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
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.*	

Name and Signature of Convener & Members of CBoS:

Dr. H S Hota
Chairman

(Shivaji Thakur)

ANJEETA KUJUR

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=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

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 Hota
Chairman

ANJEETA KUSUR

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)		
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**

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

ANJEETA KUMAR

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

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:

1. Dr. H.S. Hota
2. Dr. Swati Jain
3. Dr. Surendra Patel
4. Dr. S. K. Sahu
5. Mr. Prakash Kumar Tripathi
6. Dr. Anil Kumar Sahu
7. Mr. L.K. Gavel

ANJEETA KUJUR

FOUR YEAR UNDER GRADUATE PROGRAM(2024-28)

DEPARTMENT OF MATHEMATICS

COURSE CURRICULUM

Part A: Introduction			
Program: Bachelor in Science (Certificate/Diploma/Degree/Honors)		**Semester - II**	**Session:2024-2025**
1	Course Code	**MASC-02**	
2	Course Title	**Algebra**	
3	Course Type	**Discipline Specific Course (DSC)**	
4	Pre requisite	Knowledge of basic algebra , determinants and matrices.	
5	Course Learning Outcome (CLO)	**This Course will enable the students to:** ➢ Learn about the Matrix algebra. ➢ Understand Set theory, Function and Relation ➢ Learn about the theory of equations. ➢ Learn about the fundamental concepts of groups, Subgroups. ➢ Understand cosets and normal subgroups	
6	Credit Value	**4 C**	1Credit = 15 hours- Learning and Observation
7	Total Marks	Maximum Marks : 100	Minimum Passing Marks:40

Part B: Content of the Course		
Total no of teaching – learning period =60 Periods (60 Hours)		
UNIT	**Topics**	**No of Periods**
I	**Matrix Algebra :** Introduction, elementary operations of matrices, Inverse of a matrix. Special types of matrices: Transpose of a matrix, Symmetric and Skew symmetric matrices, Hermitian and Skew Hermitian matrix, Rank of a matrix, Echelon form of a matrix, Normal form, Application of matrices to a system of linear (both homogeneous and non-homogeneous) equations , Theorems on consistency of a system of linear equations.Eigen values and Eigen vectors, relation between Eigen values and Eigen vectors. Process of finding Eigen values and Eigen vectors, Cayley Hamilton theorem, and its use in finding inverse of a matrix.	**15**
II	**Sets Theory & Functions:**Sets, subsets Set operations and the laws of set theory and Venn diagrams. Examples of finite and infinite sets. Finite sets and counting principle. Empty set, properties of empty set. Standard set operations. Classes of a set. Power set of a set. Difference and symmetric difference of two sets. Set identities, Generalized union and intersection. **Relations and Functions:** Product set, Composition of relations, Types of relations, Partitions, Equivalence Relations with example of congruence modulo relation, Partial ordering relations. Function, Types of Function, Inverse Function, Composite of functions, Modular arithmetic and basic properties of congruences	**15**

III	**Theory of equations:**Symmetric functions of the roots of an equation Root of a multiplicity, Synthetic division, Greatest common Divisors, Relation between the roots and coefficients of general polynomial equations in one variable. Transformation of equations. Descarte's rule of signs. Solutions of cubic equations (Cardon method) , Biquadrate equation.	**15**
IV	**Group Theory:**Definition and properties of a group, Abelian groups, Examples of groups, Subgroups and examples, Cosets and their properties, Lagrange's theorem and its applications, Normal subgroups and their properties, Simple groups, Factors groups .	**15**

Part C - Learning Resource

Text Books, Reference Books, Other Resources

Text Books Recommended-

1. RamjiLal (2017). *Algebra 1: Groups, Rings, Fields and Arithmetic*. Springer.
2. Nathan Jacobson (2009). *Basic Algebra* I (2nd edition). Dover Publications
3. John B. Fraleigh (2007). *A First Course in Abstract Algebra* (7th edition). Pearson

Reference Books Recommended-

4. Michael Artin (2014). *Algebra* (2nd edition). Pearson.
5. Stephen H. Friedberg, Arnold J.Insel& Lawrence E. Spence (2003). *Linear Algebra* (4thedition). Prentice-Hall of India Pvt. Lt
6. Joseph A. Gallian (2017). *Contemporary Abstract Algebra* (9th edition). Cengage.
7. Kenneth Hoffman & Ray Kunze (2015). *Linear Algebra* (2nd edition). Prentice-Hall.
8. I. N. Herstein (2006). *Topics in Algebra* (2nd edition). Wiley India.

