Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Social Sciences, Humanities and Arts
Choice Based Credit System (CBCS) in Light of NEP-2020
Humanities (Common Course)
Semester I (Batch 2021-24)

COURSE CODE	CATE-GORY	COURSE NAME	TEACHING &EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
HU101	AECC	Foundation English I	60	20	20	0	50	3	0	2	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will

- **CEO 1** Understand the different nuances of communication.
- **CEO2** understand the features of listening skill.
- **CEO3** Comprehend the factors that influence use of grammar and vocabulary in speech and writing
- **CEO4** study the essential aspects of effective written communication through Business letters and email writing for professional success.
- **CEO5** Identify other common methods of professional communication

Course Outcomes (COs): The students will be able to

- **CO1** develop a comprehensive understanding of the theoretical and practical aspects of communication.
- **CO2** explain the difference between listening and hearing and understand the value of listening.
- **CO3** Apply grammatical rules in speech and writing.
- **CO4** Use proper formats of written business communication.
- **CO5** Use appropriate organization and order of words, sentences and paragraphs in technical writing.

Paper I
HU101
Foundation English I

COURSE CONTENTS

UNIT I
Communication: Nature, Meaning, Definition, Process, Functions and importance, Characteristics of Business Communication, Verbal and Non-Verbal Communication, Barriers to Communication.

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Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
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Choice Based Credit System (CBCS) in Light of NEP-2020
Humanities (Common Course)
Semester I (Batch 2021-24)

COURSE CODE	CATE-GORY	COURSE NAME	THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
HU101	AECC	Foundation English I	60	20	20	0	50	3	0	2	4

Legends: L - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

UNIT II
Listening: Process, Types, Difference between Hearing and Listening, Benefits of Effective Listening, Barriers to Effective Listening, Overcoming Listening Barriers, and How to Become an Effective Listener

UNIT III
Basic Language Skills: Grammar and usage- Parts of Speech, Tenses, Subject and Verb Agreement, Prepositions, Articles, Types of Sentences, Direct - Indirect, Active - Passive voice, Phrases & Clauses.

UNIT IV
Business Correspondence: Business Letters, Parts & Layouts of Business Letter, Job application and Resume, Application Calling/ Sending Quotations/ Orders/ Complaints. E-mail writing, Email etiquettes

UNIT V
Précis Writing and Noting: The Purpose of Notes, Methods of Notetaking, General Principles of Good Notes. Drafting: Notices, Agenda and Minutes. Advertisement: Importance, Types, Various Media of Advertising, Slogan Writing.

Practicals
- Self Introduction
- Reading Skills and Listening Skills
- Linguistics and Phonetics
- Role plays
- Oral Presentation – Preparation & Delivery using audio – visual aids with stress on body language and voice modulations.
- Social etiquettes

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Shri Vaishnav Institute of Social Sciences, Humanities and Arts
Choice Based Credit System (CBCS) in Light of NEP-2020
Humanities (Common Course)
Semester I (Batch 2021-24)

COURSE CODE	CATE-GORY	COURSE NAME	TEACHING &EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	L	T	P	CREDITS
HU101	AECC	**Foundation English I**	60	20	20	0	50	3	0	2	4

Legends: L - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Suggested Readings:

- Adair, John (2003). **Effective Communication**. London: Pan Macmillan Ltd.
- A.J. Thomson and A.V. Martinet (1991). **A Practical English Grammar** (4th ed). New York: Ox- ford IBH Pub
- Ashraf Rizvi. (2005). **Effective Technical Communication**. New Delhi: Tata Mc Graw Hill
- Kratz, Abby Robinson (1995). **Effective Listening Skills**. Toronto: ON: Irwin Professional Publishing.

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<td>Chairperson
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Shri Vaishnav Vidyapeeth Vishwavidyalaya
B.Sc. (Chemistry Hons)
Choice Based Credit System (CBCS)(Batch 2021-2024)

Semester-I (B.Sc. - Honours) Chemistry

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	THEORY END SEM University Exam	THEORY Two Term Exam	THEORY Teachers Assessment*	PRACTICAL END SEM University Exam	PRACTICAL Teachers Assessment*
BSHCH102	Hons	Concepts of Physical Chemistry	4	0	0	4	60	20	20	0	0

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Concepts of Physical Chemistry

Course Objectives: -

To give basic knowledge of state of matter, Thermodynamics, and colligative properties of solutions.

