. 2. Write a program in C++ to find the biggest number between two numbers. 3. Write a program in C++ to find the factorial value of any entered number using do – while loop. 4. Write a program in C++ for various arithmetic operations using switch case statements. 5. Write a program in C++ for Multiplication of two 3X3 matrices. 6. Write a program in C++ to store five books of information using structure. 7. Write a program in C++ to store six employee information using union. 8. Write a program in C++ to calculate simple interest using call by value and call by reference method. 9. Write a program in C++ to find the sum and average of five numbers using class and objects. 10. Write a program in C++ to multiply two numbers using private and public member functions. 11. Write a program in C++ to print structure like this using scope resolution operator 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5 12. Write a program in C++ for constructor and Destructor.	30

Officer-In-Charge (Academic)
 Shahood Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

Chairman
 Guddi
 Shahood Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

13. Write a program in C++ for multiple inheritance.
14. Write a program in C++ for operator overloading.
15. Write a program in C++ for friend class and friend function.
16. Write a program in C++ for virtual function and virtual class.
17. Write a program in C++ for Exception Handling.
18. Write a program in C++ to open and close a file using file Handling.
19. Given two ordered arrays of integers, write a program 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 a menu-driven program to perform following Matrix Operations (2-D array implementation): a) Sum b) Difference c) Product d) Transpose 22. 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).
24. Create a class Triangle. Include overloaded functions for calculating area. Overload assignment operator and equality operator.
25. Create a class Box containing length, breadth and height. Include following methods in it: a) Calculate surface Area b) Calculate Volume c) Increment, Overload ++ operator (both prefix & postfix) d) Decrement, 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
26. Create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
27. Write a program to retrieve the student information from the file created in the previous question and print it in the following format: Roll No. Name Marks
28. Copy the contents of one text file to another file, after removing all whitespaces.
29. Write a program for exception handling.
30. Write a program to insert data into file and to display it.

Note: Concerned teacher can add additional practical exercises as per requirement.

Keywords Array, Function, Structure, union, matrix, constructor, destructor, inheritance.

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

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Shahid Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Peter Juliff, Program Design, PHI Publications.
- Yashwant Kanetkar, Let us C: BPB Publications.
- E. Balaguruswamy, Programming in ANSI C, Tata McGraw Hill

Reference Books Recommended:

- Y. Kanetkar, Let us C++, B.P.B 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)

Online Resources:

- Introduction to C and C++ from SWAYAM/NPTEL
https://onlinecourses.nptel.ac.in/noc22_cs103/preview
<https://www.youtube.com/watch?v=KG4hjVDw-p8&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=2>
- Constant and Inline Function through NPTEL:
<https://www.youtube.com/watch?v=pX6LufLso2M&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=10>
- Pointer and Reference NPTEL
<https://www.youtube.com/watch?v=GtsBZ5c1-cE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=12>
- Function Overloading NPTEL
<https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=13>
- Operator Overloading NPTEL
<https://www.youtube.com/watch?v=0jpOwe4d-FE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=17>
- Dynamic Memory Management NPTEL
<https://www.youtube.com/watch?v=lkFK2X6qIc0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=18>
- Class and Object NPTEL
https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- Access Specifiers NPTEL
https://www.youtube.com/watch?v=6ki_W7cXdM0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=22
- Constructor and Destructor NPTEL
https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- C++ different topics from W3School
<https://www.w3schools.com/Cpp/default.asp>
- C++ different topics from Javatpoint
<https://www.javatpoint.com/cpp-tutorial>

PART -D: Assessment and Evaluation

Officer-in-Charge (Academic)
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Vishwavidyalaya, Raigarh (C.G.)

Chairman
Shri. N. K. Kumar Patel
Vidyalaya, Raigarh (C.G.)

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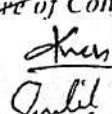
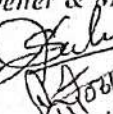
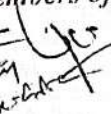
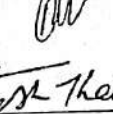
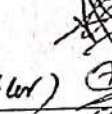
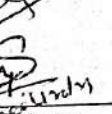
Shahood Nanukumar F.L.Si
Wishwavidyalaya, Raigarh (D.D.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction

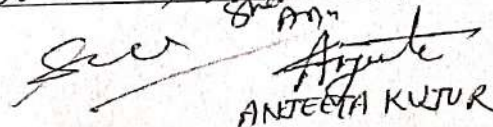
Program: Bachelor in Science (CS)		Semester - I	Session: 2024-2025
(Certificate / Diploma / Degree/Honors)			
1	Course Code	CSGE-01T	
2	Course Title	Computer Fundamental and Operating System	
3	Course Type	DGE (Discipline Generic Elective)	
4	Prerequisite	As per program	
5	Course Learning Outcomes (CLO)	After Completing this course, students will be able to: • 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.	
6	Credit Value	3 Credits	Credit = 15 Hours - Learning & Observation
7	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	Indian knowledge System and Computer Science : Number System in India-Historical evidence, Salient aspect of Indian Mathematics, Bhuta-Samkhya system, Katapayadi system, pingala and the binary system, Sulbha Sutra as modern arithmetic and numerical mathematics. Fundamental of Computer: History of computer, Generation of computer, Types of Computers, Block diagram of CPU, Digital and Analogue computers and its evolution. Major components of digital computers, Types of digital computers, Memory addressing capability of CPU, Microprocessors, Single chip Microcomputer, Users interface, hardware, software and firmware, Number system & Computer Codes.	13
II	Peripheral devices: I/O Devices-KeyBoard, Mouse, Monitor, Impact and Non-Impact Printers, Plotters, Scanner, other Input/output devices I/O Port, Programmable and Non-Programmable I/O port, Inbuilt I/O ports, Parallel and Serial ports, USB, IEEE 1394, AGP, Serial data transfer scheme, Microcontroller, Signal Processor, I/O processor, Arithmetic Processor.	11
III	Memory: Memory hierarchy, Primary and Secondary Memory, Cache memory, Virtual Memory, Direct Access storage devices (DASD) Destructive and Non-destructive Readout, Program and data memory, Memory Management Unit (MMU).	10
IV	Operating System Concepts: Evolution of Operating Systems: Types of operating systems. Introduction to DOS, History Booting process of DOS, Internal and External commands of DOS, File Structure of DOS. Windows Operating System: History, Version of Windows, Basics of Windows, Windows Explorer, Windows Accessories, Control Panel. Introduction to Linux Operating System, Structure of Linux, Linux command cd, md, rm, mv, cp, ls, cat, find, grep, head, tail.	11
Keywords Computer, Input /Output Devices, Memory, Operating System, DOS, Linux.		
Name and Signature of Convener & Members of CBoS: Dr. H.S. Moha Chairman        		

Officer-in-Charge (Academic)
 Shaheed Nandkumar Patol
 Vishwavidyalaya, Raigarh (C.G.)


 18/02/2024


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PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- P.K. Sinha, Computer Fundamentals, BPB Publication, Sixth Edition.
- V. Rajaraman, Fundamentals of Computers, PHI Sixth Edition.
- B. Ram, Computer Fundamentals Architecture and Organization, New Age International Publishers, Fifth Edition.
- Raja Raman V. Fundamental of Computers, Prentice Hall of India, New Delhi.
- Peter Baer Galvin, Greg Gagne, Operating System Concepts – Abraham Silberschatz, 8th edition, Wiley-India, 2009.

Reference Books Recommended:

- Chetan Shrivastava, Fundamentals of Information Technology, Kalyan Publishers.
- Dr. Santosh Kumar Miri, Computer Fundamentals and Office Automation, Iterative International Publisher IIP.
- Alexis Leon and Mathews Leon, Fundamentals of Information Technology, Vikash Publication.
- Leon and Leon, Fundamental of IT, Leon Tec world.
- Aksoy and Denardis, Introduction to Information Technology, Cengage learning.
- Suresh K. Basandra, Computers Today, Galgotia Publications.
- Dennis P. Curtin, Kim Foley, Kunai Sen and Cathleen Morin, Information Technology – The breaking wave, TMH.
- Kogent Solution Inc., OFFICE 2013 in Simple Steps, DremTech Press.
- Kogent Learning Solutions Inc., Access 2010 in Simple Steps
- 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

Online Resources:

- Indian Knowledge System and computer Science from Swayam portal
https://onlinecourses.swayam2.ac.in/imb23_img53/preview
- Fundamentals of Computer :
<https://www.w3schools.blog/computer-fundamentals-tutorial>
- Fundamentals of Computer, Memory:
https://www.tutorialspoint.com/computer_fundamentals/index.htm
- Fundamentals of Computer , Windows Operating System :
<https://vikaspedia.in/education/digital-literacy/it-literacy-courses-in-associating-with-msup/computer-fundamentals>
- Fundamentals of Computer:
<https://nptel.ac.in/courses/106/103/106103068/>
- Introduction to Operating System:
<https://www.w3schools.in/operating-system/tutorials/>
- Introduction to Operating System:
<https://www.javatpoint.com/windows>
- Peripheral Devices
<https://www.tutorialspoint.com/what-are-peripheral-devices>
- Windows :
<https://www.javatpoint.com/windows>
- Linux:
<https://www.javatpoint.com/what-is-linux>

Chairman

Studied by
Shahood Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

Officer-In-Charge (Academic)
Shahood Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

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-(2): 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 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks

Section B: Descriptive answer type qts., 1 out of 2 from each unit-4x10 =40 Marks

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hoka
- Chairman

Sunil

Shreshth Thakur

Chairman

Shreelata
Arya

Shreelata
Arya

15/08/2024
Dr. H.S. Hoka

ANJEETA KUMAR

18/08/2024
Shreelata Arya
Raigarh (C.G.)

Officer-In-Charge (Academic)
Shaheed Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (CS) (Certificate / Diploma / Degree)		Semester - I	Session: 2024-2025
1	Course Code	CSGE-01P	
2	Course Title	Lab 1: Operating System (DOS, Windows, Linux)	
3	Course Type	Practical	
4	Prerequisite	As per program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • 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.	
6	Credit Value	1 Credits	Credit = 30 Hours Laboratory or Field Learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

PART -B: Content of the Course

Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)

Module	Topics (Course contents)	No. of Period
List of Practical Experiment	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. 4. Demonstrate all external DOS Commands with output. 5. Introduction to Windows and Familiarity with its controls. 6. Study and use of Desktop, my computer, recycle bin, Task bar. 7. Working with Files and Folder. 8. Use of various window applications: Calculator, notepad and MS-Paint. 9. Explaining control panel options. 10. Working with printers. 11. Create a file using Linux command. 12. Write a Linux command which lists all files and directories. 13. Demonstrate use of grep command. 14. Create Directory using Linux command and create 3 different files in this directory. 15. Delete above created files and directory using Linux command. 16. Explaining various flavors of Linux. Note: Concerned teacher can add additional practical exercises as per requirement.	30
Keywords	DOS, Windows, Linux.	

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hote
Chairman

Shubh
(Shubh Thakur)

Mr. [Signature]
[Signature]
(Shubh Thakur)

[Signature]
[Signature]
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Shekhar
[Signature]

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ANJETA KUTIA

On Behalf of Charge (Vice-Chairman)
Shahood Nandkumar Patel
Vishwavidyalaya, Raigarh (C.O.)

Chairman
[Signature]
Nandkumar Patel
Raigarh (C.O.)

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Rusell A Stultz, MS DOS 6.22 BPB Publications
- Brain Underdahl, Teach yourself Windows 2000, Wiley Publications.

Reference Books Recommended:

- Peter Norton, Maximizing Windows, Teachmedia.
- Ray Duncan, Advances MS-DOS Programming, BPB
- Akshay Singh, Operating System, RGCSM Publications
- Ray Yao, Shell Scripting in 8 Hours

Online Resources:

- DOS: <https://www.javatpoint.com/ms-dos-operating-system>
- Windows: <https://www.javatpoint.com/windows>
- Linux: <https://www.javatpoint.com/what-is-linux>
- Fundamentals of Computer, Windows Operating System:
<https://vikaspedia.in/education/digital-literacy/it-literacy-courses-in-associating-with-msup/computer-fundamentals>
- DOS: <https://www.geeksforgeeks.org/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-(2): 10 & 10	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 Marks
	Assignment/Seminar +Attendance - 05	
	Total Marks - 15	
End Semester Exam (ESE):	Laboratory / Field Skill Performance: On spot Assessment	
	A. Performed the Task based on lab. work - 20 Marks	Managed by Course teacher as per lab. status
	B. Spotting based on tools & technology (written) – 10 Marks	
	C. Viva-voce (based on principle/technology) - 05 Marks	

Name and Signature of Convener & Members of CBOs:

Dr. H.S. Hobg
Chairman

Shruti
(Dr. H.S. Hobg)

Shruti
An

Shruti
Kumar

Dr. H.S. Hobg
Dr. H.S. Hobg

Dr. H.S. Hobg
Dr. H.S. Hobg

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ANJEETA KUTJA

Chairman

Studies

Dr. H.S. Hobg

Officer-In-Charge (Academic)
Shahood Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

Dr. H.S. Hobg
Dr. H.S. Hobg

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION SCIENCE
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (CS) (Certificate / Diploma / Degree/Honors)	Semester - II	Session: 2024-2025
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1	Course Code	CSGE-02T	
2	Course Title	Programming in C++	
3	Course Type	DGE (Discipline Generic Elective)	
4	Prerequisite	As per program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: - Understand the fundamentals of object oriented programming. - Write programs related to concept of object oriented program - Define functions, class and to create own Libraries. - Write programs for file handling. - Develop small programs to solve real world problems.	
6	Credit Value	3 Credits	Credit = 15 Hours - Learning & Observation
7	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	Introduction and Programming Concepts : Definition of Program, Source file, Object file, Executable file, Header file, Language Translator- Assembler, Interpreter, Compiler, Testing, Debugging, Linker and Loader, Algorithms, Flow Charts, History of C language, Structure of C program , 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 of C++, Structure of C++ program, 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 and Polymorphism: 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
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:

Dr. H.S. Hota
Chairman

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Jyoti

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Shreshth

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Officer in-Charge (Academic)
Shahid Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

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Shahid Nandkumar Patel
Raigarh (C.G.)

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Peter Juliff, Program Design, PHI Publications.
- Yashwant Kanetkar, Let us C: BPB Publications.
- E. Balaguruswamy, Programming in ANSI C, Tata McGraw Hill

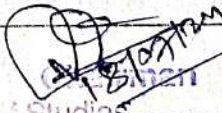
Reference Books Recommended:

- Y. Kanetkar, Let us C++, B.P.B 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)

Online Resources:

- Introduction to C and C++ from SWAYAM/NPTEL
https://onlinecourses.nptel.ac.in/noc22_cs103/preview
<https://www.youtube.com/watch?v=KG4hjVDw-p8&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=2>
- Constant and Inline Function through NPTEL:
<https://www.youtube.com/watch?v=pX6LufLso2M&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=10>
- Pointer and Reference NPTEL
<https://www.youtube.com/watch?v=GtsBZ5e1-cE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=12>
- Function Overloading NPTEL
<https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=13>
- Operator Overloading NPTEL
<https://www.youtube.com/watch?v=0jpOwe4d-FE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=17>
- Dynamic Memory Management NPTEL
<https://www.youtube.com/watch?v=1kFK2X6qlc0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=18>
- Class and Object NPTEL
https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- Access Specifiers NPTEL
https://www.youtube.com/watch?v=6ki_W7cXdM0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=22
- Constructor and Destructor NPTEL
https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- C++ different topics from W3School
<https://www.w3schools.com/CPP/default.asp>
- C++ different topics from Javatpoint
<https://www.javatpoint.com/cpp-tutorial>

Officer-in-Charge (Academic)
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Vishwavidyalaya, Raigarh (C.O.)