E-resources: https://onlinecourses.nptel.ac.in
https://epgp.inflibnet.aci.in
https://swayam.gov.in
https://www.mooc.org

Part D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: **100 Marks**
Continuous Internal Assessment (CIA): **30 Marks**
End Semester Examination (ESE): **70 Marks**

Continuous Internal Assessment (CIA) (Conducted by course teacher)	Test /Quiz – 20+20 Marks Assignment/Seminar- 10 Marks	Better marks out of two test/quiz + obtained marks in Assignment shall be considered against 30 marks
End Semester Examination (ESE)	**Two Section**-A&B Section-A: Q1.Objective- 10x1=10 marks Q2. Short answer type question-5x4=20marks Section-B: Descriptive answer type question, 1 out of 2 from each unit- 10x4= 40 Marks	

Name and signature of convener & members of CBOS-

FOUR YEARS UNDERGRADUATE PROGRAM (2024-28)
DEPARTMENT OF PHYSICS
COURSE CURRICULUM

PART – A: INTRODUCTION

Program: Bachelor in Science (Certificate/ Diploma/ Degree/ Honors)	Semester: II	Session: 2024-25

1	**Course Code**	**PHSC-02T**		
2	**Course Title**	**ELECTRICITY AND MAGNETISM**		
3	**Course Type**	**Discipline Specific Course**		
4	**Pre-requisite (if any)**	**As per Program**		
5	**Course Learning Outcomes (CLO)**	After going through the course, the student should be able to: ➢ State various laws related with electrostatics, dielectric, electric current, magnetism and electromagnetic induction. ➢ Apply vector (electric fields, Coulomb's law) and scalar (electric potential, electric potential energy) formalisms of electrostatics. ➢ Compare rise and decay of current in LR, CR, LCR circuits. ➢ Apply Biot-Savart law for calculation of magnetic field in simple geographic situations. ➢ Derive and analyze Maxwell's equations.		
6	**Credit Value**	**03 Credits**	**1 Credit= 15 Hours for Learning &Observation**	
7	**Total Marks**	**Maximum Marks: 100**		**Minimum Pass Marks: 40**

PART – B: CONTENT OF THE COURSE

TotalNo.of Teaching–learning Periods (01 Hr. per period) - 45 Periods (45 Hours)

Unit	Topics (Course contents)	No. of Periods
I	**Power plants in Chhattisgarh:** An overview of thermal and hydroelectric power plants in Chhattisgarh. **Vector Analysis**: Divergence & Curl of Vector fields, Line, surface and volume integrals of Vector fields, Gauss-divergence theorem and Stoke's theorem of vectors and its application in electrostatics and magnetostatics.**Electrostatics field:** Electrostatic Field, electric flux, Gauss's theorem of electrostatics, Applications of Gauss theorem- Electric field due to point charge, infinite line of charge, plane charged sheet, charged conductor.	12
II	**Electrostatic potential:**Electric potential as line integral of electric field, potential due to a point charge, Calculation of electric field from potential, Capacitance of Parallel plate capacitor, Energy per unit volume in electrostatic field. **Dielectric & Electric Currents:** Dielectric medium, Polarisation, Displacement vector, Gauss's theorem in dielectrics, Parallel plate capacitor completely filled with dielectric.Steady current, current density J, non – steady current and Continuity equation, Rise and decay of current in LR, CR, LCR circuits.	13
III	**Magnetism:** Magnetostatics: Biot-Savart's law and its applications- straight conductor, circular coil, solenoid carrying current, Divergence and curl of magnetic field, Magnetic vector potential, Ampere's circuital law, Magnetic properties of materials: Magnetic intensity, magnetic induction, permeability, magnetic susceptibility, Brief introduction of dia, para and ferro-magnetic materials.	10
IV	**Electromagnetic Induction:** Faraday's laws of electromagnetic induction, Lenz's law, self and mutual inductance, L of single coil, M of two coils, Energy stored in magnetic field. **Maxwell`s equations and Electromagnetic wave propagation:** Equation of continuity of current, Displacement current, Maxwell's equations, Wave equation in free space.	10
Keywords:	Vector calculus, Electrostatics, Dielectrics and Electric Current, Magnetism, Electromagnetic Induction, Maxwell's Equation and Electromagnetic Wave Propagation	

SignatureofConvener&Members (CBoS) :

PART – C: LEARNING RESOURCES

Text Books, Reference Books and Others

Text Books

1. Electricity and Magnetism, D C Tayal, 1988, Himalaya Publishing House.
2. Unified Physics – Part II, R. P.Goyal, Shivlal Agrawal and Sons
3. Unified Physics – Navbodh Publications
4. Introduction to Electrodynamics and Electromagnetism, H.C.Verma,

Reference Books

1. Vector analysis – Schaum's Outline, M.R. Spiegel, S. Lipschutz, D. Spellman, 2nd Edn., 2009, McGraw- Hill Education.
2. University Physics, Ronald Lane Reese, 2003, Thomson Brooks/Cole.

Online Resources (e-books/ learning portals/ other e-resources)

1. *All e-books of physics https://www.e-booksdirectory.com/listing.php?category=2*
2. *Free physics text book in PDF https://www.motionmountain.net/?gclid=CjwKCAjwmq3kBRB_EiwAjkNDp5v8Yy6xK1s0Kma0VR0AWGlichRwFfCC0-vpZK1jrPoEOAnBq8fcqRoCILsQAvD_BwE*
3. *Cambridge University Books for Physics https://www.cambridgeindia.org/*
4. *Books for solving physics problems https://bookboon.com/en/physics-ebooks*
5. *NPTEL Online courses: https://onlinecourses.nptel.ac.in/noc21_ph05/preview*
6. *https://archive.nptel.ac.in/courses/115/104/115104088/*
7. *Classical Electromagnetism - 1 (Electrostatics) https://bsc.hcverma.in/course/cee1*
8. *Classical Electromagnetism - 2 (Electrostatics) https://bsc.hcverma.in/course/cee2*