To understand and apply the knowledge of equilibria.

Course Outcomes: -

After completion of this course the students are expected to be able to demonstrate following knowledge, skills, and attitudes. The student will demonstrate capability of

CO1. Familiarization with various states of matter.Physical properties of each state of matter and laws related to describe the states.

CO2. Ionic equilibria – electrolyte, ionization, dissociation. Thermodynamics and colligative properties of solutions.Phases, components, Gibb's phase rule, Phase diagrams and applications.

CO3. Understanding the concept of system, variables, heat, work, and laws of thermodynamics.Became aware of the importance of Dilute solution and its properties.

CO4. Demonstrate a fundamental/systematic understanding of the practical field of Physical Chemistry.
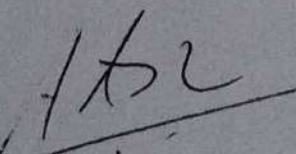
Unit I: state of Matter:

A: Gaseous state: Kinetic molecular model of a gas: postulates and derivation of the kinetic gas equation, collision frequency, collision diameter, mean free path and viscosity of gases.
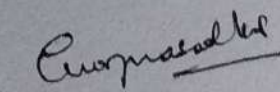
B: Liquid state:
Qualitative treatment of the structure of the liquid state; physical properties of liquids, vapour pressure, surface tension and coefficient of viscosity, and their determination.
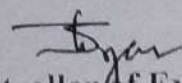
C: Solid state:
Nature of the solid state, law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry, symmetry elements and symmetry operations, qualitative idea of point and space groups, seven crystal systems and fourteen Bravais lattices.
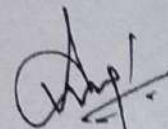
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idea of point and space groups, seven crystal systems and fourteen Bravais lattices.

Shri Vaishnav Vidyapeeth Vishwavidyalaya
B.Sc. (Chemistry Hons)
Choice Based Credit System (CBCS)(Batch 2021-2024)

Semester-I (B.Sc. - Honours) Chemistry

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	THEORY		PRACTICAL		
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BSHCH102	Hons	Concepts of Physical Chemistry	4	0	0	4	60	20	20	0	0

Unit II: equilibria:
A: Ionic Equilibria: Strong, moderate, and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant and ionic product of water. Ionization of weak acids and bases, pH scale, common ion effect.

B: Phase equilibria:
Definitions of phase, component, and degrees of freedom. Phase rule and its derivations. Definition of phase diagram. Phase equilibria for one component system – water, CO_2.

Unit III: Thermodynamics:
Intensive and extensive variables; state and path functions; isolated, closed, and open systems. First law of thermodynamics.Second Law: Concept of entropy; thermodynamic scale of temperature, statement of the second law of thermodynamics. Calculation of entropy change for reversible and irreversible processes.

Third Law: Statement of third law, concept of residual entropy, calculation of absolute entropy of molecules.

Unit-IV: Thermodynamic Equilibrium
Criteria of thermodynamic equilibrium, degree of advancement of reaction, chemical equilibria in ideal gases.Thermodynamic derivation of relation between Gibbs free energy of reaction and reaction quotient.

Unit-V: Solutions and Colligative Properties
Ideal solution-Thermodynamics of Ideal solutions; Raoult's Law - derivation of Raoult's Law; Non-Ideal or real solutions; activity and activity coefficient; colligative properties: relative lowering of vapour pressure, osmotic pressure, Elevation in boiling point, Depression of freezing point:

Recommended Texts:
1.Atkins, P. W. & Paula, J. de Atkin's Physical Chemistry 8th Ed., Oxford University Press (2006).
2.Ball, D. W. Physical Chemistry Thomson Press, India (2007).
3.Castellan, G. W. Physical Chemistry 4thEd. Narosa (2004).
4.Mortimer, R. G. Physical Chemistry3rd Ed. Elsevier: NOIDA, UP (2009)

List of Practical's: (If Practical Credit Shown in Syllabus)