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-(2): 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
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End Semester Exam (ESE):	Two section – A & B Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks Section B: Descriptive answer type qts., 1 out of 2 from each unit-4x10=40 Marks
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Name and Signature of Convener & Members of CBoS:

Dr H.S. Hota
Chairman

[Signature]

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[Signature]

[Signature]

[Signature]
(Suresh Thakur)

[Signature]
Suresh Thakur

[Signature]
Anil Kumar

[Signature]
Sachin Kumar

[Signature]

[Signature]
ANJEETA KUMAR

Officer-in-Charge (Vardamala)
Shahood Nandkumar Patil
Vishwavidyalaya, Raigarh (C.G.)

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Shahood Nandkumar Patil
Vishwavidyalaya, Raigarh (C.G.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION SCIENCE
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (CS) (Certificate / Diploma / Degree)		Semester - II	Session: 2024-2025
1	Course Code	CSGE-02P	
2	Course Title	Lab 2: Programming in C++	
3	Course Type	Practical	
4	Prerequisite	As per program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Understand the fundamental programming concepts and methodologies which are essential to create good C++ programs. • Code, test, and implement a well-structured, robust computer program using the C++ programming language. • Write reusable modules (collections of functions). • Understand design/implementation issues involved with variable allocation and binding, control flow, types, subroutines, parameter passing. • Develop an in-depth understanding of functional, logic, and object-oriented programming paradigms.	
6	Credit Value	1 Credits	Credit =30 Hours Laboratory or Field Learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

PART -B: Content of the Course

Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)

Module	Topics (Course contents)	No. of Period
List of Practical Experiments.	1. Write a program in C++ for addition of two numbers using float data type. 2. Write a program in C++ to find the biggest number between two numbers. 3. Write a program in C++ to find the factorial value of any entered number using do - while loop. 4. Write a program in C++ for various arithmetic operations using switch case statements. 5. Write a program in C++ for Multiplication of two 3X3 matrices. 6. Write a program in C++ to store five books of information using structure. 7. Write a program in C++ to store six employee information using union. 8. Write a program in C++ to calculate simple interest using call by value and call by reference method. 9. Write a program in C++ to find the sum and average of five numbers using class and objects. 10. Write a program in C++ to multiply two numbers using private and public member functions. 11. Write a program in C++ to print structure like this using scope resolution operator 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5 12. Write a program in C++ for constructor and Destructor.	30

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Bhaskar Patel
 (Signature)

13. Write a program in C++ for multiple inheritance.
14. Write a program in C++ for operator overloading.
15. Write a program in C++ for friend class and friend function.
16. Write a program in C++ for virtual function and virtual class.
17. Write a program in C++ for Exception Handling.
18. Write a program in C++ to open and close a file using file Handling.
19. Given two ordered arrays of integers, write a program 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 a menu-driven program to perform following Matrix Operations (2-D array implementation): a) Sum b) Difference c) Product d) Transpose 22. 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).
24. Create a class Triangle. Include overloaded functions for calculating area. Overload assignment operator and equality operator.
25. Create a class Box containing length, breadth and height. Include following methods in it: a) Calculate surface Area b) Calculate Volume c) Increment, Overload ++ operator (both prefix & postfix) d) Decrement, 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
26. Create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
27. Write a program to retrieve the student information from the file created in the previous question and print it in the following format: Roll No. Name Marks
28. Copy the contents of one text file to another file, after removing all whitespaces.
29. Write a program for exception handling.
30. Write a program to insert data into file and to display it.

Note: Concerned teacher can add additional practical exercises as per requirement.

Keywords Array, Function, Structure, union, matrix, constructor, destructor, inheritance.

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(Suresh Thakur)

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Shruti Arora

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Officer-in-Charge (Academic)
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Vishwavidyalaya, Raigarh (C.G.)

Shahood Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

Chairman

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Peter Juliff, Program Design, PHI Publications.
- Yashwant Kanetkar, Let us C: BPB Publications.
- E. Balaguruswamy, Programming in ANSI C, Tata McGraw Hill

Reference Books Recommended:

- Y. Kanetkar, Let us C++, B.P.B 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)

Online Resources:

- Introduction to C and C++ from SWAYAM/NPTEL
https://onlinecourses.nptel.ac.in/noc22_cs103/preview
<https://www.youtube.com/watch?v=KG4hjVDw-p8&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=2>
- Constant and Inline Function through NPTEL:
<https://www.youtube.com/watch?v=pX6LuFLso2M&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=10>
- Pointer and Reference NPTEL
<https://www.youtube.com/watch?v=GtsBZ5cl-cE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=12>
- Function Overloading NPTEL
<https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=13>
- Operator Overloading NPTEL
<https://www.youtube.com/watch?v=0jpOwe4d-FE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=17>
- Dynamic Memory Management NPTEL
<https://www.youtube.com/watch?v=1kFK2X6qIc0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=18>
- Class and Object NPTEL
https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- Access Specifiers NPTEL
https://www.youtube.com/watch?v=6ki_W7cXdM0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=22
- Constructor and Destructor NPTEL
https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- C++ different topics from W3School
<https://www.w3schools.com/Cpp/default.asp>
- C++ different topics from Javatpoint
<https://www.javatpoint.com/cpp-tutorial>

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Shaheed Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

Chairman
Studies
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Vishwavidyalaya, Raigarh (C.G.)

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):	Laboratory / Field Skill Performance: On spot Assessment A. Performed the Task based on lab. work - 20 Marks B. Spotting based on tools & technology (written) - 10 Marks C. Viva-voce (based on principle/technology) - 05 Marks	Managed by Course teacher as per lab. status

Name and Signature of Convener & Members of CBoS:

Dr. H. H. Hota
Chairman

Sunil

(Suresh Thakur)

Shreeraj
Army

Technician
Kumar

Dr. H. H. Hota
15/05/2024

Chairman

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Officer-in-Charge (Academic)
Shaheed Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

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Vishwavidyalaya, Raigarh (C.G.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART-A: Introduction

Program: Bachelor in Science (CS) (Certificate / Diploma / Degree/Honors)		Semester – I/III/V	Session: 2024-2025
1	Course Code	CSVAC-01	
2	Course Title	Artificial Intelligence	
3	Course Type	Value Addition Course (VAC)	
4	Prerequisite	As per program	
5	Course Learning Outcomes(CLO)	At the end of this course, students will be able to: • Understand basics of AI. • Understand problem solving techniques of AI. • Aware about AI tools. • Explore application of AI in various domains. • Understand the current scenario of AI in India.	
6	Credit Value	2 Credits	Credit = 15 Hours -Learning & Observation
7	Total Marks	Max. Marks: 50	Min Passing 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 contents)	No. of Period
I	Introduction: Overview of Artificial Intelligence (AI), Foundations of AI, Areas and Applications of AI in various domains, AI in India, Impact and examples of AI, Future of AI.	8
II	Advanced AI: Basic Concept of Machine Learning, Deep Learning, Computer vision, Natural Language Processing (NLP), Speech recognition, Generative AI Applications.	8
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, E-Commerce, Industry, Research etc.	6

Keywords: Artificial Intelligence (AI), Machine Learning (ML), Deep Learning, Computer Vision, Natural Language Processing (NLP), Conversational AI, Generative AI.

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

Smriti,

Dhruv Thakur

Shashank Arora

Arvind Kumar

Sunil Kumar

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PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Introduction to Artificial Intelligence and Expert Systems, Dan W. Patterson, PHI Publication.
- Artificial Intelligence, Elaine Rich and Kevin Knight TMH publication.

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Reference Books Recommended:

- Artificial Intelligence and machine learning, Vinod Chandra S.S., Anand Hareendrn S., PHI learning private Ltd.
- Foundations of Artificial Intelligence and Expert Systems, Macmillan Series in Computer Science, V.S. Jankiraman, K. Sarukesi and P. Gopala Krishnan.

Online Resources:

- Ministry of Electronics and Information Technology Portal for INDIAai:
<https://indiaai.gov.in/>
- Introduction to Artificial Intelligence from SWAYAM:
https://www.youtube.com/watch?v=pKcVMlkFpRc&list=PLwdnzlV3ogoXaccHrrfVZCJkbm_1aSlfcH&index=2
- An introduction to Artificial Intelligence from SWAYAM:
https://onlinecourses.nptel.ac.in/noc24_cs08/preview
- Introduction to Artificial Intelligence from Coursera:
<https://www.coursera.org/learn/introduction-to-ai>
- Introduction to Artificial Intelligence:
<https://www.javatpoint.com/artificial-intelligence-ai>
- How to Learn Artificial Intelligence from Coursera:
<https://www.coursera.org/articles/how-to-learn-artificial-intelligence>

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	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 Marks
	Assignment/Seminar- 05 Total Marks - 15	
End Semester Exam (ESE):	Laboratory/Field Skill Performance: On spot Assessment	Managed by Coordinator as per skilling
	A. Performed the task based on learned skill - 20 Marks B. Spotting based on tools (Written) - 10 Marks C. Viva-voce (based on principle/technology)- 05 Marks	

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

Amrit

(Suresh Thakur)

Shreelata Arora

Dr. Nandkumar Patel

Dr. Nandkumar Patel

Dr. Nandkumar Patel

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Officer-in-Charge (Academic)
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Chairman
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Vishwavidyalaya, Raigarh (C.G.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction

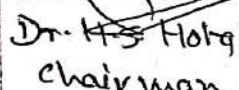
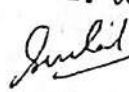
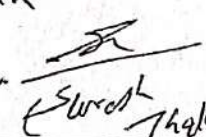
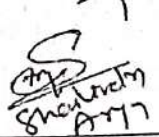
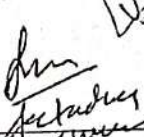
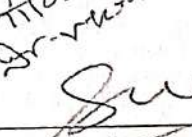
Program: Bachelor of Science (CS) (Certificate / Diploma / Degree)		Semester - II/IV/V/VI	Session: 2021-2025
1	Course Code	CSSEC-01	
2	Course Title	Multimedia and Animation	
3	Course Type	Skill Enhance Course (SEC)	
4	Prerequisite	As Per Program	
5	Course Learning Outcomes (CLO)	After Completing this course, students will be able to: • Understand about Multimedia Framework. • Work with Adobe Flash. • Create games using Flash. • Film editing using VFX.	
6	Credit Value	2 Credits (1C+1C)	Credit =15 Hours Theoretical Learning and = 30 Hours Laboratory or Field learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

PART -B: Content of the Course

Total No. of Teaching-learning periods:
 Theory- 15 Periods (15 Hrs.) and Laboratory or Field learning/Training Periods: 30 Periods
 (30 Hours)

Module	Topics (Course contents)	No. of Period
Theory Content	1. Introduction to multimedia, multimedia hardware, multimedia software and frameworks. 2. Introduction to flash, creating games, making presentations, animation, visualizations. 3. Introduction to VFX, VFX compositing and editing, animation, motion, modelling artist, texture artist, painting, rigging.	15
Lab/Field Training Content	1. Create and Edit 2D animation using Flash. 2. Create and Edit 3D animation using Flash. 3. Making presentation using Flash. 4. Creating games using Flash. 5. Audio/video Editing using VFX. 6. Film editing using VFX. 7. Color grading using VFX. 8. Motion graphics designing using VFX.	30
Keywords	Multimedia, Animation, Flash, VFX.	

Name and Signature of Convener & Members of CBoS:

Dr. H. S. Hota
 Chairman







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Officer In-Charge (Academic)
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Officer In-Charge (Student Welfare)
 Shaheed Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Brian Underdahl, Macromedia Flash MX: The Complete Reference, McGraw-Hill
- Ibis Fernandez, Flash Animation and Cartooning: a creative guide
- Tony white, The animators to Adobe Flash.
- Ian failes, Masters of FX.

Reference Books Recommended:

- Jan Marrelli , A Guide to Web Development Using Adobe Dreamweaver CS3 with Fireworks and Flash, Lawrenceville Press
- Codex Jeffrey A. Okun and Susan Zwerman, The VES handbook of Visual Effects: Indutry Standard VFX Practices and Procedures.

Online Resources:

- Introduction to Multimedia:
<https://www.javatpoint.com/multimedia-definition#:~:text=Multimedia%20combines%20several%20media%20formats,users%20engage%20with%20the%20information.>
- Introduction to Multimedia:-
https://www.w3schools.com/html/html_media.asp
- Introduction to Flash:
<https://www.javatpoint.com/what-is-flash#:~:text=Adobe%20Flash%20is%20usually%20installed,of%20disabling%20the%20browser%20extension.>
- Introduction-To-Macromedia-Flash-8:
<https://www.geeksforgeeks.org/introduction-to-macromedia-flash-8/>

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):	Laboratory / Field Skill Performance: On spot Assessment A. Performed the Task based on lab. work - 20 Marks B. Spotting based on tools & technology (written) - 10 Marks C. Viva-voce (based on principle/technology) - 05 Marks	Managed by Course teacher as per lab. status

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
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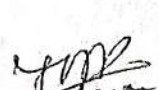
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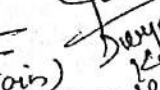
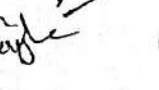
Chairman
of Studies
and
Head of the
Department
(C.G.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024-28)
Department of Library and Information Science
Course Curriculum for SEC

PART-A: Introduction			
Program: Undergraduate (Certificate / Diploma / Degree / Honors)		Semester - II/IV/V/V	Session: 2024-2025
1	Course Code	LISEC-01	
2	Course Title	Content Management and Web Development	
3	Course Type	SEC (Skill Enhancement Courses)	
4	Pre-requisite (if, any)	As per Program	
5	Course Learning Outcomes (CLO)	☐ Understand the fundamental concepts of Content management and Web Page Designing. ☐ Able to understand popular platform for creating websites and Content Management System. ☐ Able to understand the Installation, Setup of Word Press, and JOOMLA, DRUPAL ☐ Able to Understanding the Dashboard Templates, Layouts, Extensions, Content Creation, Customization, Back up and Maintenance of Word Press, JOOMLA, DRUPAL.	
6	Credit Value	2 Credits (1C+ 1C)	Credit = 15 Hours = Theoretical learning and = 30 Hours Laboratory or Field learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20
PART-B: Content of the Course			
Module	Total No. of Teaching-learning Periods: Theory-15 Periods (15Hrs) and Lab. Or Field learning / Training 30 Periods (30 Hours)		No. of Period
Theory Contents	Introduction and History • Web Content Development and Management, Content types and Formats, Norms and Guidelines of Content Development • Word Press • JOOMLA • DRUPAL		15 (15 Hr)
Lab./Field Training Contents	Practice • Word Press Installation and Setup, Understanding the Dashboard, Themes, Plugins, Content Creation, Customization, Backup and Maintenance. • JOOMLA Installation and Setup, Understanding the Dash board, Templates and Layouts, Extensions, Content Creation, Customization, Backup and Maintenance. • DRUPAL Installation and Setup, Understanding the Dashboard, Content Types and Fields, Themes and Layouts, Modules, Views and Blocks, Taxonomy and Tagging, User Management, Multilingual Websites, Backup and Maintenance.		30 (30 Hr)
Keywords			

Signature of Convener & Members, CBOS:


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 Vishwavidyalaya, Raigarh (C.G.)