PART – D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 100Marks
Continuous Internal Assessment (CIA):30 Marks
End Semester Examination (ESE): 70 Marks

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

Name and Signature of Convener & Members of CBoS:

FOUR YEARS UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF PHYSICS
COURSE CURRICULUM

PART – A: INTRODUCTION

Program:Bachelor in Science (Certificate/ Diploma/ Degree/ Honors)	Semester: II	Session: 2024-25

1	Course Code	PHSC- 02P	
2	Course Title	Electricity & Magnetism	
3	Course Type	Discipline Specific Course	
4	Pre-requisite (if any)	As per program	
5	Course Learning Outcomes (CLO)	*After the completion of the course, Students are expected to understand working laws of Electricity, Magnetism and EMWs. The students will also be able to* ➢ *Verify various circuit laws, network theorems, using simple electric circuits. Assemble required parts/devices and arrange them to perform experiments.* ➢ *Verify various laws in electricity and magnetism such as Lenz's law, Faraday's law and learn about the construction, working of various measuring instruments* ➢ *Record/ observe data as required by the experimental objectives. Analyze recorded data and formulate it to get desired results.* ➢ *Interpret results and check for attainment of proposed objectives related to laws of Electricity, Magnetism and its applications*	
6	Credit Value	01 Credit	1 Credit = 30 Hours Laboratory Work
7	Total Marks	Maximum Marks: 50	Minimum Pass Marks: 20

PART – B: CONTENT OF THE COURSE

TotalNo.of learning-Training/performance Periods -30 Periods (30 Hours)

Sr. No.	Objects (At least 10 of the following or related Experiments)	No. of Periods
1	To use a Multimeter for measuring (a) Resistances, (b) AC and DCVoltages,(c) DC Current, and (d) checking electrical fuses.	30
2	To compare capacitances using De'Sauty's bridge.	
3	Measurement of field strength B and its variation in a Solenoid Determine (dB/dx).	
4	To study the Characteristics of a Series RC Circuit.	
5	To study a series LCR circuit and determine its (a) Resonant Frequency, (b) Quality Factor.	
6	To study a parallel LCR circuit and determine its (a) Anti-resonant frequency and(b) Quality factor Q.	
7	To determine a Low Resistance by Carey Foster's Bridge.	
8	To verify the Thevenin and Norton theorem.	
9	To verify the Superposition, and Maximum Power Transfer Theorem.	
10	To use a vibration magnetometer and study magnetic field.	
11	Study of magnetic field due to a current loop.	
12	Study of magnetic fields using Deflection Magnetometer	
13	Mini Project: Construction and Study of Solenoid and measurement of its magnetic field	

Keywords:	Multimeter, Capacitance Comparison, Magnetic Field, RC Circuit, Series LCR Circuit, Parallel LCR Circuit, Low Resistance Measurement, Electrical Theorems

SignatureofConvener&Members (CBoS) :

PART – C: LEARNING RESOURCES

Text Books, Reference Books and Others

Text Books Recommended-

1. Engineering Practical Physics, S.Panigrahi&B.Mallick,2015, Cengage Learning India Pvt. Ltd.
2. A Text Book of Practical Physics, Indu Prakash and Ramakrishna, 11th Edition, 2011, Kitab Mahal, New Delhi.
3. Unified Practical Physics : R P Goyal, Shivlal Agrawal & Sons
4. Unified Practical Physics: YugbodhPrakashan
5. Unified Practical Physics: NavbodhPrakashan

Reference Books Recommended-

1. Basic Electrical and Electronics Engineering by S. K. Bhattacharya
2. A Textbook of Electrical Technology by B.L. Theraja and A.K. Theraja (Volumes 1 and 2)
3. Engineering Circuit Analysis by William H. Hayt, Jack E. Kemmerly, and Steven M. Durbin
4. Practical Physics by G.L. Squires

Online Resources (e-books/ learning portals/ other e-resources)

1. Link for e-Books for Physics: Physics Practical:
   https://www.uou.ac.in/sites//default/files/slm/BSCPH-104.pdf
2. Virtual Lab :https://vlab.amrita.edu/index.php?sub=1&brch=192
3. http://emv-au.vlabs.ac.in/#
4. https://www.ae.msstate.edu/vlsm/
5. https://nationalmaglab.org/magnet-academy/watch-play/interactive-tutorials
6. https://jigyasa-csir.in/cgcri/n12-t4-a3/

PART – D: ASSESSMENT AND EVALUATION

Suggested Continuous Evaluation Methods:
Maximum Marks: 50 Marks
Continuous Internal Assessment(CIA):15 Marks
EndSemester Exam(ESE):35 Marks

Continuous InternalAssessment(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 **+Marks** obtained in Assignment shall be considered against **15** Marks
End Semester Exam (ESE):	**Laboratory Performance: On spot Assessment** **Performed the Task based on lab. work - 20 Marks** **Spotting based on tools & technology (written) –10 Marks** **Viva-voce (based on principle/technology) - 05 Marks**	**Managed by Course teacher as per lab. status**

Name and Signature of Convener & Members of CBoS:

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

PART- A: Introduction				
Program: Bachelor in Science *(Certificate / Diploma / Degree/Honors)*			**Semester - II**	Session: **2024-2025**
1	**Course Code**	**CHSC-02T**		
2	**Course Title**	**FUNDAMENTAL CHEMISTRY-II**		
3	**Course Type**	**DSC**		
4	**Pre-requisite** (if, any)	***As per Program***		
5	**Course Learning. Outcomes (CLO)**	➢ *To understand different acid-base theories and solvent system .* ➢ *To learn the preparation, bonding, and reactions of C-C σ- & π- bonded compounds* ➢ *To understand the concept and chemistry of aromatic compounds and their reactions* ➢ *To learn the basic concepts of various states of matter &understand the basic concepts of surface chemistry and chemical kinetics*		
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	**Acid, Base and Solvent System** **Theories of acids and bases**: Arrhenius, Bronsted-Lowry, conjugate acids and bases, relative strengths of acids and bases, the Lux-flood, solvent system and Lewis concepts of acids and bases. **HSAB concept**: Classification of Acids and Bases According to HSAB Theory (Hard, Borderline, Soft). Applications of HSAB Theory in Inorganic Reactions - Solubility, Selectivity, Redox Reactions Non-aqueous solvents: .Physical properties of a solvent, types of solvents and their general characteristics, Liquid ammonia as a solvent. Acid-base, precipitation and complex, formation reactions. Solutions of alkali and alkaline earth metals in ammonia-application)	11
II	**CHEMISTRY OF C-C σ–BONDING** Alkanes: Preparation (Wurtz reaction, reduction/hydrogenation of alkenes, Corey-House method). Reactions (mechanisms): halogenation, free radical substitution. Cycloalkanes: Preparation (Dieckmann's ring closure, reduction of aromatic hydrocarbons), Reactions (mechanisms): substitution and ring-opening reactions. Stability of cycloalkanes -Baeyer's strain theory, Sachse and Mohr predictions, Conformational structures of ethane, n-butane and cyclohexane. **CHEMISTRY OF C-C π–BONDING** Alkenes: Preparation methods (dehydration, dehydrohalogenation, dehydrogenation, Hoffmann and Saytzeff rules, cis and trans eliminations). Reactions (mechanisms): electrophilic and free radical addition (hydrogen, halogen, hydrogen halide, hydrogen bromide, water, hydroboration, ozonolysis, dihydroxylation with $KMnO_4$). Dienes: 1,2- and 1,4-additions, Diels-Alder reactions. Alkynes: Preparation (dehydrohalogenation, dehydrogenation), Reactions: Acidity, formation of acetylides, addition of water, hydrogen halides and halogens, oxidation,	12

	ozonolysis, hydroboration/oxidation. **Aromatic Hydrocarbons** Aromatic hydrocarbons: Aromaticity: Hückel's rule, aromatic character of arenes, cyclic carbocations/ carbanions and heterocyclic compounds with suitable examples. Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism. Directive effects of the groups.	
III	**Behaviour of ideal gases:** Kinetic theory of gases – postulates and derivation of the equation, $PV = 1/3\ mnc^2$ and derivation of the gas laws- Maxwell's distribution of molecular velocities-effect of temperature-types of molecular velocities-degrees of freedom-Principle of equipartition of energy. **Behaviour of Real gases:** Deviation from ideal behaviour, derivation of van der Waals, equation of state and critical constants. **Liquid state chemistry:** structure of liquids(Eyring Theory), Properties of liquids, viscosity and surface tension. **Solid state chemistry:** Nature of the solid state, law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry, symmetry elements and symmetry operations, seven crystal systems and fourteen Bravais lattices; X-ray diffraction, Bragg's law, Crystal defects.	**11**
IV	**A. Colloids and surface chemistry:** Classification, Optical, Kinetic and Electrical Properties of colloids, Coagulation, Hardy Schulze law, flocculation value, Protection, Gold number, Emulsion, micelles and types, Gel, Syneresis and thixotropy, Physical adsorption, chemisorption, **B. Chemical kinetics:** Rate of reaction, Factors influencing rate of reaction, rate law, rate constant, Order and molecularity of reactions, rate determining step, Zero, First and Second order reactions, Rate and Rate Law, methods of determining order of reaction, Chain reactions. Temperature dependence of reaction rate, Arrhenius theory, Physical significance of Activation energy, collision theory, demerits of collision theory, non-mathematical concept of transition state theory. **C. Catalysis:** Homogeneous and Heterogeneous Catalysis, types of catalyst, characteristics of catalyst, Enzyme catalyzed reactions, Industrial applications of catalysis.	**11**
Keywords	***Acid & Bases, Alkanes, Cycloalkanes, Alkenes, Dienes, Alkynes, Aromatic Hydrocarbons, Kinetic theory of gases, Real gases, Intermolecular forces, Crystal structure, Chemical kinetics***	

Signature of Convener & Members (CBoS) :

PART–C: Learning Resources

Text Books, Reference Books and Others

Textbooks Recommended:

1. *Bahl, A., & Bahl, B. S. (2014). Organic Chemistry (22nd Ed.). S. Chand & Sons.*
2. *Ahluwalia, V. K., & Goyal, M. (2001). A Textbook of Organic Chemistry. Narosa Publishing House.*
3. *Jain, M. K., & Sharma, S. C. (2017). Modern Organic Chemistry. Vishal Publishing Company.*
4. *Puri, B. R., Sharma, L. R., & Pathania, M. S. (2013). Principles of Physical Chemistry (46th Ed.). Shoban Lal Nagin Chand And Co.*
5. *Bahl, B. S. A., & Tuli, G. D. (2009). Essentials of Physical Chemistry (Multicolour Ed.). S. Chand & Company Pvt Ltd.*
6. *Puri, B. R., Sharma, L. R., & Kalia, K. C. (2018). Principles of Inorganic Chemistry. Nagin Chand and Co., New Delhi.*

Reference Books Recommended:

1. *Paula, B. Y. (2014). Organic Chemistry (7th Ed.). Pearson Education, Inc. (Singapore).*
2. *Solomons, T. W. G. (2017). Organic Chemistry (Global Ed.). John Wiley & Sons.*
3. *Morrison, R. T., & Boyd, R. N. (2010). Organic Chemistry (7th Ed.). Prentice-Hall Of India Limited.*
4. *Laidler, K. J., & Meiser, J. H. (2006). Physical Chemistry (2nd Indian Ed.). CBS Publishers.*
5. *Atkins, P. W., & De Paula, J. (2006). Physical Chemistry (8th Ed.). Oxford University Press.*
6. *Dogra, S., & Dogra, S. (2006). Physical Chemistry through Problems (2nd Ed.). New Age International.*
7. *Sangaranarayanan, M. V., & Mahadevan, V. (2011). Textbook of Physical Chemistry. University Press.*

Online Resources–

- https://bit.ly/3Gb99iy
- https://www.organic-chemistry.org/
- https://bit.ly/3GduvMi
- https://bit.ly/30TXm8d
- https://application.wiley-vch.de/books/sample/3527316728_c01.pdf
- https://www.ncbi.nlm.nih.gov/books/NBK547716/

Online Resources–

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

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.,**1out of 2** from each unit-**4x10=40 Marks**

Name and Signature of Convener & Members of CBoS:

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

PART- A: Introduction				
Program: Bachelor in Science *(Certificate / Diploma / Degree/Honors)*			**Semester- II**	Session: **2024-2025**
1	**Course Code**	**CHSC-02P**		
2	**Course Title**	**CHEMISTRY LAB. COURSE-II**		
3	**Course Type**	**DSC**		
4	**Pre-requisite** (if, any)	***As per Program***		
5	**Course Learning. Outcomes (CLO)**	➢ *Demonstrating and using common glassware for accurate measurements* ➢ *Studying the functional group analysis organic compounds* ➢ *Determining melting points to assess compound purity and employing distillation and sublimation techniques to establish boiling points* ➢ *Equipping with essential skills in measuring liquid surface tension and solution viscosity*		
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 Contents of Course	**Basic Laboratory Techniques** Demonstration of Laboratory Glassware and Equipment, Calibration of Thermometer : 80-82°C (Naphthalene), 113.5°-114°C (Acetanilide), 132.5°C - 133°C (Urea), 100°C (Distilled Water) **Functional group Analysis of Organic Compounds,** Detection of elements (N, S, and halogens) and functional groups **Physical chemistry** Surface tension measurements: Determine the surface tension by (i) drop number (ii) drop weight method. Surface tension composition curve for a binary liquid mixture. Viscosity measurement using Ostwald's viscometer, Determination of viscosity of aqueous solutions of (i) sugar (ii) ethanol at room temperature. Study of the variation of viscosity of sucrose solution with the concentration of solute. Viscosity Composition curve for a binary liquid mixture	**30**
Keywords	***Basic laboratory techniques, Equipments, Calibration, Melting points, Qualitative analysis, Physical chemistry, Surface tension, Viscosity***	

Signature of Convener & Members (CBoS) :

PART–C: Learning Resources

Text Books, Reference Books and Others

Textbooks Recommended:

1. *Ahluwalia, V. K., Dhingra, S., & Gulati, A. (N.D.). College Practical Chemistry. University Press.*
2. *Khosla, B. D., Garg, V. C., & Gulati, A. (2011). Senior Practical Physical Chemistry. S. Chand & Co.*

Reference Books Recommended:

3. *Garland, C. W., Nibler, J. W., & Shoemaker, D. P. (2003). Experiments in Physical Chemistry (8th Ed.). Mcgraw-Hill.*
4. *Mendham, J. (2009). Vogel's Quantitative Chemical Analysis (6th Ed.). Pearson Education.*
5. *Mann, F. G., & Saunders, B. C. (2009). Practical Organic Chemistry. Pearson Education.*
6. *Furniss, B. S., Hannaford, A. J., Smith, P. W. G., & Tatchell, A. R. (2012). Practical Organic Chemistry (5th Ed.). Pearson Education.*

Online Resources–

- http://heecontent.upsdc.gov.in/Home.aspx
- https://nptel.ac.in/courses/104/106/104106096/
- http://heecontent.upsdc.gov.in/Home.aspx
- https://nptel.ac.in/courses/104/106/104106096/
- https://www2.chemistry.msu.edu/faculty/reusch/VirtTxtml/introl.htm
- https://nptel.ac.in/courses/104/103/104103071/W