Guidelines for Practical:

One credit lab is to be conducted by covering the most relevant and useful topics from mentioned syllabus

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Shri Vaishnav Vidyapeeth Vishwavidyalaya
B.Sc. (Chemistry Hons)
Choice Based Credit System (CBCS)(Batch 2019-2022)

Semester-I (B.Sc. - Honours) Chemistry

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	THEORY END SEM University Exam	THEORY Two Term Exam	THEORY Teachers Assessment*	PRACTICAL END SEM University Exam	PRACTICAL Teachers Assessment*
BSHCH103	Hons	Concepts of Inorganic Chemistry	5	0	0	5	60	20	20	0	0

Legends: L - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks

Concept of Inorganic Chemistry - I

Course Objectives: -
To give basic knowledge of structure of atom.
To understand and apply the knowledge of chemical bonding.

Course Outcomes: -
After completion of this course the students are expected to be able to demonstrate following knowledge, skills, and attitudes. The student will demonstrate capability of
CO1 . Theoretical understanding of structure of atom. Learning scientific theory of atoms, concept of wave function.
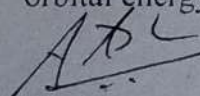CO2. Elements in periodic table; physical and chemical characteristics, periodicity.
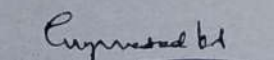CO3. Characterize bonding between atoms, molecules, interaction, and energetics. hybridization and shapes of atomic, molecular orbitals, bond parameters, bond- distances and energies. Became aware of the importance of acid -base concepts and Applications of HSAB principle. Understanding the Coordination compounds.
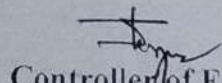
CO4. Demonstrate a fundamental/systematic understanding of the practical field of Inorganic Chemistry.
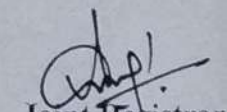
Unit I: Atomic Structure:

Bohr's theory, its limitations and atomic spectrum of hydrogen atom. Wave mechanics: de Broglie equation, Heisenberg's uncertainty principle and its significance, Postulates of Quantum mechanics Schrödinger's wave equation, eigen value and eigen function, significance of ψ and $\psi 2$. Quantum numbers and their significance. Normal and orthogonal wave functions. Sign of wave functions. Radial and angular wave functions. Radial and angular distribution curves.
Shapes of s, p, d and f orbitals. Contour boundary and probability diagrams. Pauli s exclusion principle, Hund's rule of maximum multiplicity, Aufbau's principle and its limitations, Variation of orbital energy with atomic number.

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Semester-I (B.Sc. - Honours) Chemistry

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BSHCH103	Hons	Concepts of Inorganic Chemistry	5	0	0	5	60	20	20	0	0

Unit II: Periodicity of Elements:

s, p, d, f block elements, the long form of periodic table. Detailed discussion of the following properties of the elements, with reference to s & p- block. (a)Effective nuclear charge, shielding or screening effect, Slater rules, variation of effective nuclear charge in periodic table. (b)Atomic radii (Van der Waals) (c)Ionic and crystal radii. (d)Covalent radii (octahedral and tetrahedral) (e)Ionization enthalpy, Successive ionization enthalpies and factors affecting ionization energy. Applications of ionization enthalpy. (f) Electron gain enthalpy, trends of electron gain enthalpy. (g)Electronegativity, Pauling/ Mulliken/ Allred Rachow/ and Mulliken-Jaffe electronegativity scales. Variation of electronegativity with bond order, partial charge, hybridization, group electronegativity.

Unit-III: Chemical Bonding:

(i)   Ionic: Conditions favouring the ionic bond, radius ratio in ionic solids. Concept of lattice energy and Born-Haber cycle, Polarisation of ions and Fajan's rules.

(ii)   Covalent and brief idea of other bonds: Concept of directed valence and hybrid orbital description (sp, sp2 , sp3 , sp3 d and sp3 d 2) using simple illustrations, determination of the shapes of molecules and ions viz. NH3, H2O, H3O + , SF4, ClF3, ICl2 - and I3 - by VSEPR concept, Concept of maximum covalency. Odd electron bond, Hydrogen bond, three centre bond and Metallic bond.