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PART-C

Learning Resources: Text Books, Reference Books and Others

Text Books Recommended-

1. Michaud, T.(2013). *Foundations of Web Design: Introduction to HTML & CSS*. New Riders.
2. Casabona, J.(2020). *HTML and CSS: Visual Quick Start Guide*. Peachpit Press.
3. Rahmel, D. (2007). *Professional Joomla*. John Wiley & Sons.
4. Rahmel, D. (2008). *Beginning Joomla: From novice to professional*. Apress.
5. Kumar, R. (2018). *Mastering Drupal 8: An advanced guide to building and maintaining websites with Drupal 8*. Packt Publishing.
6. Deshpande, V., & Shah, N.(2017). *HTML5 and CSS3: Building Responsive Websites*. BPB Publications.
7. Duckett, J.(2014). *HTML and CSS: Design and Build Websites*. Wiley.
8. McFarland, D. (2018). *HTML, CSS, and JavaScript All in One*. Wiley.
9. Morris, J. (2019). *Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics*. O'Reilly Media.
10. Smith, J.(2019). *WordPress for Beginners: A Step-by-Step Guide to Building Your Own Website or Blog*. Wiley.
11. Patel, R.(2020). *Drupal 9 Explained: Your Step-by-Step Guide to Drupal 9*. OS Training.
12. Gupta, S. (2018). *Joomla 3 Explained: Your Step-by-Step Guide to Joomla 3*. OS Training.

Online Resources-

- <https://egyankosh.ac.in/bitstream/123456789/35916/5/Unit-12.pdf>
- [Joomla Content Management System \(CMS\) - try it! It's free!](#)
- [Introduction to Content Management System \(CMS\) \(w3schools.in\)](#)
- [e-PG Pathshala \(infibnet.ac.in\)](#)
- [Drupal - Open Source CMS! Drupal.org](#)
- <https://wordpress.com/>

Online Resources-

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

Part-D: Assessment and Evaluation

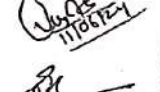
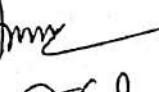
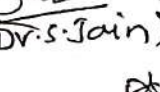
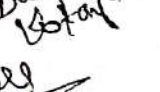
Suggested Continuous Evaluation Methods:

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

Continuous Internal Assessment (CIA): (By Course Coordinator)	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):	Laboratory/Field Skill Performance: On spot Assessment A. Performed the Task based on learned skill- 20 Marks B. Spotting based on tools (written) - 10 Marks C. Viva-voce (based on principle/technology)- 05 Marks	Managed by Coordinator as per skilling

Signature of Convener & Members:





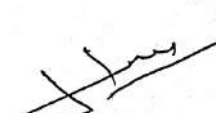
Officer-in-Charge (Academic)
 Shaheed Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

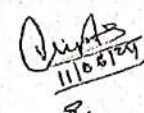
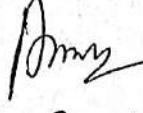
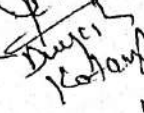
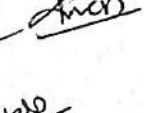
ANTEETA KURUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024-28)
Department of Library and Information Science
Course Curriculum for SEC

PART-A: Introduction			
Program: Undergraduate (Certificate / Diploma / Degree/Honors)		Semester - II/IV/V/V	Session: 2024-2025
1	Course Code	LISEC-02	
2	Course Title	Literature Review and Reference Management	
3	Course Type	SEC (Skill Enhancement Courses)	
4	Pre-requisite (if, any)	As per Program	
5	Course Learning Outcomes (CLO)	Students will be able ➤ To understand the Concept of Literature review ➤ To understand the Conduct the Literature review ➤ To understand the Understand the various reference style. ➤ To use the reference management tools ➤ To understand the various search strategies.	
6	Credit Value	2 Credits (1C+ 1C)	Credit=15 Hours – Theoretical learning and = 30 Hours Laboratory or Field learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20
PART-B: Content of the Course			
Module	Total No. of Teaching-learning Periods: Theory-15 Periods (15Hrs) and Lab. Or Field learning/Training 30 Periods (30 Hours)		No. of Period
Theory Contents	Literature Review and Reference Management (Theory) - Literature Review: Concept, Types, Need and their Importance, Sources for review of Literature. - Search Strategies in Literature review. - Writing effective literature review, Bibliographic elements - Basics of Citations and References, Measure to avoid plagiarism in research, Overview of Citation Analysis.		15(15Hr)
Lab./Field Training Contents	Literature Review and Reference Management (Practice) - Hands on practice on Citation and Reference management tool (Mendely, Zotero etc). - Practice of Referencing Style (APA and MLA, CHICAGO). - Hands on Practice on various Databases and Literature Review. - Practice of various search strategies in Literature Review.		30(30Hr)
Keywords			

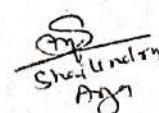
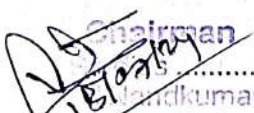
Signature of Convener & Members:





(Sushil Kr. Sahas) (Suresh Thakkar) (Dr. S. Jain) (Dr. Aronika Shukla Sharma)


Officer-in-Charge (Academic)
 Shaheed Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

Chairman
 Nandkumar Patel
 Raigarh (C.G.)

ANJEETA KUJUR

PART-C

Learning Resources: Text Books, Reference Books and Others

Text Books Recommended-

1. Weyers, J., & McMillan, K. (Pearson Education). How to Cite, Reference & Avoid Plagiarism at University EBook. United Kingdom: Pearson Education.
2. Booth, A., Sutton, A., Papaioannou, D. (2016). Systematic Approaches to a Successful Literature Review. United Kingdom: SAGE Publications.
3. Galvan, J. L., Galvan, M. C. (2017). Writing Literature Reviews: A Guide for Students of the Social and Behavioral Sciences. United Kingdom: Taylor & Francis.
4. Hart, C. (2001). Doing a Literature Search: A Comprehensive Guide for the Social Sciences. United Kingdom: SAGE Publications.
5. McEvoy, B. T., Machi, L. A. (2012). The Literature Review: Six Steps to Success. United States: SAGE Publications.
6. Ridley, D. (2012). The Literature Review: A Step-by-Step Guide for Students. United Kingdom: SAGE Publications.
7. Muhammad, Rafiq. (2023). Literature Reviews Simplified: A Practical Guide for Beginners. ISBN-978-9198900750.
8. Greatham, Bryan. (2021). How to write your literature Review. Bloomsbury Academic. ISBN-978-1352011043.
9. Young, Dona J. (2023). APA Essentials: Style, Formatting and Grammar. 7th Edition.
10. Cognella Inc. ISBN 978-1793581556.
11. MLA Handbook-9th edition (2021). Modern Language Association. ISBN-978-1603293518
12. Raibenheimer, Jacques. (2019) Mendeley: Crowdsourced Reference and citation management in the Information Era. True Insight Publishing. ISBN-978-0620594424.
13. Carter, S., & Laurs, D. (2017). Developing Research Writing: A Handbook for Supervisors and Advisors. New York: Routledge.
14. Parija, S. C., & Kate, (2017). Writing and Publishing a Scientific Research Paper. Singapore: Springer.

Online Resources-

- <https://egyankosh.ac.in/bitstream/123456789/40653/1/Unit-3.pdf>
- [e-PGPathshala \(in flibnet.ac.in\)](https://e-PGPathshala.in/flibnet.ac.in)
- <https://egyankosh.ac.in/bitstream/123456789/35677/1/Unit-3.pdf>
- <https://www.egyankosh.ac.in/bitstream/123456789/63508/2/Unit-15.pdf>

Online Resources-

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

Part-D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

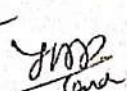
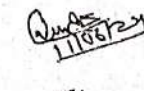
Maximum Marks: 50 Marks

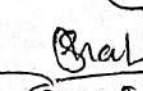
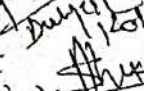
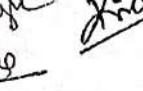
Continuous Internal Assessment (CIA): 15 Marks

End Semester Exam (ESE): 35 Marks

Continuous Internal Assessment (CIA): (By Course Coordinator)	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):	Laboratory/Field Skill Performance: On spot Assessment A. Performed the Task based on learned skill- 20 Marks B. Spotting based on tools (written) - 10 Marks C. Viva-voce (based on principle/technology)- 05 Marks	Managed by Coordinator as per skilling

Signature of Convener & Members:


Officer-in-Charge (Academic)
 Shaheed Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

Chairman
 Shaheed Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

ANJEETA KUMAR

FOUR YEAR UNDERGRADUATE PROGRAM (2024-2028)
DEPT. OF SPORTS: VALUE ADDITION COURSE
COURSE CURRICULUM (2024-25)

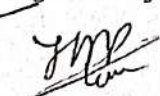
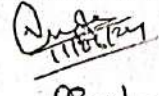
PART-A: Introduction			
Program: Undergraduate (Certificate / Diploma / Degree/Honors)		Semester - I/III/V	Session: 2024-2025
1	Course Code	LIVAC-01	
2	Course Title	Library & Information Resources	
3	Course Type	VAC(Value Added Courses)	
4	Pre-requisite (if, any)	<i>As per Program</i>	
5	Course Learning Outcomes (CLO)	☐ Acquainted with library resources and their various types. ☐ Understood general and reference sources. ☐ Familiar with electronics and open resources. ☐ Able to evaluate library resources and locate answer to reference queries. ☐ Able to evaluate of Web-Based Resources.	
6	Credit Value	2 Credits	Credit = 15 Hours - learning & Observation
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

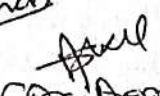
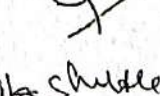
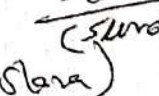
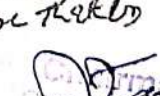
PART -B: Content of the Course

Total No. of Teaching-learning Periods (01 Hr. per period) - 30 Periods (30 Hours)

Module	Topics (Course contents): Learning and Practices	No. of Periods
I	Understanding Library Resources • Concept, Definition, Scope • Types of Library and Information Sources • Documentary and Non-Documentary Sources • Primary, Secondary and Tertiary Sources	08 (08Hr)
II	General and Reference Sources • Meaning, Definition, Scope • General Resource Materials • Reference Sources-Nature and types • General Sources vs. Reference sources	07 (07Hr)
III	Electronic and Open Access Resources • E-resources-meaning, concept and definition • Types, nature and scope • Open access resources-nature and accessibility • Web based resources-nature and accessibility	08 (08Hr)
IV	Evaluation of Library Resources • Need and Purpose of Evaluation • Criteria for Evaluation • Evaluation of Documentary Resources • Evaluation of Web-Based Resources	07 (07Hr)
Keywords		

Signature of Convener & Members, CBOS:

(Dr. S. Jain)
 ANJEEETA KUMAR
 (Dr. Anamika Shukla Dora)
 (Dr. S. Jain)
 (Dr. S. Jain)
 (Dr. S. Jain)
 (Dr. S. Jain)
 (Dr. S. Jain)

PART-C

Learning Resources: Text Books, Reference Books and Others

Text Books Recommended-

1. Bopp, R. C. & Smith, L.C. Reference & Information Services, 2nd Ed. US Libraries Unlimited, 2011.
2. Cassell, K. A. & Hiremath, U. Reference & Information Services in the 21st Century: An Introduction, 2nd Ed. US, American Library Association, 2011.
3. Kaushal, C. & Mahapatra, R.K. Open Access E-Resources in Library & Information Science. New Delhi, Ess Ess Publication, 2013.
4. Kumar, K. Library Manual, 4th Ed. New Delhi, S. Chand, 2018.
5. Kumar, PSG. Information Sources and Services - Theory and Practice. Vol. 6. New Delhi: BR Publishing Corporation, 2004.
6. Ranganathan, SR. Library Book Selection. New Delhi. Ess Ess Publications, 2006
7. Ranganathan, SR. Library Manual. New Delhi. Ess Ess Publications, 2008
8. Sharma, (J.S.) and Grover (DR). Reference Services and Sources of Information. New Delhi. Ess Ess Publications, 1987.
9. Singh, G. Information Sources, Services & Systems. New Delhi, Prentice Hall India Learning, 2013.

Online Resources-

- [LCh-009.pdf\(nios.ac.in\)](http://LCh-009.pdf(nios.ac.in))
- [LCh-001.pdf\(nios.ac.in\)](http://LCh-001.pdf(nios.ac.in))
- https://ebooks.lpude.in/library_and_info_sciences/DLIS/Year_1/DLIS001_FOUNDATION_OF_LIBRARY_AND_INFORMATION_SCIENCE.pdf
- eGyanKosh:BLI-221Library,InformationandSociety
- [MicrosoftWord-LG-Lesson1Lib\(nios.ac.in\)](http://MicrosoftWord-LG-Lesson1Lib(nios.ac.in))
- [MicrosoftWord-BLIS-101.1\(uou.ac.in\)](http://MicrosoftWord-BLIS-101.1(uou.ac.in))
- [http://14.139.237.190/other_pdf/BLIS_01_N.pdf\(UPRTOU\)](http://14.139.237.190/other_pdf/BLIS_01_N.pdf(UPRTOU))
- [http://14.139.237.190/other_pdf/BLIS-01.pdf\(UPRTOU\)](http://14.139.237.190/other_pdf/BLIS-01.pdf(UPRTOU))
- eGyanKosh:बीएलआई221पुस्तकालिकाएवंमाज
- [LCh-001H.pdf\(nios.ac.in\)](http://LCh-001H.pdf(nios.ac.in))
- [LCh-002H.pdf\(nios.ac.in\)](http://LCh-002H.pdf(nios.ac.in))
- [e-PGPathshala\(inflibnet.ac.in\)](http://e-PGPathshala(inflibnet.ac.in))
- [refl-1\(lpude.in\)](http://refl-1(lpude.in))
- eGyanKosh:BLIS-05ReferenceandInformationSources
- pssou.ac.in/read_e_book?id=424c49425f3036
- [http://14.139.237.190/other_pdf/BLIS_06.pdf\(UPRTOU\)](http://14.139.237.190/other_pdf/BLIS_06.pdf(UPRTOU))
- [LCh-008H.pdf\(nios.ac.in\)](http://LCh-008H.pdf(nios.ac.in))
- [LCh-007H.pdf\(nios.ac.in\)](http://LCh-007H.pdf(nios.ac.in))
- [LCh-006H.pdf\(nios.ac.in\)](http://LCh-006H.pdf(nios.ac.in))
- [LCh-005H.pdf\(nios.ac.in\)](http://LCh-005H.pdf(nios.ac.in))
- [e-PGPathshala\(inflibnet.ac.in\)](http://e-PGPathshala(inflibnet.ac.in))
- [unit7\(egyankosh.ac.in\)Unit-3.pdf\(egyankosh.ac.in\)](http://unit7(egyankosh.ac.in)Unit-3.pdf(egyankosh.ac.in))
- [BLIS-106.pdf\(uou.ac.in\)](http://BLIS-106.pdf(uou.ac.in))
- [BLIS6.pdf\(vmou.ac.in\)](http://BLIS6.pdf(vmou.ac.in))