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

Name and Signature of Convener & Members of CBoS:

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

PART-A: Introduction

Program: Bachelor in Arts *(Certificate / Diploma / Degree/Honors)*	Semester - II	Session: 2024-2025

1	Course Code	GO – 02 T
2	Course Title	Fundamental of Human Geography
3	Course Type	DSC
4	Pre-requisite(if, any)	*As per the program*
5	Course Learning. Outcomes(CLO)	At the end of this course the student will e have an ability to 1- Gain knowledge about major themes of human Geography. 2- Acquire knowledge on the history and evolution of humans. 3- Understand the approaches and processes of Human Geography as well as the diverse patterns of habitat and adaptations. 4- Ability to develop an idea about space and society 5- Understand the evolution of varied types of economic activities. 6- Assess the varied aspects of development and regional disparity, in order to formulate measures of balanced development and sustainable development.
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 to Human Geography** Definition, nature and scope. Fundamental concept in Human Geography . Understanding of man- nature relationship:- Determinism, Possibilism and Neo-determinism. Classification of Human Occupation	12
II	**Population and Settlement -** Growth of population, distribution and density of the world. Socio- economic Pattern of Population – Literacy, Migration:- Causes, and types .Occupational Structure. Theory and Model of population growth:-Concept of Optimum Population, Over Population and Under population.	10
III	**Human Settlement and Races-** Types and characteristics of human settlement- Rural settlement and Urban Settlement. Human Races- Basis of Racial Classification, world distribution. Habitat and economy of selected communities (Gond, Eskimo, Bushmen).	12
IV	**Geography and Development-** Indicators and measures of Regional development ,. Global pattern of development:- inter-regional variations, HDI. Concept of Sustainable Development.	11
Keywords	Determinism, Possibilism, Occupational Structure. Optimum Population, Racial	

Signature of Convener, Members of CBoS :

Dr. R. L. Sar
Dr. R. K. Thakur
M. S. SAHU
Dr C.P. NAND
(5)
(6)
(7)
(8)
(9)
10. Dr S. Yadav
11 Dr Shailendra Shridhar
12
13 Dr. Sophia Ambrose - Sophia

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended –

10- James, M. Robenstein, An *Introduction to Human Geography,* Prentice Hall, New Jersey, 2001
11- Michael, Can, *New Patterns: Process and Change in Human Geography Nelson,* 1997
12- Hussain Mazid- Human Geography, (Hindi & English Both) Rawat Publication Jaipur
13- Garg H.S. Manav Bhoogol, SBPD Publication, Agra.
14- Haroon Mohammad, Manav Bhoogol, Wisdom Publication
15- Kausik S.D. Manav avam Arthik Bhoogol, Rastogi publication Meerut.
16- Maurya, S.D. Manav Bhoogol, Sharda Pustak Bhavan, Prayagraj.2009
17- Khullar, D. R. Human Geography,(In Hindi) Kalyani Publishers, Ludhiyana, 2016
18- Prasad, Gayatri, Cultural Geography, (In Hindi) Sharda Pustak Bhavan . Prayagraj.

Reference books:

5- Bergwan, Edward E., *Human Geography: Culture. Connections and Landscape,* Prentice Hall, New Jersey. 1995
6- Carr, M., *Patterns, Process and change in Human Geography,* MacMillan Education, London, 1987.
7- Daniels Peter, Bradshaw Michael, Shaw Devil and Side way James, *Human Geography: Issues for the Twenty First Century*, Prentice Hall, New Jersey, 2001
8- Clarke, J I , Population Geography of Developing Country, Pergamon press ,Oxford, 1971

E-Books

- https://web.ung.edu/media/university-press/human-geography.pdf
- https://www.drishtiias.com/hindi/images/pdf/NCERT-Hindi-Class-12-Geography-Part-1.pdf
- http://assets.vmou.ac.in/GE05.pdf-Human Geography
- https://open.umn.edu/opentextbooks/textbooks/870

OnlineResources–(e-Resources/e-books and e-learning portals)

- **www.ignou.ac.in**
- **www.egyankosh.ac.in**
- **www.iitm.ac.in**
- **www.eskillindia.org**
- **www.eshiksha.mp.gov.in**
- **www.vlab.co.in**
- **www.swayam.ac.in**
- **www.internshala.com**

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 =20Marks** Section B: Descriptive answer type qts.,**1out of 2** from each unit-**4x10=40Marks**	

Signature of Convener, Members of CBoS :

Dr. Sophia Ambrole - Sophia

10/06/23

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

PART- A:	**Introduction**		
Program: Bachelor in Arts *(Certificate / Diploma / Degree/ Honors)*		**Semester -II**	Session: **2024-2025**
1	**Course Code**	**GO – 02 P**	
2	**Course Title**	**Practical 2 - Scale and Representation of Relief**	
3	**Course Type**	**Practical**	
4	**Pre-requisite (if, any)**	***As per program***	
5	**Course Learning. Outcomes (CLO)**	At the end of the this course the student will be able to 1- Understand and prepare different kinds of Scales and comprehend the concept of scales . 2- Identify the features of the land form through counters 3- Developed the Relief Map Making skills. 4- Gain in-depth knowledge on Drawing of Contour Features.	
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 Contents of Course	1- Scale- Methods of representing Scale, Conversion of Scale Type of Linear Scale- Simple Scale, Time Scale, Comparative Scale, Diagonal Scale 2- Representing of Relief- Pictorial, Mathematical and Combine Methods. 3- Contours-Land forms Representing By Contours- Hill, Ridge, Plateau, V shaped Valley, U shaped Valley, Waterfall,	**30**
Keywords	Scale, Diagonal ,Relief, V shaped Valley, Ridge	