Unit-IV: Acid - Base concept:
Lewis's concept, Concept and classification of hard and soft acids and bases. Applications of HSAB principle

Unit-V: Coordination Chemistry and Hydrogen:

Werner's Coordination theory and experimental verification, Effective atomic number concept, Chelates. Position of Hydrogen in periodic table, Occurrence, Isotopes. Preparations, Properties and uses of H_2. Compounds of Hydrogen, their physical and chemical properties. Hydrogen Economy.
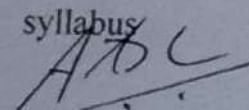
Recommended Texts:
1. Lee, J.D. Concise Inorganic Chemistry, ELBS, 1991.
2. Douglas, B.E. and Mc Daniel, D.H., Concepts & Models of Inorganic Chemistry, Oxford, 1970
3. Atkins, P.W. & Paula, J. Physical Chemistry, Oxford Press, 2006.
4. Day, M.C. and Selbin, J. Theoretical Inorganic Chemistry, ACS Publications 1962.
5. Malik, Tuli & Madan, Selected topics in Inorganic Chemistry, S Chand publications, 2010
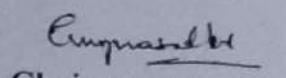
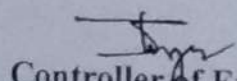**List of Practical's:** (If Practical Credit Shown in Syllabus)
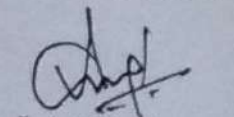
Guidelines for Practical:

One credit lab is to be conducted by covering the most relevant and useful topics from mentioned syllabus

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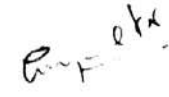
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B. Sc. I Sem

Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		Th	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teachers Assesssessment	End Sem University Exam	Teachers Assessment				
BSPH102	DC	General Properties of Matter	60	20	20	30	20	4	0	0	4

Course Objectives	1. To develop the comprehensive understanding of laws of physics related to General properties of Matter and ability to apply them for laying the foundation for research and development. 2. To work ethically as member as well as leader in a diverse team.
Course Outcomes	1. Student will be able to understand and solve the problems related to General Properties of Matter. 2. Student will be able to determine physical parameter experimentally with optimal usage of resources and complete the assignments in time.

Abbreviation		Teacher Assessment (Theory) shall be based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall be exceed 10 Marks).
Th	Theory	
T	Tutorial	Teacher Assessment (Practical) shall be based on following components: Viva/ File/ Participation in Lab work (Given that no component shall be exceed 50% of Marks).
P	Practical	

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Department of Physics

Choice Based Credit System (CBCS)

BSPH102: General Properties of Matter

UNIT I: System of many particles

System of particles and equation of motion, Centre of mass for a system of particles, motion of the centre of mass, law of conservation of linear momentum for a system of one, two, n particles, law of conservation of angular momentum for a single particle, system of n particles and examples, recoil velocity on firing a bullet from a gun, motion of a boat or propulsion of an aeroplane, jet propulsion, motion of rocket. Kepler's law of Planetary motion.

UNIT II: Rotational Dynamics

Motion of rigid body, rotatory motion, equations of rotationary motion of a particle under a constant angular acceleration, angular momentum and concept of moment of inertia in rotational motion, Newton's law of rotational motion, Moment of inertia and its examples, radius of gyration, rotational kinetic energy, relation between Torque and moment of inertia, Theorem of parallel axis, theorem of perpendicular axis.

UNIT III: Elasticity

Elasticity, Effect of temperature and impurities on elasticity of a substance; small deformation, Stress and Strain; Hook's law, elasticity constants for an isotropic solid, Young's modulus, Bulk Modulus, Modulus of rigidity, Poission's ratio, Relationship between the various elastic moduli. Bending of beam and bending moment, Cantilever, transverse oscilations of a cantilever, torsion of cylinder.

UNIT IV: Oscillations

SHM: Simple Harmonic Oscillations, Differential equation of SHM and its solution. Kinetic energy, potential energy, total energy and their time-average values. Damped oscillation. Forced oscillations: Transient and steady states; Resonance, sharpness of resonance; power dissipation and Quality Factor, motion of simple pendulum, motion of compound pendulum, motion of mass connected with spring, motion of torsional pendulum.