Online Resources-

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

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

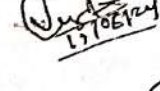
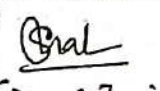
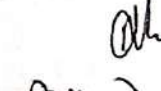
Maximum Marks: 50 Marks

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 - 05 x1 = 05 Mark; Q2. Short answer type- 5x2 = 10 Marks Section B: Descriptive answer type qts., 1 out of 2 from each unit- 4x05 = 20 Marks	

Name and Signature of Convener & Members of CBOS:

Chairman: 
 Members:  (Dr. S. Jain),  (Dr. S. Jain),  (Dr. S. Jain),  (Dr. S. Jain),  (Dr. S. Jain),  (Dr. S. Jain),  (Dr. S. Jain)

FOUR YEAR UNDERGRADUATE PROGRAM (2024-2028)
DEPT. OF SPORTS: VALUE ADDITION COURSE
COURSE CURRICULUM (2024-25)

PART-A: Introduction			
Program: Undergraduate (Certificate / Diploma / Degree/Honors)		Semester - I/III/V	Session: 2024-2025
1	Course Code	LIVAC-02	
2	Course Title	Open Access and Scholarly Communication	
3	Course Type	VAC (Value Added Courses)	
4	Pre-requisite (if, any)	As per Program	
5	Course Learning Outcomes (CLO)	- To get acquainted with the scholarly communication process and channels of communication necessary in the higher education scenario. - To understand with the Copyright and Open Access policies associated with the publishing industry. - To know and avoid malpractices in academic publishing. - To Know about various academic Performance Indicators.	
6	Credit Value	2 Credits	Credit = 15 Hours - learning & Observation
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

PART -B: Content of the Course

Total No. of Teaching-learning Periods (01 Hr. per period) - 30 Periods (30 Hours)

Module	Topics (Course contents): Learning and Practices	No. of Periods
I	Introduction to Scholarly Communication - Genesis of Scholarly Communication - Academic Publishing: Process, Importance and Ethics - Channels of Academic Publishing - Academic Journals and Peer Review Process.	08 (08Hr)
II	Academic Integrity - Scientific Misconduct: Falsification, Fabrication and Plagiarism - UGC mandate on Plagiarism - Various Facets of Authorship - Identification of Publication Misconducts and its consequences; Predatory Journals.	07 (07Hr)
III	Open Access Research - Intellectual Property Rights - Open Access Policy - Open Access Publication Process - Open Knowledge Repositories on Various Subject; NDLI,SWAYAM-MOOCs, e-PG Pathshala, NPTEL, etc.	08 (08Hr)
IV	Academic Performance Indicators - Journal Indexing and Performance Indicators - Citation Indexing; ISSN and ISBN numbering - Electronic Databases (Bibliographic Databases, Citation Databases, Full-text Databases, E-Journal Gateways) - UGC-CARE, Scopus, Web of Science, Google Scholar, ORCID, Research Gate, SJR ranking, etc.	07 (07Hr)
Keywords:		

Signature of Convener & Members:

Chairman

Convener

Members

Dr. S. Jain

Dr. Armita Shukla Sharma

Dr. Anshu Sharma

Dr. Anshu Sharma

PART-C

Learning Resources: Text Books, Reference Books and Others

Text Books Recommended-

1. Borgman, C.L.(2010),ScholarshipintheDigitalAge:Information,infrastructure,andtheInternet, Cambridge, Massachusetts: The MIT Press.
2. Das, Arup Kumar(2015), Scholarly Communication, Paris: UNESCO. Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000231938>
3. Bohannon, J.(2013). Who's Afraid of Peer Review? Science, 342(6154), 60-65. DOI:10.1126/science.342.6154.60
4. Webster, P.J.(2008), Managing Electronic Resources: New and Changing Roles for Libraries, Oxford: Chandos Publishing
5. Cargill, M., & O'Connor, P.(2013), Writing Scientific Research Articles: Strategy and Steps, Hoboken: Wiley-Blackwell.

Online Resources-

- <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=9JW4FTxyrU+Wsr8xI8vgiw==>
- <https://egyankosh.ac.in/bitstream/123456789/8720/1/Unit-2.pdf>
- <https://egyankosh.ac.in/handle/123456789/8720?mode=full>
- <https://guides.lib.unc.edu/open-access-and-scholarly-communications>
- <https://ebooks.inflibnet.ac.in/lisp20/chapter/scholarly-communication-and-open-access-creating-knowledge-without-borders/>
- eGyanKosh: Unit-21 Administrative Ethics and Integrity in Civil Services.
- eGyanKosh: BEGG-173 Academic Writing & Composition
- Research and Publication Ethics (RPE) - Course (swayam2.ac.in)
- eGyanKosh: MLIE-103 Academic Library System
- (PDF) Ethics in Research Publications: Fabrication, Falsification and Plagiarism in Science Chapter 3 in Book titled "Academic Integrity and Research Quality" published by UGC, Dec. 2021 (researchgate.net).

Online Resources-

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

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

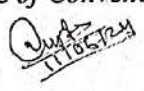
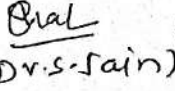
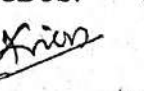
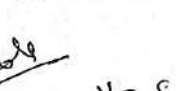
Continuous Internal Assessment (CIA): 15 Marks

End Semester Exam (ESE): 35 Marks

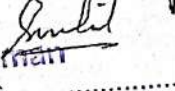
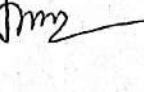
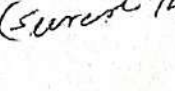
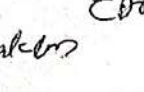
Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz-(2): 10 & 10 Assignment/Seminar +Attendance - 05 Total Marks - 15	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 Marks
End Semester Exam (ESE):	Two section – A & B	
	Section A: Q1. Objective – 05 x1= 05 Mark; Q2. Short answer type- 5x2 =10 Marks Section B: Descriptive answer type (qts., 1 out of 2 from each unit- 4x05 =20 Marks	

Name and Signature of Convener & Members of CBOS:

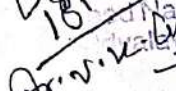
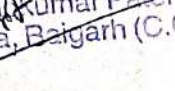
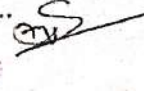
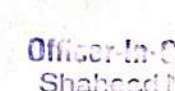


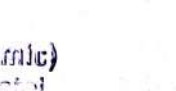







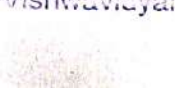
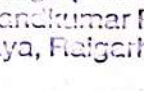
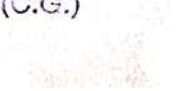




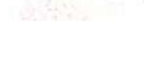
















शहीद नंदकुमार पटेल विश्वविद्यालय, रायगढ़ (छ.ग.)

(छत्तीसगढ़ विश्वविद्यालय अधिनियम 1973 द्वारा स्थापित राजकीय विश्वविद्यालय)



राष्ट्रीय शिक्षा नीति – 2020
के तहत तृतीय एवं चतुर्थ सेमेस्टर
नवीन पाठ्यक्रम
(सत्र 2025–26)

कम्प्यूटर विज्ञान

FOUR YEAR UNDERGRADUATE PROGRAM (NEP-2020)

Program: Bachelor in Science (2024 -28)

DISCIPLINE – COMPUTER SCIENCE

SESSION – 2024 -25

DSC -01 to 08		DSE -01 to 12	
Code	Title	Code	Title
CSSC -01T	Computer Fundamental and Operating System	CSSE -01	Data Communication and Networking
CSSC -01P	Lab 1: Operating Systems (DOS, Windows, Linux)	CSSE -02	Computer System Architecture
CSSC -02T	Programming in C++	CSSE -03	Cyber Security and Cyber Law
CSSC -02P	Lab 2: Programming in C++	CSSE -04	Introduction to Artificial Intelligence
CSSC -03T	Data Structure	CSSE -05	Computer Graphics
CSSC -03P	Lab 3: Data Structure Using C++	CSSE -06T	Machine Learning
CSSC -04T	Relational Database Management System	CSSE -06P	Lab 8: Machine Learning
CSSC -04P	Lab 4: Relational Database Management System (Oracle/MySQL)	CSSE -07	Software Engineering
CSSC -05T	Programming in Java	CSSE -08	Theory of Computation
CSSC -05P	Lab 5: Programming in Java	CSSE -09	Soft Computing
CSSC -06T	Web Technology	CSSE -10	Advanced Operating Systems
CSSC -06P	Lab 6: Web Technology	CSSE -11	Cloud Computing
CSSC -07T	Programming in Python	CSSE -12	Major Project
CSSC -07P	Lab 7: Programming in Python		
CSSC -08T	Fundamental of IoT and Applications		
CSSC -08P	Lab 9: Fundamental of IoT and Applications		
DGE -01 & 02		VAC	
CSGE -01T	Computer Fundamental and Operating System	CSVAC-01	Artificial Intelligence
CSGE -01P	Lab 1: Operating System (DOS, Windows, Linux)		SEC
CSGE -02T	Programming in C++	CSSEC-01	Multimedia and Animation
CSGE -02P	Lab 2: Programming in C++		

Program Outcomes (PO):

- Gain a complete exposure to the theories and practices of Computer science.
- Get transformed into a skilled learner and active programmer, enabling the students to focus on their

Shahood Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

Chairman
Studies
Shahood Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

higher studies.

- Value computer professionals and programmers.
- Explore how the concepts and applications of Computer science lead to innovative thinking with a problem-solving attitude.

Program Specific Outcomes (PSO):

- Understand the basic Computer knowledge and practical application in operating system.
- Understanding the concept of programming and develop program in C++.
- Understanding the concept of data structure and implementation with C++.
- Understanding the concept of DBMS and implementation in MySQL /Oracle.
- Understanding the concept of OOPs and Java programming and develop program in Java.
- Understanding the concept of web technology and its implementation with HTML/CSS/DHTML/PHP.
- Understand the basic concept of internet of things (IOT).
- Understanding the basic concept of cyber security and cyber law.
- Understanding the basic concept of Artificial Intelligence.

Dr. H.S. Hota
Chairman

Dr. K.B. Dubey

Dr. S.K. Sahu

Dr. Anil Sharma

Dr. Anil Sharma

Dr. Swati
Puri

CR. Khadley

Sushil Kumar Sahu

Dr. Vikrant

Dr. Arzmita Shukla Sharma

Dr. Shreshth Thakur

Shreshth Arya

Dr. An

Dr. An

Dr. An

ANJEETA KUTUR

Officer-In-Charge (Academic)
Shahood Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

Chairman
Studies
Shahood Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

CURRICULUM STRUCTURE

SCHEME

PROGRAM: B.SC.

DISCIPLINE: COMPUTER SCIENCE

Semester	Course Type	Course Code	Course Title	Total Credit	Total Marks	
					Max	Min
1 st Semester	DSC (Major/Core)	CSSC-01T	Computer Fundamental and Operating System	3	100	40
		CSSC-01P	Lab 1: Operating Systems (DOS, Windows and Linux)	1	50	20
2 nd Semester	DSC (Major/Core)	CSSC-02T	Programming in C++	3	100	40
		CSSC-02P	Lab 2: Programming in C++	1	50	20
3 rd Semester	DSC (Major/Core)	CSSC-03T	Data Structure	3	100	40
		CSSC-03P	Lab 3: Data Structure Using C++	1	50	20
	DSE	CSSE-01	Data Communication and Networking	4	100	40
4 th Semester	DSC (Major/Core)	CSSC-04T	Relational Database Management System	3	100	40
		CSSC-04P	Lab 4: Relational Database Management System (Oracle/MySQL)	1	50	20
	DSE	CSSE-02	Computer System Architecture	4	100	40
5 th Semester	DSC (Major/Core)	CSSC-05T	Programming in Java	3	100	40
		CSSC-05P	Lab 5: Programming in Java	1	50	20
	DSE	CSSE-03	Cyber Security and Cyber Law	4	100	40
6 th Semester	DSC (Major/Core)	CSSC-06T	Web Technology	3	100	40
		CSSC-06P	Lab 6: Web Technology	1	50	20
	DSE	CSSE-04	Introduction to Artificial Intelligence	4	100	40
7 th Semester	DSC (Major/Core)	CSSC-07T	Programming in Python	3	100	40
		CSSC-07P	Lab 7: Programming in Python	1	50	20

Office in Charge (Academic)
Shahed Nadeem Patel
Vishwa Vidyalaya, Raigarh (C.G.)

Dr. A.S. Hota
Chairman
Dr. K.B. Dubey
Sushil
(Sushil Kumar Singh)
ANJEETA KUMAR
Kotamraju
R.K. Khuntia
(R.K. Khuntia)
Suresh Kumar
Shankar Singh
Shankar Singh

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction

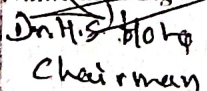
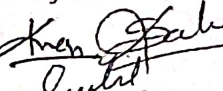
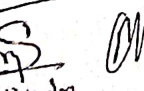
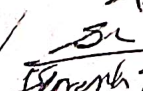
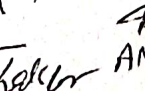
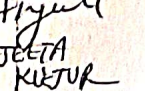
Program: Bachelor in Science (CS) (Certificate / Diploma / Degree/Honors)		Semester – III	Session: 2024-2025
1	Course Code	CSSC -03T	
2	Course Title	Data Structure	
3	Course Type	DSC (Discipline Specific Course)	
4	Prerequisite (if, any)	As per program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Understand the fundamentals and applications of data structure. • Utilize various algorithms for real world problem solving. • Understanding about data management in computer memory. • Apply stack, Queue, Lists, Trees and Graphs for real world application. • Understand how various data structures can be used to implement through any programming language.	
6	Credit Value	3 Credits	Credit = 15 Hours - Learning & Observation
7	Total Marks	Max. Marks: 100	Min Passing Marks: 40

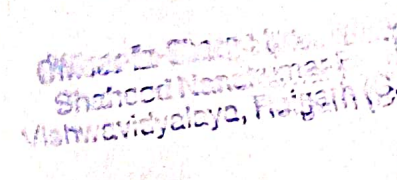
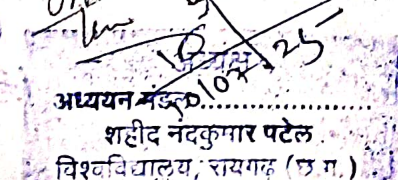
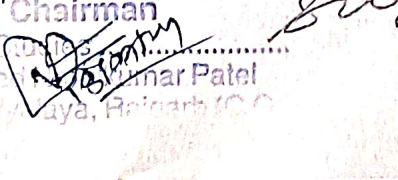
PART -B: Content of the Course

Total No. of Teaching–Learning Periods (01 Hr. per period) - 45 Periods (45 Hours)

Unit	Topics (Course contents)	No. of Period
I	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.	12
II	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. 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.	11
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.	