Signature of Convener, Members of CBoS :

Dr B.L. Sui
Dr. R.K. Thakur
M.S. SAHU
Dr C.P. NAND
(5) Do. Dr S. Yadav
(6) Dr S. Shridhar
(7)
(8)
(9)
12
13. Dr. Sophie Ambrele
K. 10/06/24

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books-

1. Sarkar, A.K. (1997): Practical Geography : A Systematic Approach. Orient Publication ,Kolkata.
2. Sharma, J.P. (2001): Prayogik Bhugol., Rastogi Publication, Meerut .
3. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi.
4. Singh, L.R. (2006) : Fundamentals of Practical Geography, Sharda Pustak Bhawan,
5. Haroon, M. , Practical Geography, Mishra Trading Corporation, Varanasi,2010
6. Chauhan, P R. 2005, Practical Geography, Vasundhara Prakashan, Gorakhpur
7. Istiyak.M. 1989,A Textbook of Practical Geography,Heritage Publication New Delhi
8. Mishra R.N. ,P K Sharma, Prayogik Bhoogol Rawat Publication, Jaipur ,2019
9. Khullar , D.R., Prayogatmak Bhoogol, Kalyani Publishers, Ludhiyana.

E books-

1- https://www.slideshare.net/NisarKhand/instrumental-surveying-practical-plane-table-survey
2- https://bbsbec.edu.in/wp-content/uploads/2020/01/com.pdf
3- https://surveyofindia.gov.in/documents/soichapter-v.pdf

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**

Signature of Convener, Members of CBoS :

FOUR YEAR UNDERGRADUATE PROGRAM - (2024-28)

DEPARTMENT OF **HINDI**

COURSE CURRICULUM

PART -A : Introduction				
Program: Bachelor in Arts Certificate/Diploma/Degree/Honors		Semester - I		Session: 2024-25
1	Course Code	AEC-03		
2	Course Title	हिन्दी भाषा–1		
3	Course Type	Ability Enhancement Course		
4	Pre-requisite (if any)	As per requirement		
5	Course Learning Outcome (CLO)	1. विद्यार्थी हिन्दी भाषा एवं व्याकरण संबंधी ज्ञान से समृद्ध होंगे। 2. भाषा ज्ञान के माध्यम से भारतीय संस्कृति एवं भावनात्मक एकता के महत्व को समझने की क्षमता विकसित हो सकेगी। 3. मुहावरे एवं लोकोक्तियों का महत्व समझ सकेंगे। 4. व्यंग्य, निबंध एवं कविता विधा से परिचित होंगे। 5. निबंध लेखन एवं अपठित गंद्याश के माध्यम से विद्यार्थियो का बौद्धिक विकास हो सकेगा।		
6	Credit Value	2 Credits	(01 Credit = 15 Hours - learning & Observation)	
7	Total Marks	Maximum Marks : 50		Minimum 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	**रचनाएं** भारत वंदना – सूर्यकांत त्रिपाठी 'निराला' (कविता) भोलाराम का जीव – हरिशंकर परसाई (व्यंग्य) चोरी और प्रायश्चित – महात्मा गांधी (निबंध)	8
II	**हिन्दी व्याकरण एवं शब्द रचना** उपसर्ग, प्रत्यय, संधि, समास पर्यायवाची शब्द, विलोम शब्द, अनेकार्थी शब्द, समश्रुत शब्द, अनेक शब्दों के लिए एक शब्द	7
III	**हिन्दी व्याकरण एवं रचना पक्ष** मुहावरे एवं लोकोक्तियां पारिभाषिक शब्दावली एवं हिन्दी में पदनाम, शब्द शुद्धि, वाक्य शुद्धि	8
IV	**रचनात्मक लेखन** निबंध लेखन अपठित गद्यांश (नोट विद्यार्थी को किसी एक विषय पर निबंध व प्रदत्त गद्यांश का शीर्षक तथा सारांश लिखना होगा।)	7
Keywords		

Signature of Convener & members (CBoS):

11/6/2024 11/6/2024 11/6/24 11-06-2024

PART -C : Learning Resource
Text Books, Reference Books and Others
1. भारतीयता के अमर स्वर – डॉ. धनंजय वर्मा, मध्यप्रदेश हिन्दी अकादमी 2. आधुनिक हिन्दी व्याकरण और रचना – डॉ. वासुदेव नंदन 3. हिन्दी भाषा और व्यवहार – डॉ. गंगा चरण त्रिपाठी 4. हिन्दी व्याकरण माला – डॉ. के.आर. गहिया, डॉ. विमलेश शर्मा 5. हिन्दी व्याकरण – कामता प्रसाद गुरू
Online Resources -
1 www.bookspace.in 2 https://libgmm.com 3 https://www.gkexams.com