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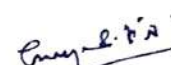
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BSPH102: General Properties of Matter

UNIT V: Fluid Mechanics

Ideal and Viscous fluid, Stream line and Turbulent flow, Reynold's number, Rotational and irrotatinal flow, Equation of continuity, Bernoulli's theorem and its application, Stokes law, viscous flow of fluids, Effect of pressure and temperature on the coefficient of viscosity, Poiseulle's formula, Intermolecular forces-cohesive and adhesive forces, Surface tension, Surface energy, Effect of temperature and impurities on the surface tension, Angle of contact; expression for pressure on a curved surface,

References

1. D. Kleppner and R. Kolenkow, *An Introduction to Mechanics*, 2nd Edition, Cambridge University Press, 2014.
2. D. S. Mathur, *Elements of Properties of Matter*, S. Chand & Co., 1962.
3. C. Kittel, W. D. Knight and M. A. Ruderman, *Mechanics, Berkeley Physics Course*, Vol. 1, 2nd Edition, McGraw-Hill Book Company, 1973.
4. Halliday and Resnick, *Fundamentals of Physics*, 10th Edition, John Wiley & Sons, 2014.
5. H. D. young, R. A. Freedman, R. Bhathal and A. L. ford, *Sears and Zemansky's University Physics with Modern Physics*, 1st Australian SI Edition, Pearson Education Inc, 2011.

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Vishwavidyalaya, Indore	Vishwavidyalaya, Indore		

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Choice Based Credit System (CBCS)

B.Sc. Chemistry/Maths Hons. I Sem

Subject Code	Category	Subject Name	Theory			Practical		Th	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teachers Assess sessment	End Sem University Exam	Teachers Assessment				
BSCHPRP106	DC	Physics Laboratory I	60	20	20	30	20	0	0	2	1

Course Objectives	To work ethically as member as well as leader in a diverse team.
Course Outcomes	Student will be able to determine physical parameter experimentally with optimal usage of resources and complete the assignments in time.

Abbreviation		Teacher Assessment (Theory) shall be based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall be exceed 10 Marks).
Th	Theory	
T	Tutorial	Teacher Assessment (Practical) shall be based on following components: Viva/ File/ Participation in Lab work (Given that no component shall be exceed 50% of Marks).
P	Practical	

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BSCHPRP106: Physics Laboratory I

List of Experiments (Any Five)

1. To verify laws of Perpendicular axes for moment of inertia.
2. To determine Acceleration due to gravity using compound pendulum.
3. To determine Coefficient of Viscosity of fluid using Stoke's law.
4. To determine Young's Modulus using Cantilever method.
5. To determine Surface Tension by Jaeger's method.
6. To determine Coefficient of Viscosity of fluid using Poisellie's method.
7. To determine Modulus of rigidity by Torsional pendulum.
8. To determine Young's Modulus of long wire by Searl's method.
9. To determine Poisson's ratio of rubber tube.
10. To determine the force constant of the given spring in parallel combination.

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Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Computer Applications

Name of Program : B.Sc. Physics (Honors)/ Chemistry (Honors)

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	THEORY END SEM University Exam	THEORY Two Term Exam	THEORY Teachers Assessment*	PRACTICAL END SEM University Exam	PRACTICAL Teachers Assessment*
BCCA103	Compulsory	PC-Software	4	0	0	4	60	20	20	0	0

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

Q/A – Quiz/Assignment/Attendance, MST - Mid Sem Test.

*Teacher Assessment shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Educational Objectives (CEOs):
- To provide the knowledge of using different software packages including word processor, electronic spreadsheet, presentation s/w
- To develop an understanding of database management system
- To explain how to integrate the data stored in word processor, spreadsheet etc.
- To develop presentation skills using these software.