Signature of Convener & Members of CBoS:

Dr. H. S. Bhoirao  Chairman
 Dr. K. S. Chaudhary 
 Dr. Anurag 
 Dr. Arun 
 Dr. Shilpa 
 Dr. Anshu 
 Dr. Anshu 
 Dr. Anshu  ANJETA KUTUR
 Dr. Anshu 

अध्यक्षन मंडळ
 श्रीद नंदकुमार पटेल
 विश्वविद्यालय, रायगढ़ (छ.ग.)

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Michael T. Goodrich, Data Structures and Algorithms in C++, Wiley
- Horowitz and Sahani, Fundamentals of Data Structures, Computer Science Press

Reference Books Recommended:

- Alfred V. Aho, Data structures and Algorithms, Jhon E. Hopcroft and J.E. Ullman.
- Jean Paul Trembley and Paul Sorenson, An Introduction to Data Structures with Applications, TMH, International Student Edition
- R. Kruse, Leung & Tondo, Data Structures and Program Design in C, PHI publication, 2nd Edition

Online Resources:

- NPTEL YouTube Channel: Data Structure Complete course
- <https://youtube.com/playlist?list=PLc2MoXNv7E4mtsPlnn9BnTOENXsGyoDgR&si=aAYaVZ-vWfeuhFEO>
- NPTEL YouTube Channel: Introduction to Data Structure
- <https://www.youtube.com/watch?v=zWg7U0OEAOE&list=PLBF3763AF2E1C572F&index=1>
- NPTEL YouTube Channel: Stacks
- <https://www.youtube.com/watch?v=gIUSSZVWDsY&list=PLBF3763AF2E1C572F&index=2>
- NPTEL YouTube Channel: Queues and linked list
- <https://www.youtube.com/watch?v=PGWZUgzDMYI&list=PLBF3763AF2E1C572F&index=3>
- NPTEL YouTube Channel: Trees
- <https://www.youtube.com/watch?v=tORLeHHtazM&list=PLBF3763AF2E1C572F&index=6>
- NPTEL YouTube Channel: Graphs
- <https://www.youtube.com/watch?v=9zpSs845wf8&list=PLBF3763AF2E1C572F&index=24>
- W3schools Data Structure Reference: [DSA Tutorial \(w3schools.com\)](https://www.w3schools.com/dsa/)

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-(2): 20 & 20	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 30 Marks
	Assignment / Seminar - 10	
	Total Marks - 30	

End Semester Exam (ESE):	Two section - A & B
	Section A: Q1. Objective - 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks
	Section B: Descriptive answer type qts..1out of 2 from each unit-4x10=40 Marks

Name and Signature of Convener & Members of CBOS:

(Signatures of Convener and Members of CBOS)

Chairman: *(Signature)*

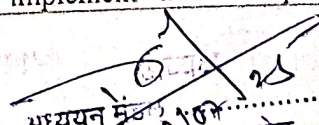
(Signatures of Members)

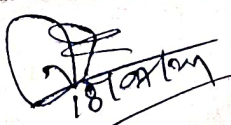
ANJEETA KUMAR

अध्ययन मंडल
शहीद नंदकुमार पटेल
विश्वविद्यालय, रायगढ़ (उ.प्र.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction			
Program: Bachelor in Science (CS) (Certificate / Diploma / Degree)		Semester – III	Session: 2025-2026
1	Course Code	CSSC-03P	
2	Course Title	Lab 3: Data Structure Using C++	
3	Course Type	DSC	
4	Prerequisite	As per program	
5	Course Learning, Outcomes (CLO)	At the end of this course, the students will be able to: • Understand how the concept of data structure can be implemented programmatically. • Implement the fundamentals data structure through C and C++ • Understand the functioning of Array and linked list programmatically. • Understand the applications of array, linked list stack, queue, tree and graph programmatic. • Write programs for various data structures for real world application.	
6	Credit Value	1 Credits	Credit =30 Hours Laboratory or Field Learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20
PART -B: Content of the Course			
Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)			
Module	Topics (Course contents)		No. of Period
Lab./Field Training/ Experiment	1. Write a program to create a square matrix, fill the data inside and print the diagonal elements. 2. Write a program to perform addition and subtraction on two matrices. 3. Write a program to perform multiplication on two matrices. 4. Write a program to perform insertion, deletion of nodes from the end in singly linked list. 5. Write a program to perform insertion and deletion of nodes from the end in singly linked list. 6. Write a program to perform insertion and deletion of nodes from the end in circular doubly linked list. 7. Write a program to perform push and pop operations in stack, where stack should be created using array. 8. Write a program to perform push and pop operation in stack, where stack should be created linked list. 9. Write a program to calculate factorial of given number using stack. 10. Write a program to perform insertion and deletion of data items in queue, queue should be implemented by using a linked list. 11. Write a program to perform insertion and deletion of data items in queue, queue should be implemented by using arrays. 12. Write a program to demonstrate functioning of a double ended queue. 13. Write a program to read the postfix arithmetic expression and evaluate its value using the stack. 14. Write a program to show how to handle the overflow and underflow situation in stack. 15. Write a program to convert infix notation-based expression into the postfix notation-based expression using the stack. 16. Write a program to implement the concept of priority-based element		30


 अध्यक्ष, मंडळ, १०८
 शहीद भेंद्रे पुस्तकालय, रायगड (उ.ग.)
 विश्वविद्यालय, रायगड (उ.ग.)


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traversing using priority queue.

17. Write a program to implement the concept of priority-based element traversing using priority queue.
18. Write a program to create binary search tree using the concept of linked list and array, suppose data set will be given at the run time.
19. Write a program 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.
20. Write a program to perform deletion of any data item from the binary search tree.
21. Write a program to find the height of any tree.
22. Write a program to create any given undirected graph using the adjacency matrix, and print each node/element with list of its adjacent elements.
23. Write a program to find the height of any given tree.
24. Write a program to traverse the element of given graph according BFS and DFS.
25. Write a program to find the minimum spanning tree of any given graph.
26. Write a program to search any run time given element from the array of 10 elements in the array are unsorted.
27. Write a program to demonstrate the binary search.
28. Write a program to find the smallest and largest element in any array.
29. Write a program to arrange the data items of any array in ascending order.
30. Write a program to arrange the data items of any array in descending order using quick sort.

Note: Concerned teacher can add additional practical exercises as per requirement.

Keywords Array, Linked List, Stack, Queue, Traversing, Tree, Graph, Searching, Sorting, Hashing.

Name and Signature of Convener & Members of CBOS:

Dr. H.S. Hota
Chairman

Sunil

K. S. Gopal

Shreshth Kojhar

Shreyansh

Prady

Shreyansh

Arvind Kumar

ANJEETA KUMAR

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Michael T. Goodrich, Data Structures and Algorithms in C++, Wiley
- Horowitz and Sahani, Fundamentals of Data Structures, Computer Science Press

Reference Books Recommended:

- Alfred V. Aho, Data structures and Algorithms, Jhon E. Hopcroft and J.E. Ullman.
- Jean Paul Trembley and Paul Sorenson, An Introduction to Data Structures with Applications, TMH, International Student Edition
- R. Kruse, Leung & Tondo, Data Structures and Program Design in C, PHI publication, 2nd Edition

Online Resources:

- NPTEL YouTube Channel: Data Structure Complete course
<https://youtube.com/playlist?list=PLc2MoXNv7E4mtsPlnn9BnTOENXsGyoDgR&si=aAYaVZ-vWfeuhFEO>
- NPTEL YouTube Channel: Introduction to Data Structure
<https://www.youtube.com/watch?v=zWg7U0OEAoE&list=PLBF3763AF2E1C572F&index=1>
- NPTEL YouTube Channel: Stacks

10/10/25
अध्यक्ष
शहीद नंदलाल पटेल
विश्वविद्यालय, रायगढ़ (छ.ग.)

DG
18/10/25

- ## PART -D: Assessment and Evaluation

End Semester Exam (ESE): 35 Marks

Name and Signature of Convener & Members of CBoS:

ANJEEVA KUTUR

Ashtorby

अध्ययन मंडल
शहीद जंगलामार पटेल
विश्वविद्यालय, काठमाडौं (प्र.ग.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (CS) <i>(Certificate / Diploma / Degree/Honors)</i>		Semester - IV	Session: 2024-2025
1	Course Code	CSSC-04T	
2	Course Title	Relational Database Management System	
3	Course Type	DSC (Discipline Specific Course)	
4	Prerequisite (if, any)	<i>As per program</i>	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Learn about Database Concepts, Architecture, various Users, Data Models and Data Management. • Familiar with RDBMS Software like Oracle and MySQL. • Create various Tables and Databases. • Explore various SQL commands. • Create Database on the basis of E-R diagrams for Minor and Major Project.	
6	Credit Value	3 Credits	<i>Credit = 15 Hours - Learning & Observation</i>
7	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	Overview of Database Management: Introduction, Data Processing versus Data Management, Data Models: Network Model, Relational Model, Hierarchical Model, Instance and schema, View of Database system, File Oriented Approach vs Database Oriented Approach, Data Independence, DBMS Architecture, Database Administration Roles, Database languages: DDL, DML, DCL, TCL, Different kinds of DBMS users, Introduction to Data Dictionary.	12
II	Database Design and E-R Model: Introduction, Entity, Strong and weak entities, Relationship, Cardinality, Attributes, Concept of keys: Super key, Candidate key, Primary key, Alternate key, Foreign key, ER Diagram, Constraints in Database, Codd's Rules, Extended ER features: Generalization, Specialization and Aggregation, Participation, Converting an E-R model into relational Schema.	11
III	Relational Database Design and Operations: Introduction, Dependencies: Functional dependencies, Multivalued Dependencies, Join dependencies, Database anomalies, Decomposition, Normalization: Normal forms 1NF, 2NF, 3NF, BCNF, 4NF, 5NF, Denormalization. Relational Algebra: Select operation, Project operation, Union operation, Cartesian Product operation, Intersection operation, Join operation, Different types of joins (Inner join, Outer join, Self join).	11
IV	Transaction: Introduction, Desirable properties of transaction (ACID), Concurrency control techniques, Serializability.	11
Keywords	<i>Data Models, Data Dictionary, E-R Model, E-R Diagram, Keys, Functional Dependency, Anomalies, Normalization, Relational Algebra, Concurrency, Serializability.</i>	

Name and Signature of Convener & Members of CBoS:

Dr. H. S. Holtz
Chairman

Ken Bab

Handwritten signature: *[Signature]*

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Sincerely Yours,

10/10/10

7/10/20

10/10/10

UN TIK

Handwritten notes on a lined page, including the word "A" and some illegible scribbles.

Jeet Kune Do Sheelbark
Kumar Arya

ANJEEVA

RUJUK

अध्ययन

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शहीद नंदकु
विश्वविद्यालय

मार पटेल
प्रायमल (रु. म.)

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PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Database system concept, H. Korth and A. Silberschatz, TMH Publications.
- Data Base Management System, Alexies & Mathews, Vikash publication.
- Data Base Management System, C. J. Date, Narosha Publication.
- Data Base Management System By James Martin.

Reference Books Recommended:

- Principles of Database System By Ullman.
- Program Design, Peter Juliff, PHI Publications.
- The Complete Reference, Kevin Loney, Oracle Press.
- SQL, PL/SQL The Programming Language of Oracle, Ivan Bayross, PustakKosh Publication.
- Microsoft SQL Server Management and Administration, Ross, STM Publications.

Online Resources:

- SWAYAM URL link for DBMS and RDBMS: <https://youtu.be/I6LGIJutWyA>
- SWAYAM URL link for DBMS and RDBMS: <https://youtu.be/IoL9Ve2SRwQ>
- SWAYAM URL link for DBMS and RDBMS: <https://swayam.gov.in/courses/4434-data-base-management-system>
- Introduction of DBMS from SWAYAM: https://onlinecourses.swayam2.ac.in/ccc19_cs05/preview
- Introduction of RDBMS from SWAYAM: https://onlinecourses.nptel.ac.in/noc19_cs46/preview
- Introduction to DMBS: <https://www.w3schools.in/dbms/intro>
- Data independence: <https://www.w3schools.in/dbms/data-independence>
- Generalization and Aggregation: <https://www.w3schools.in/dbms/generalization-aggregation>
- Introduction to DMBS: <https://www.javatpoint.com/dbms-tutorial>

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-(2): 20 +20	Better marks out of the two Test / Quiz obtained marks in Assignment shall be considered against 30 Marks
	Assignment / Seminar - 10	
	Total Marks - 30	
End Semester Exam (ESE):	Two section – A & B Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks Section B: Descriptive answer type qts..1 out of 2 from each unit-4x10=40 Marks	

Name and Signature of Convener & Members of CBoS:

Dr. H. S. Hota
Chairman

Shubh,

(Shreshth Thakur)

Shreshth Thakur

Shreshth Thakur

Shreshth Thakur

ANJEETA KUTUR

अध्ययन मं.

शहीद नंदकुमार पटेल

विश्वविद्यालय, रायगढ़ (छ.ग.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (CS) (Certificate / Diploma / Degree)		Semester - IV	Session: 2024-2025
1	Course Code	CSSC-04P	
2	Course Title	Lab 4: Relational Database Management System (Oracle/MySQL)	
3	Course Type	Practical	
4	Prerequisite	As per program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Learn about Database Concepts, Architecture, various Users. Data Models and Data Management which helps them to interact with various Databases. • Develop various Tables and Databases which helps them to develop new Software. • Practice various SQL commands which helps them to generate new relationships among various Tables and Databases which are useful for Software Development. • Familiar with RDBMS Software like Oracle and SQL Server which are used as Backend for Software Development. • Develop new Databases for their Minor and Major Project Development which enhances their Data Storage, Data Accessibility and Data Management.	
6	Credit Value	1 Credits	Credit =30 Hours Laboratory or Field Learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

PART -B: Content of the Course

Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)

Module	Topics (Course contents)	No. of Period
List of Practical Experiments	- Design an employee table in Oracle/SQL Server having eid(primary key) ename, edesignation, edoj, edob, eaddress, salary, econtact as fields and answer the following questions : - Insert five records in above created table. - Display all five records. - Delete the fourth record. - Update the third record of the field ename as 'hari'. - Add one new field in the table. - Design a salary table Oracle/SQL Server with one primary key and foreign key(employee table) having following fields : Month, working days, deptid, gross, incentive, deduction and net salary. - Insert five records in the above created table. - Display all five records. - Use foreign key relations and display records. - Update the second record of field deptid as 'Sales'. - Add one new field in the table. - Create a new user in Oracle/SQL Server. - Create a view in Oracle/SQL Server. - Create a new table in Oracle/SQL Server and practice for join operation. - Create a new user in Oracle/SQL Server and practice for the commit and rollback command.	30

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7. Create a new database in Oracle/SQL Server having at least five tables for the Hotel Management System.
8. Create a new database in Oracle/SQL Server having at least four tables for Covid Vaccination Management System.
9. Create a new database in Oracle/SQL Server having at least five tables for the Library Management System.
10. Create a new table in Oracle/SQL Server and practice for Group by and Order by Clause.
11. Create a new table in Oracle/SQL Server and practice for max(), min(), avg() and count() functions.
12. Create a new table in Oracle/SQL Server and practice for lower(), substr(), trim() and upper() functions.
13. Create a new table in Oracle/SQL Server and practice for unique and check constraints.
14. Create a new table in Oracle/SQL Server and practice for any two date formats.
15. Create a new table in Oracle/SQL Server and practice using clauses.
16. Create a new table in Oracle/SQL Server and practice for having clauses with sub queries.
17. Create a new table in Oracle/SQL Server and practice for aliases in any table.
18. Create a new table in Oracle/SQL Server and practice for inner and outer join.
19. Create a new table in Oracle/SQL Server and practice for Drop command.
20. Write a PL/SQL program for addition of two numbers.
21. Write a PL/SQL program to find the factorial value of any entered number.
22. Write a PL/SQL program for swapping of two numbers.
23. Write a PL/SQL program to print the first ten Natural Numbers.
24. Write a PL/SQL program to generate even series upto five digits starting from 2 and sum all the terms.
25. Write a PL/SQL program to practice for implicit and explicit cursors.