PART -D : Assessment And Evaluation		
	Suggested Continuous Evaluation Methods : Maximum Marks : 50 Marks Continuous Internal Assessment (CIA) : 15 Marks End Semester Exam (ESE) : 35 Marks	
Coninuous Internal Assessment : (CIA) : (By Course Teacher)	Internal Test/Quiz-(2) : 10 & 10 Marks Assignment/Seminar+Attendance - 05 Total Marks 15	Better marks out of the two Text/Quiz obtained marks in assignment shall be considered against 15 Marks
End Semester Exam (ESE) :	Two Section - A&B Section A : Q1 Objective - 05X1=05 Marks Section A : Q2 Short Answer Type - 5X2=10 Marks Section B : Descriptive Answer Type Qts. 1 out of 2 From Each Unit - 4X5=20 Marks Total =35 Marks	

11/6/2024

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11-06-2024

11/06/24

FOUR YEARS UNDERGRADUATE PROGRAM (2024-28)
DEPARTMENT OF PHYSICS
COURSE CURRICULUM

PART – A: INTRODUCTION

Program: Bachelor in Science (Certificate/ Diploma/ Degree/ Honors)	Semester: II/ IV/V/ VI	Session: 2024-25

1	Course Code	**PHSEC- 01**	
2	Course Title	**Basic Electrical Skill**	
3	Course Type	**Skill Enhancement Course**	
4	Pre-requisite (if any)	**As per Program**	
5	Course Learning Outcomes (CLO)	On successful completion of the course, student is expected to enhance his electrical skill through: ➢ Understanding importance of accuracy in measuring physical quantities. ➢ Using basic mechanical tools. ➢ Using various measuring instruments. ➢ Fault finding and repairing simple domestic appliances	
6	Credit Value	**02 Credits (1C+1C)**	**1 Credit= 15 Hours for Theoretical Learning & = 30 Hours Laboratory or Field learning/ Training**
7	Total Marks	**Maximum Marks: 50**	**Minimum Pass Marks: 20**

PART – B: CONTENT OF THE COURSE

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

Module	Topic (Course Contents)	No. of Period
I	**Measurement**: Idea about accuracy in measurement, measuring devices for commonly used physical quantities (Length, Mass, Density, Temperature, Power, Current, Voltage, Resistance, capacitance, inductance, frequency etc). **D.C. Circuit**: Ohms law, Series and parallel resistance circuit, Kirchhoff's law& their application, Primary and secondary cells, maintenance of secondary cells. **A.C. Circuits**: Generation of AC voltage, wave shape, frequency, peak, average, instantaneous & RMS values, idea about R, L, C circiuits **Heating & Lighting effects of current**: Joule's law of electric heating and its domestic applications, idea of commonly used lighting bulb, tube, CFL, LED. **Working:** Working principle of Domestic appliances like electric fan, Cooler, Inverters, Mixer, Electric heater etc **Safety measurements**- Safety measurements in working with mechanical and electrical tools, testing and repair of electrical appliances.	15
II	**Laboratory Work:** **(i)** Use of basic tools: Screwdriver, Pliers, Wrench, Hacksaw, Spanner, Hand and electric drill, Soldering iron etc. **(ii)** Use of Voltmeter, Current meter, electronic balance. **(iii)** Use of Multimeter, CRO. **(iv)** Design & Construction of extension board **(v)** Fan repairing and its study **(vi)** Mixer repairing and its study **(vii)** Electric kettle repairing and its study **(viii)** Electric press repairing and its study **(ix)** Cooler repairing and its study **(x)** Geezer repairing and its study **(xi)** Invertor repairing and its study	30

Signature of Convener & Members (CBoS) :

10/6/24

PART – C: LEARNING RESOURCES

Text Books, Reference Books and Others

Text Books Recommended-

1. A text book in Electrical Technology - B L Theraja - S Chand and Co.
2. Electrical circuits, - M Nahvi and J Edminister, Schaum's outline series, Tata McGraw 2005
3. Circuit Theory, A Chakraborti, Dhanpat Rai & Co.
4. A Text book of electrical technology, - Vol.1, B L Thereja, S. Chand & Co, Delhi
5. A text book of electrical technology- J B Gupta, SK Kalaria & Sons,
6. Principle of electrical engineering- V K Mehta, Rohit Mehta, S. Chand & Co, Delhi
   Electronic Devices, 7/e Thomas L. Floyd, 2008, Pearson India

Reference Books Recommended

1. Electrical and Electronic Measurements and Instrumentation by R.K. Rajput
2. Electrical Workshop: Safety, Commissioning, Maintenance & Testing of Electrical Equipment by R.P. Singh
3. Electricity and Magnetism by D.N. Vasudeva

Online Resources (e-books/ learning portals/ other e-resources)

1. National Digital Library- https://ndl.iitkgp.ac.in/
2. https://nptel.ac.in/courses/108/108/108 108076/
3. Basic Instrumentation Skills – Selfstudy Institute
4. physics.iisuniv.ac.in
5. https://www.sathyabama.ac.in/sites/default/files/course-material/2020-10/note_1469078786.PDF

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 + marks obtained in Assignment shall be considered against 15 Marks

End Semester Examination (ESE)	**Laboratory /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**	**Evaluation by Coordinator**

Signature of Convener & Members (CBoS):