Course Outcomes (COs) : Students will be able to
- To create word documents and to format them using various tools available
- To create tables and manipulate them
- To use mail merge, labels
- Creating spreadsheet for storing and managing data using functions
- Format, print spreadsheet
- Create power point presentation for different purposes using objects, animation
- To store and manipulate data stored in databases.
- To export and import data stored from and to, among word processor, spreadsheet, DBMS, presentation s/w

UNIT – I
Word Processor: Introduction, Word Processing, Advantages of word processing, Creating, Saving and editing a document: Selecting, Deleting, Replacing Text, Copying text to another file. Formatting Text and Paragraph: Using the Font Dialog Box, Paragraph Formatting using Bullets and Numbering in Paragraphs, Line spacing, Margins.

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							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
BCCA103	Compulsory	PC-Software	4	0	0	4	60	20	20	0	0

UNIT – II

Creating and Formatting Tables: Changing Row height, inserting columns, merging cells Calculations in a Table, Sorting Text, Toolbar using word art, Mail merge: Definition, a Practical Example of mail merge, creating charts.

Defining Tabs: Tabs Dialog Box, Enhancing a Document: Inserting page Breaks, Adding Border, Using Header and Footers in the Document.

UNIT – III

Spreadsheet: Introduction, Definition. Screen parts of worksheet, Entering information: Numbers, Formula, Editing Data in a cell, Using a Range with SUM, Moving and copying data, Inserting and Deleting Row and Columns in the worksheet, Using the format cells Dialog box.

UNIT – IV

Protecting a workbook with Password, Macro: Recording and Running a Macro, Linking workbook files Using Pivot table, Inserting Hyper links, Using chart wizard to create a chart, Naming ranges, classification of Functions.

UNIT – V

Presentation : Introduction, Slide show, Formatting, Creating a Presentation, Inserting clip Arts, Adding Objects, Applying Transitions, Animation effects, formatting and checking text, Modifying Visual elements, Preparing a complete presentation, Case studies.

DBMS: Introduction, Basic terms of access, objectives, What is database, Creating a new database, Creating a database through table wizard, Creating a new table, Rename columns, Saving the database.

Text Books:
1. Taxali R. K. "PC Software for Windows 98, Made Simple" TMH.
2. Saxena Sanjay, "MS Office 2000 "Vikas Publication House PVT LTD.
3. Busbby M. and Stultz R.A. "Microsoft Office 2000", BPB.
4. Jain S., Geetha M. and Kratika, "Microsoft Office-2007", BPB

Reference Book: 1. Microsoft Office – Complete Reference – BPB Publication.

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BSCL108	Compulsory	PC-Software Lab	0	0	2	1	0	0	0	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical;   C - Credit;
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*Teacher Assessment shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Educational Objectives (CEOs):
- To provide the knowledge of using different software packages including word processor, electronic spreadsheet, presentation s/w
- To develop an understanding of database management system
- To explain how to integrate the data stored in word processor, spreadsheet etc.
- To develop presentation skills using these software.

Course Outcomes (COs): Students will be able to
- To create simple word documents ant to format them using various tools available
- To create tables and to use various tools
- To use mail merge, labels
- Creating spreadsheet for storing and managing data using functions
- Format, print spreadsheet
- Create power point presentation for different purposes using objects, animation
- To store and manipulate data stored in databases.
- To export and import data among word processor, spreadsheet, DBMS, presentation s/w

List of Experiments:
1. To open and practice of OS – Folder related operations, My-Computer, window   explorer, Control Panel,
2. To create, save and editing of Text files using word processor.
3. Formatting and printing of document (setting of margins, size, orientation, different breaks etc. Checking of spelling and use of thesaurus)
4. Creating, inserting tables, header, footers, hyperlink, different objects in a document
5. Use of Charts in Word Processor.
6. Creating a mail merged documents, labels

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BSCL108	Compulsory	PC-Software Lab	0	0	2	1	0	0	0	30	20

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical;   C - Credit;

Q/A – Quiz/Assignment/Attendance, MST - Mid Sem Test.