Note: Concerned teacher can add additional practical exercises as per requirement.

Keywords TABLE, SQL, PL/SQL.

Name and Signature of Convener & Members of CBoS:

Dr. H. S. Hota
Chairman

Sunil

Suresh Thakur

Shreeshree
Anu

Shreeshree
Anu

Shreeshree
Anu

Shreeshree
Anu

ANJEETA RUPAK

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Database system concept, H. Korth and A. Silberschatz, TMH Publications.
- Data Base Management System, Alexies & Mathews, Vikash publication.
- Data Base Management System, C. J. Date, Narosha Publication.
- Data Base Management System By James Matin.

Reference Books Recommended:

- Principles of Database System by Ullman.
- Program Design, Peter Juliff, PHI Publications.
- The Complete Reference, Kevin Loney, Oracle Press.

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शहोब नंदकुमार पटेल

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- SQL, PL/SQL The Programming Language of Oracle, Ivan Bayross, PustakKosh Publication.
- Microsoft SQL Server Management and Administration, Ross, STM Publications.

Online Resources:

- SWAYAM URL link for DBMS and RDBMS:
<https://youtu.be/f6LGtJutWyA>
- SWAYAM URL link for DBMS and RDBMS:
<https://youtu.be/loL9Ve2SRwQ>
- SWAYAM URL link for DBMS and RDBMS :
<https://swayam.gov.in/courses/4434-data-base-management-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-(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):	Laboratory / Field Skill Performance: On spot Assessment A. Performed the Task based on lab. work - 20 Marks B. Spotting based on tools & technology (written) - 10 Marks C. Viva-voce (based on principle/technology) - 05 Marks	Managed by Course teacher as per lab. status
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Name and Signature of Convener & Members of CBoS:

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Chairman

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[Signature], Elorah Thakkar

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Snehalata
Apt

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Dr. V.K. Inke

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ANJETA KUTUR

[Signature]
Ketkar
Ramesh

[Signature]

10/07/25
मध्यम मंडल
शहीर नंदकुमार पटेल
विश्वविद्यालय, रायगड (उ.प्र.)

[Signature]

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction			
Program: Bachelor in Science (CS) (Certificate / Diploma / Degree/Honors)		Semester - III	Session: 2024-2025
1	Course Code	CSSE-01	
2	Course Title	Data Communication and Networking	
3	Course Type	DSE (Discipline Specific Elective)	
4	Prerequisite	As per program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Understand the fundamentals and functionalities of computer network technology. • Understand and explain the Data Communications System and its components. • Analyze the different types of network topologies and protocols. • Analyze various layers of OSI and TCP/IP models. • Explore wireless and wired LANs.	
6	Credit Value	4 Credits	Credit = 15 Hours - learning & Observation
7	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) – 60 Periods (60 Hours)

Unit	Topics (Course contents)	No. of Period
I	Introduction to Computer Network and Physical Layer: Fundamentals of Computer network, types of computer networks: LAN, MAN, WAN, Network topologies, Transmission modes, ISO-OSI reference model, TCP/IP model, Concept of Analog and Digital Signals, Bandwidth, Multiplexing: TDM, FDM, WDM, CDMA, Transmission Media -Guided, Unguided, switching techniques: Circuit Switching, Message Switching, Packet Switching. Common Network Architecture: Wireless LANs 802.11 standards, Overview of VSAT and VPN.	15
II	Data Link Layer: Functions of Data Link Layer, Framing, Error detection and correction codes: checksum, CRC, hamming code, Flow Control: Stop & Wait and Sliding Window Protocols, Error Control: Stop & wait ARQ, Go-back-n, Selective Repeat ARQ, Data link protocols: HDLC and PPP, Medium Access Sublayer: LLC Protocol, IEEE Project 802 series of network standard and CSMA/CD.	15
III	Network Layer and Transport Layer: Functions of Network Layer, Routing Protocols & Algorithms, IPv4, IPv6, X.25, Networking & Internetworking devices, Functions of Transport Layer, Flow Control & Buffering, Transport Layer Protocols: TCP, UDP & SCTP, Network and Principles of Congestion Control.	15
IV	Session Layer: Overview, functioning and protocols. Presentation Layer: functioning and protocols. Application Layer: BOOTP, DHCP, DNS, TELNET, World Wide Web (WWW), File Transfer Protocol (FTP), Hypertext Transfer Protocol (HTTP), Email Protocols: MIME & SMTP, POP, IMAP, Proxy Server.	15

Keywords: Protocol, Topology, Transmission Media, LAN, WAN, MAN, Wi-Fi.

Name and Signature of Convener & Members of CBaS:

Dr. H.S. Bata
Chairman

Kiran [Signature]
[Signature]
(Bhaskar Thakur)

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10/05/25
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 विश्वविद्यालय, रायगढ़ (उ.प्र.)

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Andrew S. Tanenbaum, Computer Networks, PHI / Pearson Education Inc.
- Behrouz A. Forouzan, Data Communication and Networking, Tata McGraw-Hill.

Reference Books Recommended:

- William Stallings, Data and Computer Communication, Pearson Education.
- Nader F. Mir, Computer and Communication Networks, Pearson Education, 2007.
- Black, Data & Computer Communication, PHI

Online Resources:

- NPTEL link for Data Communication:
<https://nptel.ac.in/courses/106105082>
- Introduction to Data Communication from SWAYAM Portal
https://www.youtube.com/watch?v=swtH_okidQc&list=PLUtlVcb-iqn8dG1-Cn7NTedILR3hRVgcN&index=1
- Layered Architecture
<https://www.youtube.com/watch?v=xHO6LjSHco0&list=PLUtlVcb-iqn8dG1-Cn7NTedILR3hRVgcN&index=2>
- Data and Signal
<https://www.youtube.com/watch?v=6ZGVZ7gUccE&list=PLUtlVcb-iqn8dG1-Cn7NTedILR3hRVgcN&index=3>
- Guided Transmission Media
<https://www.youtube.com/watch?v=y7v3EAJsWXA&list=PLUtlVcb-iqn8dG1-Cn7NTedILR3hRVgcN&index=5>
- Unguided Transmission Media
<https://www.youtube.com/watch?v=hKq1tYIVxdQ&list=PLUtlVcb-iqn8dG1-Cn7NTedILR3hRVgcN&index=6>

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

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

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Bhat
Chairman

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अध्ययन मंडल
शहोद नंदकुमार पटेल
विश्वविद्यालय, रायगढ़, (छ.ग.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction			
Program: Bachelor in Science (CS) (Certificate / Diploma / Degree/Honors)		Semester - IV	Session: 2024-2025
1	Course Code	CSSE-02	
2	Course Title	Computer System Architecture	
3	Course Type	DSE (Discipline Specific Elective)	
4	Prerequisite	As per Program	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Understand the architecture and functioning of computer systems at the hardware level. • Analyze the Instruction Set Architecture (ISA) • Understand design, Implementation and Analysis of data path for instruction execution. • Understand the functioning of the CPU. • Understand the concept of parallel processing with their applications. • Understand the communication between the peripheral devices and CPU. • Explore the concepts of Memory Organization. • Understand the concept of multiprocessing. • Design the basic computer system Architecture.	
6	Credit Value	4 Credits	Credit = 15 Hours - learning & Observation
7	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) – 60 Periods (60 Hours)			
Unit	Topics (Course contents)		No. of Period
I	Fundamentals Of Basic Computer Organization And Design: Introduction of digital components, register and its types(DR,AR,AC,IR,PC,TR,INPR,OUTR), register transfer and register transfer language, microoperations and its types, common bus system for register and memory organization, computer instruction, basic format of instruction, types of instruction according addressing field (zero, one, two, three addressing), types of instruction (MRI,NMRI), addressing modes, instruction cycle and its flowchart, types of control unit(hardwired and microprogrammed control unit), design of control unit in basic computer.		15
II	Central Processing Unit and Parallel Processing Techniques: Introduction to CPU, general register organization, stack organization (register stack, memory stack), application of stack organizations, CPU instructions (data transfer instruction, data manipulation instruction, program control instructions), RISC and CISC instructions, interrupts and its types, interrupt cycle. Flynn's classification of computers, Parallel processing techniques (pipeline processing, vector processing, array processing), pipeline processing concept, types of pipelines and its application, speedup ratio of a pipeline, vector processing concept and its applications, concept of array processing and its applications.		15
III	Input – Output Organization: Introduction to peripheral devices, input-output interface and its designing, Modes of data transfer (synchronous and asynchronous data transfer), controls in asynchronous data transfer (strobe control and handshaking control), modes of data transfer (programmed i/o, interrupt-initiated i/o and direct memory access), input-output processor.		15
IV	Memory Organization and Multiprocessor Architecture: Memory hierarchy, main memory and its organization (RAM and ROM Chips, memory address map, memory connections to CPU), auxiliary memory, associative memory, concept of cache memory, cache memory mapping techniques (associative mapping, direct mapping, set-associative mapping), cache coherence problem and its solution, introduction to multiprocessors, interconnection structures of multiprocessor-based systems, inter-processor communication and synchronization.		15

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18/02/25

Keywords Registers, micro-operation, instruction, control unit, instruction cycle, interrupt cycle, CPU, stack, parallel processing, pipeline processing, vector processing, array processing, asynchronous data transfer, DMA, RAM, ROM, cache memory, IOP, multiprocessor.

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
chairman
Sushil
(Suresh Thakur)
ANJETA KUR

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- M. Morris Mano, Computer System Architecture, 3e, Pearson Education.
- B. Ram Sanjay Kumar, Computer Fundamentals Architecture and Organization, 5e, New Age International Publishers.

Reference Books Recommended:

- William Stallings, Computer Organization & Architecture, 11e, Pearson.
- Jyotsna Sengupta, Fundamentals of Computer Organization and Architecture, Deep & Deep Publications.
- Amit Kumar Mishra, A Textbook of Computer Architecture, Katson Books.

Online Resources:

- NPTEL YouTube Channel: Online Lecture Series on Computer Architecture
 - <https://youtube.com/playlist?list=PL59E5B57A04EAE09C&si=WUP8O10Y6ZrIeu-i>
 - <https://youtube.com/playlist?list=PLIA5A6AE8AFC187B7&si=JmIOO3rT9NGSMkmN>
 - <https://youtube.com/playlist?list=PLgHucKw979AvenTpPNZMZyQRdL5HvTr9m&si=PqOMY-sh6tCuzPXA>
- NPTEL Portal : Online Lecture Computer Architecture and Organization
NPTEL :: Computer Science and Engineering – NOC :Computer architecture and organization

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-(2): 20 +20	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 30 Marks
	Assignment / Seminar - 10	
	Total Marks - 30	
End Semester Exam (ESE):	Two section – A & B Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks Section B: Descriptive answer type qts., 1 out of 2 from each unit-4x10=40 Marks	

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
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अध्ययन मं. 010/25
शहीद नंदागुप्त पटेल
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FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART-A: Introduction

Program: Bachelor in Science (CS) (Certificate / Diploma / Degree/Honors)		Semester – I/III/V	Session: 2024-2025
1	Course Code	CSVAC-01	
2	Course Title	Artificial Intelligence	
3	Course Type	Value Addition Course (VAC)	
4	Prerequisite	As per program	
5	Course Learning Outcomes(CLO)	At the end of this course, students will be able to: • Understand basics of AI. • Understand problem solving techniques of AI. • Aware about AI tools. • Explore application of AI in various domains. • Understand the current scenario of AI in India.	
6	Credit Value	2 Credits	Credit = 15 Hours -Learning & Observation
7	Total Marks	Max. Marks: 50	Min Passing 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 contents)	No .of Period
I	Introduction: Overview of Artificial Intelligence (AI), Foundations of AI, Areas and Applications of AI in various domains, AI in India, Impact and examples of AI, Future of AI.	8
II	Advanced AI: Basic Concept of Machine Learning, Deep Learning, Computer vision, Natural Language Processing (NLP), Speech recognition, Generative AI Applications.	8
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, E-Commerce, Industry, Research etc.	6

Keywords Artificial Intelligence (AI), Machine Learning (ML), Deep Learning, Computer Vision, Natural Language Processing (NLP), Conversational AI, Generative AI.

Name and Signature of Convener & Members of CBoS:

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Chairman

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PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Introduction to Artificial Intelligence and Expert Systems, Dan W. Patterson, PHI Publication.
- Artificial Intelligence, Elaine Rich and Kevin Knight TMH publication.

Chairman

Officer-In-Charge (Academic)
 Shaheed Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

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 Shaheed Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

Reference Books Recommended:

- Artificial Intelligence and machine learning, Vinod Chandra S.S., Anand Harcendr S., PHI learning private Ltd.
- Foundations of Artificial Intelligence and Expert Systems, Macmillan Series in Computer Science, V.S. Jankiraman, K. Sarukesi and P. Gopala Krishnan.

Online Resources:

- Ministry of Electronics and Information Technology Portal for INDIAai:
<https://indiaai.gov.in/>
Introduction to Artificial Intelligence from SWAYAM:
https://www.youtube.com/watch?v=pKcVMlkFpRc&list=PLwdnzlV3ogoXaccHrrFVZCJKBm_laSHcH&index=2
An introduction to Artificial Intelligence from SWAYAM:
https://onlinecourses.nptel.ac.in/noc24_cs08/preview
- Introduction to Artificial Intelligence from Coursera:
<https://www.coursera.org/learn/introduction-to-ai>
- Introduction to Artificial Intelligence:
<https://www.javatpoint.com/artificial-intelligence-ai>
- How to Learn Artificial Intelligence from Coursera:
<https://www.coursera.org/articles/how-to-learn-artificial-intelligence>

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	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 Marks
	Assignment/Seminar- 05 Total Marks - 15	
End Semester Exam (ESE):	Laboratory/Field Skill Performance: On spot Assessment A. Performed the task based on learned skill - 20 Marks B. Spotting based on tools (Written) - 10 Marks C. Viva-voce (based on principle/technology)- 05 Marks	Managed by Coordinator as per skilling

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

Sumit

(Suresh Thakur)

Shreelakshmi Arora

Pratibha Kumar

Chairman

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Officer-in-Charge (Academic)
Shaheed Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

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Vishwavidyalaya, Raigarh (C.G.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER SCIENCE
COURSE CURRICULUM

PART- A: Introduction

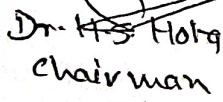
Program: Bachelor of Science (CS) (Certificate / Diploma / Degree)		Semester - II/IV/V/VI	Session: 2024-2025
1	Course Code	CSSEC-01	
2	Course Title	Multimedia and Animation	
3	Course Type	Skill Enhance Course (SEC)	
4	Prerequisite	As Per Program	
5	Course Learning Outcomes (CLO)	After Completing this course, students will be able to: • Understand about Multimedia Framework. • Work with Adobe Flash. • Create games using Flash. • Film editing using VFX.	
6	Credit Value	2 Credits (1C+1C)	Credit =15 Hours Theoretical Learning and = 30 Hours Laboratory or Field learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

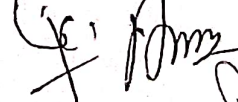
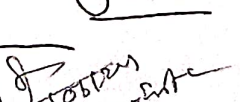
PART -B: Content of the Course

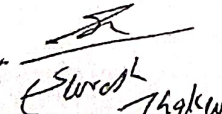
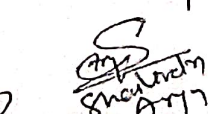
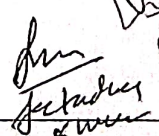
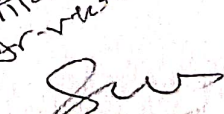
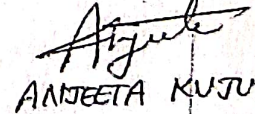
Total No. of Teaching-learning periods:
 Theory- 15 Periods (15 Hrs.) and Laboratory or Field learning/Training Periods: 30 Periods
 (30 Hours)

Module	Topics (Course contents)	No. of Period
Theory Content	1. Introduction to multimedia, multimedia hardware, multimedia software and frameworks. 2. Introduction to flash, creating games, making presentations, animation, visualizations. 3. Introduction to VFX, VFX compositing and editing, animation, motion, modelling artist, texture artist, painting, rigging.	15
Lab/Field Training Content	1. Create and Edit 2D animation using Flash. 2. Create and Edit 3D animation using Flash. 3. Making presentation using Flash. 4. Creating games using Flash. 5. Audio/video Editing using VFX. 6. Film editing using VFX. 7. Color grading using VFX. 8. Motion graphics designing using VFX.	30
Keywords	Multimedia, Animation, Flash, VFX.	

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Holga
 Chairman








 ANJEETA KUTUR

Officer in-Charge (Academic)
 Shaheed Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

Officer in-Charge (Academic)
 Shaheed Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Brian Underdahl, Macromedia Flash MX: The Complete Reference, McGraw-Hill
- Ibis Fernandez, Flash Animation and Cartooning: a creative guide
- Tony white, The animators to Adobe Flash.
- Ian failes, Masters of FX.

Reference Books Recommended:

- Jan Marrelli , A Guide to Web Development Using Adobe Dreamweaver CS3 with Fireworks and Flash, Lawrenceville Press
- Codex Jeffrey A. Okun and Susan Zwerman, The VES handbook of Visual Effects: Industry Standard VFX Practices and Procedures.

Online Resources:

- Introduction to Multimedia:
<https://www.javatpoint.com/multimedia-definition#:~:text=Multimedia%20combines%20several%20media%20formats,users%20engage%20with%20the%20information.>
- Introduction to Multimedia:
https://www.w3schools.com/html/html_media.asp
- Introduction to Flash:
<https://www.javatpoint.com/what-is-flash#:~:text=Adobe%20Flash%20is%20usually%20installed,of%20disabling%20the%20browser%20extension.>
- Introduction-To-Macromedia-Flash-8:
<https://www.geeksforgeeks.org/introduction-to-macromedia-flash-8/>

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

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):	Laboratory / Field Skill Performance: On spot Assessment	
	Managed by Course	
	teacher as per lab.	
	status	
	A. Performed the Task based on lab. work	- 20 Marks
	B. Spotting based on tools & technology (written)	- 10 Marks
	C. Viva-voce (based on principle/technology)	- 05 Marks

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

Dr. H.S. Hota

Dr. H.S. Hota

Dr. H.S. Hota

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Officer-In-Charge (Academic)
Shaheed Nandkumar Patel
Vishwavidyalaya, Raigarh (C.G.)

Chairman
of Studies
and
Nandkumar Patel
Vishwavidyalaya (C.G.)

FOUR YEAR UNDERGRADUATE PROGRAM (2024-28)
Department of Library and Information Science
Course Curriculum for SEC

PART-A: Introduction			
Program: Undergraduate <i>(Certificate / Diploma / Degree / Honors)</i>		Semester - II/IV/V/V	Session: 2024-2025
1	Course Code	LISEC-01	
2	Course Title	Content Management and Web Development	
3	Course Type	SEC (Skill Enhancement Courses)	
4	Pre-requisite (if, any)	<i>As per Program</i>	
5	Course Learning Outcomes (CLO)	☐ Understand the fundamental concepts of Content management and Web Page Designing. ☐ Able to understand popular platform for creating websites and Content Management System. ☐ Able to understand the Installation, Setup of Word Press, and JOOMLA, DRUPAL ☐ Able to Understanding the Dashboard Templates, Layouts, Extensions, Content Creation, Customization, Back up and Maintenance of Word Press, JOOMLA, DRUPAL.	
6	Credit Value	2 Credits (1C+ 1C)	<i>Credit = 15 Hours = Theoretical learning and = 30 Hours Laboratory or Field learning/Training</i>
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20
PART-B: Content of the Course			
Module	Total No. of Teaching-learning Periods: Theory-15 Periods (15Hrs) and Lab. Or Field learning / Training 30 Periods (30 Hours)		No. of Period
Theory Contents	Introduction and History - Web Content Development and Management, Content types and Formats, Norms and Guidelines of Content Development - Word Press - JOOMLA - DRUPAL		15 (15 Hr)
Lab./Field Training Contents	Practice Word Press Installation and Setup, Understanding the Dashboard, Themes, Plugins, Content Creation, Customization, Backup and Maintenance. JOOMLA Installation and Setup, Understanding the Dash board, Templates and Layouts, Extensions, Content Creation, Customization, Backup and Maintenance. DRUPAL Installation and Setup, Understanding the Dashboard, Content Types and Fields, Themes and Layouts, Modules, Views and Blocks, Taxonomy and Tagging, User Management, Multilingual Websites, Backup and Maintenance.		30 (30 Hr)
Keywords			

Signature of Convener & Members, CBOS:

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Officer in Charge (Academic)
 Shahood Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

Chairman
 Studies
 and Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

ANJEEETA KUMAR

PART-C

Learning Resources: Text Books, Reference Books and Others

Text Books Recommended-

1. Michaud, T.(2013). *Foundations of Web Design: Introduction to HTML & CSS*. New Riders.
2. Casabona, J.(2020). *HTML and CSS: Visual Quick Start Guide*. Peachp it Press.
3. Rahmel, D. (2007). *Professional Joomla*. John Wiley & Sons.
4. Rahmel, D. (2008). *Beginning Joomla: From novice to professional*. Apress.
5. Kumar, R. (2018). *MasteringDrupal8:Anadvancedguidetobuildingandmaintainingwebsites with Drupal 8*. Packt Publishing.
6. Deshpande, V., & Shah, N.(2017). *HTML5andCSS3:BuildingResponsiveWebsites*. BPB Publications.
7. Duckett, J.(2014). *HTML and CSS: Design and Build Websites*. Wiley.
8. McFarland, D. (2018). *HTML, CSS, and Java Script All in One*. Wiley.
9. Morris, J. (2019). *Learning WebDesign:ABeginner'sGuidetoHTML,CSS,JavaScript,andWeb Graphics*. O'Reilly Media.
10. Smith,J.(2019). *WordPressforBeginners:AStep-by-StepGuidetoBuildingYourOwn Website or Blog*. Wiley.
11. Patel, R.(2020). *Drupal9Explained:YourStep-by-StepGuidetoDrupal9*. OS Training.
12. Gupta, S. (2018). *Joomla3 Explained: Your Step-by-Step Guidet o Joomla3*. OS Training.

Online Resources-

- <https://egyankosh.ac.in/bitstream/123456789/35916/5/Unit-12.pdf>
- [JoomlaContentManagementSystem\(CMS\) -tryit!It's free!](#)
- [IntroductiontoContentManagementSystem\(CMS\) \(w3schools.in\)](#)
- [e-PGPathshala\(inflibnet.ac.in\)](#)
- [Drupal-OpenSourceCMS!Drupal.org](#)
- <https://wordpress.com/>

Online Resources-

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

Part-D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

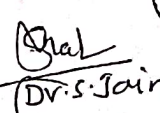
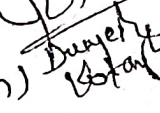
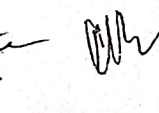
Maximum Marks: 50Marks

Continuous Internal Assessment (CIA): 15Marks

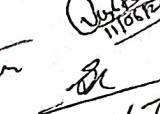
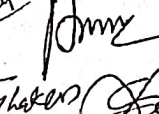
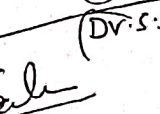
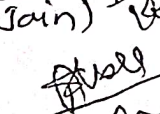
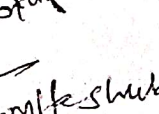
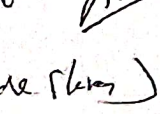
End Semester Exam (ESE): 35 Marks

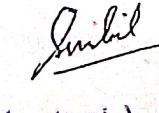
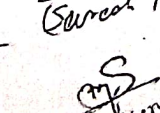
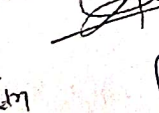
Continuous Internal Assessment (CIA): (By Course Coordinator)	Internal Test/Quiz- (2): 10 & 10 Assignment/Seminar +Attendance - 05 Total Marks - 15	Better marks out of the two Test/ Quiz +obtained marks in Assignment shall be considered against 15 Marks
End Semester Exam (ESE):	Laboratory/Field Skill Performance: On spot Assessment A. Performed the Task based on learned skill- 20 Marks B. Spotting based on tools (written) - 10 Marks C. Viva-voce (based on principle/technology)- 05 Marks	Managed by Coordinator as per skilling

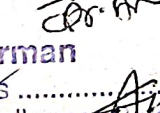
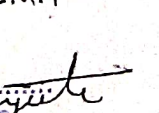
Signature of Convener & Members:

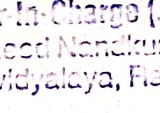
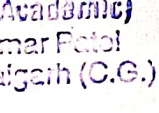
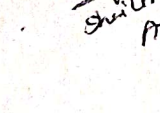
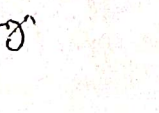
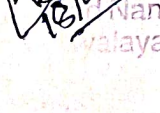
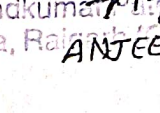
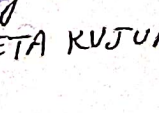






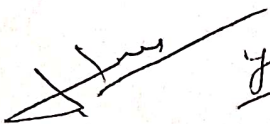

Officer-In-Charge (Academic)
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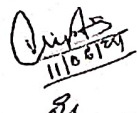
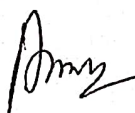
ANTEETA KUTUR
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 Raigarh

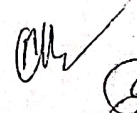
FOUR YEAR UNDERGRADUATE PROGRAM (2024-28)
Department of Library and Information Science
Course Curriculum for SEC

PART-A: Introduction			
Program: Undergraduate (Certificate / Diploma / Degree/Honors)		Semester - II/IV/V/V	Session: 2024-2025
1	Course Code	LISEC-02	
2	Course Title	Literature Review and Reference Management	
3	Course Type	SEC (Skill Enhancement Courses)	
4	Pre-requisite (if, any)	As per Program	
5	Course Learning Outcomes (CLO)	Students will be able > To understand the Concept of Literature review > To understand the Conduct the Literature review > To understand the Understand the various reference style. > To use the reference management tools > To understand the various search strategies.	
6	Credit Value	2 Credits (1C+ 1C)	Credit=15 Hours – Theoretical learning and = 30 Hours Laboratory or Field learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20
PART-B: Content of the Course			
Module	Total No. of Teaching-learning Periods: Theory-15 Periods (15Hrs) and Lab. Or Field learning/Training 30 Periods (30 Hours)		No. of Period
Theory Contents	Literature Review and Reference Management (Theory) • Literature Review: Concept, Types, Need and their Importance, Sources for review of Literature. • Search Strategies in Literature review. • Writing effective literature review, Bibliographic elements • Basics of Citations and References, Measure to avoid plagiarism in research, Overview of Citation Analysis.		15(15Hr)
Lab./Field Training Contents	Literature Review and Reference Management (Practice) • Hands on practice on Citation and Reference management tool (Mendely, Zotero etc). • Practice of Referencing Style (APA and MLA, CHICAGO). • Hands on Practice on various Databases and Literature Review. • Practice of various search strategies in Literature Review.		30(30Hr)
Keywords			

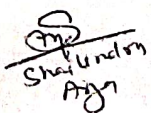
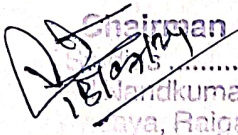
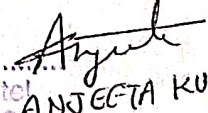
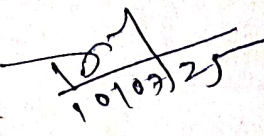
Signature of Convener & Members:




(Sushil K. Sahas) (Sushil K. Sahas) (Dr. S. Jain) (Dr. S. Jain) (Dr. S. Jain) (Dr. S. Jain) (Dr. S. Jain) (Dr. S. Jain)

Officer-in-Charge (Academic)
 Shahood Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

ANJETA KUMAR
 10/03/25

PART-C

Learning Resources: Text Books, Reference Books and Others

Text Books Recommended-

1. Weyers, J., & McMillan, K. (Pearson Education). How to Cite, Reference & Avoid Plagiarism at University EBook. United Kingdom: Pearson Education.
2. Booth, A., Sutton, A., Papaioannou, D. (2016). Systematic Approaches to a Successful Literature Review. United Kingdom: SAGE Publications.
3. Galvan, J. L., Galvan, M. C. (2017). Writing Literature Reviews: A Guide for Students of the Social and Behavioral Sciences. United Kingdom: Taylor & Francis.
4. Hart, C. (2001). Doing a Literature Search: A Comprehensive Guide for the Social Sciences. United Kingdom: SAGE Publications.
5. McEvoy, B. T., Machi, L. A. (2012). The Literature Review: Six Steps to Success. United States: SAGE Publications.
6. Ridley, D. (2012). The Literature Review: A Step-by-Step Guide for Students. United Kingdom: SAGE Publications.
7. Muhammad, Rafiq. (2023). Literature Reviews simplified: A practical Guide for Beginners. ISBN-978- 9198900750.
8. Greetham, Bryan. (2021). How to write your literature Review. Bloomsbury Academic. ISBN-978- 1352011043.
9. Young, Dona J. (2023). APA Essentials: Style, formatting and Grammar. 7th Edition.
10. Cognella Inc. ISBN 978-1793581556.
11. MLA Handbook-9th edition (2021). Modern Language Association. ISBN-978-1603293518
12. Raibenheimer, Jacques. (2019) Mendeley: Crowdsourced Reference and citation management in the Information Era. True Insight Publishing. ISBN-978-0620594424.
13. Carter, S., & Laurs, D. (2017). Developing Research Writing: A Handbook for Supervisors and Advisors. New York: Routledge.
14. Parija, S. C., & Kate, (2017). Writing and Publishing a Scientific Research Paper. Singapore: Springer.