*Teacher Assessment shall be based on following components: Quiz/Assignment/Project/Participation in class (Given that no component shall be exceed 10 Marks)

7. Creating and manipulating spreadsheets. To create, save and editing of spreadsheets. Use of cell
8. references, sorting and filtering data in a spreadsheet, using formulae
9. Formatting and printing of spreadsheets (setting of margins, size, orientation, different breaks etc. What if analysis, mail merging
10. Creating header, footers, hyperlink, different objects in a spreadsheet
11. Creating different types of graphs and printing

12. Creation, editing and formatting presentation slides.
13. Create presentation for different purposes using objects, animation
14. Creation and manipulation of database table using SQL.
15. To store and manipulate data stored in databases.
16. To export and import data among word processor, spreadsheet, DBMS, presentation s/w

Text Books:

1. Kanitkar Yashwant, 'Let us C', BPB New Delhi
2. Balaguruswami, 'Ansi C', TMH, Delhi
3. Kerninghan & Ritchie "The C programming language", PHI
4. Cooper Mullish "The Spirit of C", Jaico Publishing House, Delhi

Reference Book:

1. Schildt "C:The Complete reference" 4th ed TMH.

BSBT 105   BIOCHEMISTRY

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*	Th	T	P	CREDITS
BSBT 105	**DC**	**BIOCHEMISTRY**	60	20	20	30	20	3	0	2	4

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical;   **C** - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/
Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:

1. To have the knowledge of chemical nature of important biomolecules
2. To know the principles of techniques and instruments used in biological laboratories

Course Outcome:

1. Students will be able to understand the chemical nature of biomolecules and their physical and chemical properties
2. Students will be familiar with the analytical techniques and the working principles of the instruments used in biological laboratories

A. Biochemistry

Unit-I
Structure, classification and function ofCarbohydrates and Lipids
Structure and types of DNA and RNA

Unit - II
Structure, classification and function of Amino acids and Proteins
Structure and function of vitamins

Unit-III
Enzymes – Classification**,** Energy of activation andEnzyme kinetics, Michaelis – Menten equation.

Cofactors and coenzymes; Isozyme, ribozyme and abzymes Allosteric enzymes

B. Instrumentation

Unit - IV
Spectroscopy: Beer Lambert's Law, Colorimeters, UV and Visible spectroscopy, Flame photometer.
Chromatography: Paper, Thin layer, Ion exchange, affinity and Gel filtration

Unit – V
Electrophoresis: Agarose gel, SDS PAGE and Native PAGE.
Centrifugation – Basic principles, preparative and analytical centrifuges
Radioactivity – autoradiography, Geiger counterand Scintillation Counter.

Practical:

1. Qualitative and Quantitative [Nelson Somogyii's/DNS method] estimation of carbohydrates.
2. Qualitative and Quantitative [Folin Lowry's method] estimation of Proteins.
3. Determination of the enzyme activity by colorimetric methods
4. Effect of temperature on the activity of the given enzyme.
5. Effect of pH on the activity of the given enzyme
6. Effect of enzyme concentration on the activity of the given enzyme.
7. Effect of substrate concentration on the activity of the given enzyme and determination of V_{max} and K_m.
8. Determination of concentration of DNA by DPA method.
9. Determination of concentration of RNA byOrcinol method.
10. Separation of leaf pigments by paper chromatography.
11. Separation of aliphatic, aromatic and polar amino acids by TLC.
12. Isolation of biomolecules from natural sources.
13. Agarose gel electrophoresis of DNA/RNA sample.
14. Separation of proteins on the basis of size by SDS-PAGE.

Books:

1. Principles of Biochemistry. Lehniger, Nelson and Cox (Worth).
2. Biochemistry Stryer, W.H. Freeman.
3. Harper's Biochemistry, McGraw-Hill.
4. Zubey GL. Parson WW and Vance DE, Principles of Biochemistry – WM.C. Brown Publishers, Oxford, England
5. Fundamentals of Biochemistry, Jain, J.L..
6. Biochemical Methods of Analysis: *Theory and Applications*, SarojDua, S., Garg, N. Narosa Publishing House.
7. Biochemistry, Sharma, D.K. Narosa Publishing House
8. Experiments in Biotechnology – Nighojkar and Nighojkar

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Name of the Program: B. Sc. (Honors)

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM	MST	Q/A	END SEM	Q/A				
BSHMA104	BS	Classical Algebra and Analytical Geometry of two dimensions	60	20	20	-	-	4	0	-	4

Course Objective

To introduce the students with the Fundamentals of the Classical Algebra and Analytical Geometry of two dimensions.