Online Resources-

- <https://egyankosh.ac.in/bitstream/123456789/40653/1/Unit-3.pdf>
- e-PGPathshala.in/flibnet.ac.in
- <https://egyankosh.ac.in/bitstream/123456789/35677/1/Unit-3.pdf>
- <https://www.egyankosh.ac.in/bitstream/123456789/63508/2/Unit-15.pdf>

Online Resources-

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

Part-D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

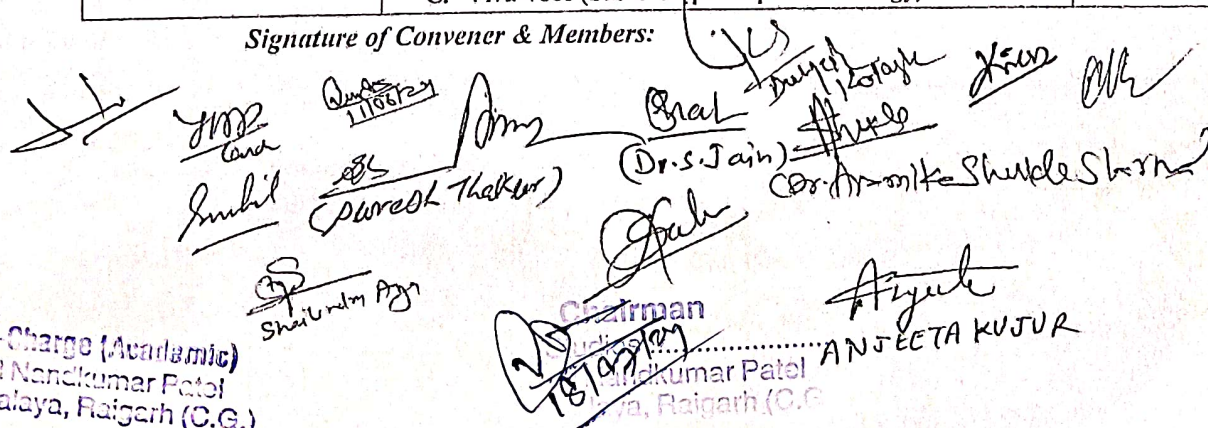
Maximum Marks: 50 Marks

Continuous Internal Assessment (CIA): 15 Marks

End Semester Exam (ESE): 35 Marks

Continuous Internal Assessment (CIA): (By Course Coordinator)	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):	Laboratory/Field Skill Performance: On spot Assessment A. Performed the Task based on learned skill- 20 Marks B. Spotting based on tools (written) - 10 Marks C. Viva-voce (based on principle/technology)- 05 Marks	Managed by Coordinator as per skilling

Signature of Convener & Members:



 Officer-in-Charge (Academic)
 Shaheed Nandkumar Patel
 Vishwavidyalaya, Raigarh (C.G.)

Chairman
 Nandkumar Patel
 Raigarh (C.G.)

ANJETA KURUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024-2028)
DEPT. OF SPORTS: VALUE ADDITION COURSE
COURSE CURRICULUM (2024-25)

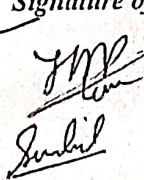
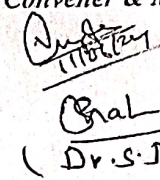
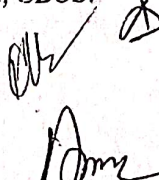
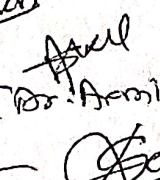
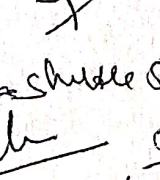
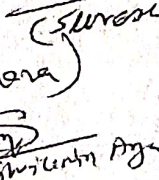
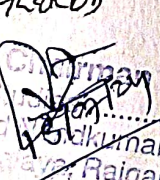
PART-A: Introduction			
Program: Undergraduate (Certificate / Diploma / Degree/Honors)		Semester - I/III/V	Session: 2024-2025
1	Course Code	LIVAC-01	
2	Course Title	Library & Information Resources	
3	Course Type	VAC(Value Added Courses)	
4	Pre-requisite (if, any)	<i>As per Program</i>	
5	Course Learning Outcomes (CLO)	☐ Acquainted with library resources and their various types. ☐ Understood general and reference sources. ☐ Familiar with electronics and open resources. ☐ Able to evaluate library resources and locate answer to reference queries. ☐ Able to evaluate of Web-Based Resources.	
6	Credit Value	2 Credits	Credit = 15 Hours - learning & Observation
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

PART -B: Content of the Course

Total No. of Teaching-learning Periods (01 Hr. per period) - 30 Periods (30 Hours)

Module	Topics (Course contents): Learning and Practices	No. of Periods
I	Understanding Library Resources • Concept, Definition, Scope • Types of Library and Information Sources • Documentary and Non-Documentary Sources • Primary, Secondary and Tertiary Sources	08 (08Hr)
II	General and Reference Sources • Meaning, Definition, Scope • General Resource Materials • Reference Sources-Nature and types • General Sources vs. Reference sources	07 (07Hr)
III	Electronic and Open Access Resources • E-resources-meaning, concept and definition • Types, nature and scope • Open access resources-nature and accessibility • Web based resources-nature and accessibility	08 (08Hr)
IV	Evaluation of Library Resources • Need and Purpose of Evaluation • Criteria for Evaluation • Evaluation of Documentary Resources • Evaluation of Web-Based Resources	07 (07Hr)
Keywords		

Signature of Convener & Members, CBOS:

(Dr. S. Jain)
 (Dr. S. Jain)
 (Dr. S. Jain)
 (Dr. S. Jain)
 (Dr. S. Jain)
 (Dr. S. Jain)
 (Dr. S. Jain)

ANJEETA KUMAR

PART-C

Learning Resources: Text Books, Reference Books and Others

Text Books Recommended-

1. Bopp, R. C. & Smith, L.C. Reference & Information Services, 2nd Ed. US Libraries Unlimited, 2011.
2. Cassell, K. A. & Hiremath, U. Reference & Information Services in the 21st Century: An Introduction, 2nd Ed. US, American Library Association, 2011.
3. Kaushal, C. & Mahapatra, R.K. Open Access E-Resources in Library & Information Science. New Delhi, Ess Ess Publication, 2013.
4. Kumar, K. Library Manual, 4th Ed. New Delhi, S. Chand, 2018.
5. Kumar, P.S.G. Information Sources and Services-Theory and Practice. Vol.6. New Delhi: BR Publishing Corporation, 2004.
6. Ranganathan, S.R. Library Book Selection. New Delhi. Ess Ess Publications, 2006
7. Ranganathan, S.R. Library Manual. New Delhi. Ess Ess Publications, 2008
8. Sharma, (J.S.) and Grover (DR). Reference Services and Sources of Information. New Delhi. Ess Ess Publications, 1987.
9. Singh, G. Information Sources, Services & Systems. New Delhi, Prentice Hall India Learning, 2013.

Online Resources-

- LCh-009.pdf(nios.ac.in)
- LCh-001.pdf(nios.ac.in)
- https://ebooks.lpu.de.in/library_and_info_sciences/DLIS/Year_1/DLIS001_FOUNDATION_OF_LIBRARY_AND_INFORMATION_SCIENCE.pdf
- eGyanKosh: BLI-221 Library, Information and Society
- Microsoft Word-LG-Lesson 1 Lib(nios.ac.in)
- Microsoft Word-BLIS-101.1 (uou.ac.in)
- http://14.139.237.190/other_pdf/BLIS_01_N.pdf(UPRTOU)
- http://14.139.237.190/other_pdf/BLIS-01.pdf(UPRTOU)
- eGyanKosh: बीएलआई 221 पुस्तकालय सूचना एवं माज
- LCh-001H.pdf(nios.ac.in)
- LCh-002H.pdf(nios.ac.in)
- e-PGPathshala(inflibnet.ac.in)
- ref1-1(lpu.de.in)
- eGyanKosh: BLIS-05 Reference and Information Sources
- pssou.ac.in/read_e_book?id=424c49425f3036
- http://14.139.237.190/other_pdf/BLIS_06.pdf(UPRTOU)
- LCh-008H.pdf(nios.ac.in)
- LCh-007H.pdf(nios.ac.in)
- LCh-006H.pdf(nios.ac.in)
- LCh-005H.pdf(nios.ac.in)
- e-PGPathshala(inflibnet.ac.in)
- unit7 (egyankosh.ac.in) Unit-3.pdf(egyankosh.ac.in)
- BLIS-106.pdf(uou.ac.in)
- BLIS6.pdf(vmou.ac.in)

Online Resources-

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

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	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 Marks
	Assignment/Seminar + Attendance - 05 Total Marks - 15	
End Semester Exam (ESE):	Two section – A & B Section A: Q1. Objective – 05 x1= 05 Mark; Q2. Short answer type- 5x2 =10 Marks Section B: Descriptive answer type qts., 1 out of 2 from each unit- 4x05 =20 Marks	

Name and Signature of Convener & Members of CBOS:

Officer-in-Charge
Shahood Nand
Vishwavidyalaya,

Chairman

Dr. S. S. Patil
Vishwavidyalaya, Raigarh (C)

(Dr. S. Jain)

Dr. S. S. Patil

Dr. S. S. Patil

Dr. S. S. Patil

FOUR YEAR UNDERGRADUATE PROGRAM (2024-2028)
DEPT. OF SPORTS: VALUE ADDITION COURSE
COURSE CURRICULUM (2024-25)

PART-A: Introduction		
Program: Undergraduate (Certificate / Diploma / Degree/Honors)		Semester - I/III/V
		Session: 2024-2025
1	Course Code	LIVAC-02
2	Course Title	Open Access and Scholarly Communication
3	Course Type	VAC (Value Added Courses)
4	Pre-requisite (if, any)	<i>As per Program</i>
5	Course Learning Outcomes (CLO)	- To get acquainted with the scholarly communication process and channels of communication necessary in the higher education scenario. - To understand with the Copyright and Open Access policies associated with the publishing industry. - To know and avoid malpractices in academic publishing. - To Know about various academic Performance Indicators.
6	Credit Value	2 Credits <i>Credit = 15 Hours - learning & Observation</i>
7	Total Marks	Max. Marks: 50 Min Passing Marks: 20

PART -B: Content of the Course

Total No. of Teaching-learning Periods (01 Hr. per period) - 30 Periods (30 Hours)		
Module	Topics (Course contents): Learning and Practices	No. of Periods
I	Introduction to Scholarly Communication - Genesis of Scholarly Communication - Academic Publishing: Process, Importance and Ethics - Channels of Academic Publishing - Academic Journals and Peer Review Process.	08 (08Hr)
II	Academic Integrity - Scientific Misconduct: Falsification, Fabrication and Plagiarism - UGC mandate son Plagiarism - Various Facets of Authorship - Identification of Publication Misconducts and its consequences; Predatory Journals.	07 (07Hr)
III	Open Access Research - Intellectual Property Rights - Open Access Policy - Open Access Publication Process - Open Knowledge Repositories on Various Subject; NDLI,SWAYAM-MOOCs, e-PG Pathshala, NPTEL, etc.	08 (08Hr)
IV	Academic Performance Indicators - Journal Indexing and Performance Indicators - Citation Indexing; ISSN and ISBN numbering - ElectronicDatabases(BibliographicDatabases,CitationDatabases,Full-text Databases, E-Journal Gateways) - UGC-CARE, Scopus, Web of Science, Google Scholar, ORCID, Research Gate, SJR ranking, etc.	07 (07Hr)
Keywords:		

Signature of Convener & Members:

Chairman

Shahid Kumar Patel
Vishwavidyalaya, Raigarh (C.O.)

Dr. S. Jain
Dr. Armita Shukla Sharma
Dr. Arjit

PART-C

Learning Resources: Text Books, Reference Books and Others

Text Books Recommended-

1. Borgman, C.L.(2010),ScholarshipintheDigitalAge:Information,infrastructure,andtheInternet, Cambridge, Massachusetts: The MIT Press.
2. Das,ArupKumar(2015),ScholarlyCommunication,Paris:UNESCO.Availableat: <https://unesdoc.unesco.org/ark:/48223/pf0000231938>
3. Bohannon,J.(2013).Who'sAfraidofPeerReview?Science,342(6154),60-65. DOI:10.1126/science.342.6154.60
4. Webster,P.J.(2008),Managing Electronic Resources: New and ChangingRolesforLibraries,Oxford: Chandos Publishing
5. Cargill,M.,& O'Connor, P.(2013),Writing Scientific Research Articles: Strategy and Steps, Hoboken: Wiley-Blackwell.

Online Resources-

- <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=9JW4FTxvrU+Wsr8x18vgiw==>
- <https://egvankosh.ac.in/bitstream/123456789/8720/1/Unit-2.pdf>
- <https://egvankosh.ac.in/handle/123456789/8720?mode=full>
- <https://guides.lib.unc.edu/open-access-and-scholarly-communications>
- <https://ebooks.inflibnet.ac.in/lisp20/chapter/scholarly-communication-and-open-access-creating-knowledge-without-borders/>
- eGyanKosh:Unit-21AdministrativeEthicsandIntegrityinCivilServices.
- eGyanKosh:BEGG-173AcademicWriting&Composition
- ResearchandPublicationEthics(RPE) -Course(swayam2.ac.in)
- eGyanKosh:MLIE-103AcademicLibrarySystem
- (PDF) Ethics inResearch Publications: Fabrication, Falsification,and Plagiarismin Science Chapter 3inBooktitled"AcademicIntegrityandResearchQuality"publishedbyUGC,Dec.2021(researchgate.net).

Online Resources-

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

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

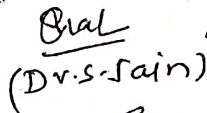
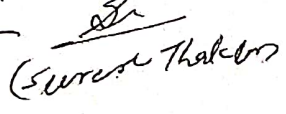
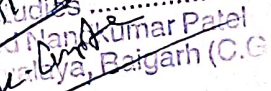
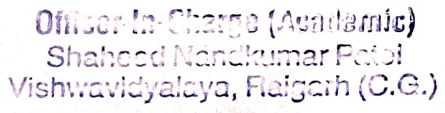
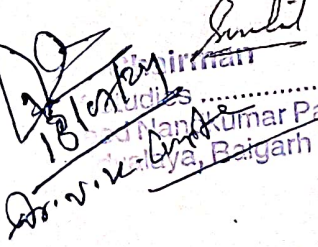
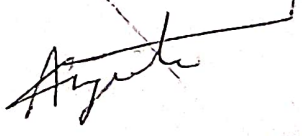
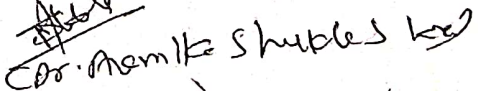
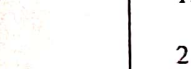
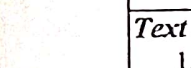
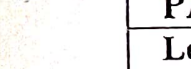
Continuous Internal Assessment (CIA): 15 Marks

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 - 05 x1= 05 Mark; Q2. Short answer type- 5x2 =10 Marks Section B: Descriptive answer type(qts.,1out of 2 from each unit- 4x05 =20 Marks
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Name and Signature of Convener & Members of CBOS:

 (Dr. S. Sain)
 (Surendra Thakur)
 Dr. Arun Kumar Patel
 Vishwavidyalaya, Raigarh (C.G.)
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