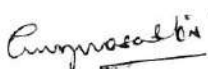## Course Outcomes

This course will enable the students to:
1. *Know the fundamental principles of the algebra of the complex numbers.*
2. *Apply the techniques to find the roots of an equation after knowing the relation between the roots and the coefficients.*
3. *Understand and apply the basics of the calculus of the Matrices.*
4. *Justify the basic principles of the Analytical Geometry of two dimensions.*

Course Content:

UNIT – I
Classical Algebra: Complex Numbers: De Moivre's Theorem and its applications. Exponential, Sine, Cosine and Logarithm of a complex number. Definition of az, (a≠0).
Inverse circular and Hyperbolic functions. **Polynomials:** Fundamental Theorem of Classical Algebra (Statement only). Polynomials with real coefficients: The nth degree polynomial equation has
exactly n roots. Nature of roots of an equation (Surd or Complex roots occur in pairs). Statement of Descartes's Rule of signs and its applications.

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			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM	MST	Q/A	END SEM	Q/A				
BSHMA104	BS	Classical Algebra and Analytical Geometry of two dimensions	60	20	20	-	-	4	0	-	4

UNIT – II

Polynomials: Statements of:(i) If the polynomial $f(x)$ has opposite signs for two real values of x,e.g. a and b, the equation $f(x) = 0$ has an odd number of real roots between a and b; if $f(a)$ and $f(b)$ are of same sign, either no real root or an even number of roots lies between a and b. Rolle's Theorem and its direct applications. Relation between roots and coefficients. Symmetric functions of roots, Transformations of equations. Cardan's method of solution of a cubic.

UNIT – III

Determinants up to the third order: Properties, Cofactor and Minor. Product of two determinants. Adjoint, Symmetric and Skew-symmetric determinants. Solutions of linear equations with not more than three variables by Cramer's Rule. **Matrices of Real Numbers:** Equality of matrices. Addition of matrices. Multiplication of matrices and properties. Transpose and its properties. Inverse of matrix. Symmetric and Skew-symmetric matrices. Scalar matrix. Orthogonal matrix. Elementary operations on matrices. **Rank of a matrix:** Rank a Matrix. Consistency and solution of a system of linear of equations with not more than 3 variables by matrix method.
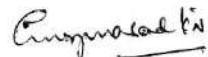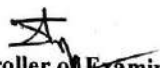
UNIT – IV

Analytical Geometry of 2 Dimensions: Transformations of Rectangular axes: Translation, Rotation and their combinations. Invariants. General equation of second degree in x and y: Reduction to canonical forms. Classification of conic. **Pair of straight lines:** Condition that the general equation of 2nd degree in x and y may represent two straight lines. Points of intersection of two intersecting straight lines. Angle between two lines given by $ax^2 + 2hxy + by^2 = 0$. Equation of bisectors. Equation of two lines joining the origin to the points in which a line meets a conic.
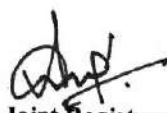
UNIT – V

Analytical Geometry of 2 Dimensions: Equations of pair of tangents from an external point, chord of contact, poles and polars in case of General conic: Particular cases for Parabola, Ellipse, Circle, Hyperbola. Polar equation of straight lines and circles. Polar equation

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Name of the Program: B. Sc. (Honors)

SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM	MST	Q/A	END SEM	Q/A				
BSHMA104	BS	Classical Algebra and Analytical Geometry of two dimensions	60	20	20	-	-	4	0	-	4

of a conic referred to a focus as pole. Equation of chord joining two points. Equations of tangent and normal.

BOOKS:

1. The Theory of Equations (Vol. I) – Burnside and Panton.
2. Topics in Algebra – Hernstein.
3. Test book of algebra – Leadership Project Committee (University of Bombay).
4. Abstract Algebra – N. P. Chaudhuri (Tata Mc.Graw Hill).

5. Linear Algebra – Hadley
6. Test Book of Matrix – B. S. Vaatsa
7. Co-ordinate Geometry – S. L. Loney.
8. Solid Analytic Geometry – C. smith.
9. Higher Geometry – Efimov.

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