DEPARTMENT OF CHEMISTRY

SURENDRANATH EVENING COLLEGE

LESSON PLAN FOR THE UNDERGRADUATE COURSE

(ACADEMIC SESSION 2021-2022)

Academic Quarter	Class	Name of the Teacher	Topics to be covered	No. of lectures	Exam
Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Hons.) Semester – I	Averi Guha (AG)	**CEMA-CC-1-1-TH: INORGANIC CHEMISTRY-1** **Extra nuclear Structure of atom** Quantum numbers and their significance, Schrödinger's wave equation, significance of ψ and ψ 2 . Radial and angular wave functions for hydrogen atom. Radial and angular distribution curves. Shapes of s, p, d and f orbitals. Pauli's Exclusion Principle, Hund's rules and multiplicity, Exchange energy, Aufbau principle and its limitations, Ground state Term symbols of atoms and ions for atomic number upto 30.	08 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Third week of March 2021
		Averi Guha (AG)	**Acid-Base reactions** Acid-Base concept: Arrhenius concept, theory of solvent system (in H_2O, NH_3, SO_2 and HF), Bronsted-Lowry's concept, relative strength of acids, Pauling's rules. Lux-Flood concept, Lewis concept, group characteristics of Lewis acids, solvent levelling and differentiating effects. Thermodynamic acidity parameters, Drago-Wayland	06 Lectures	

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Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Hons.) Semester – I	Sili Hansda (SH)	equation. Superacids, Gas phase acidity and proton affinity; HSAB principle. Acid-base equilibria in aqueous solution (Proton transfer equilibria in water), pH, buffer.Acid-base neutralisation curves; indicator, choice of indicators. **Redox Reactions** Ion-electron method of balancing equation of redox reaction. Elementary idea on standard redox potentials with sign conventions, Nernst equation (without derivation). Influence of complex formation, precipitation and change of pH on redox potentials; formal potential. Feasibility of a redox titration, redox potential at the equivalence point, redox indicators. Redox potential diagram (Latimer and Frost diagrams) of common elements and their applications. Disproportionation and comproportionation reactions (typical examples). Electroanalytical methods: Basic principle of pH metric, potentiometric and conductometric titrations. Techniques used for the determination of equivalence points. Techniques used for the determination of pKa values Solubility and solubility effect – common ion effect and their applications to the precipitation and separation of common metallic ions as hydroxides, sulfides, phosphates, carbonates, sulfates and halides.	08 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Third week of March 2021

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Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Hons.) Semester - I	Tapas Kumar Paira (TP)	**CEMA-CC-1-1-TH: ORGANIC CHEMISTRY-1A** **Bonding and Physical Properties** *Valence Bond Theory*: concept of hybridisation, shapes of molecules, resonance (including hyperconjugation); calculation of formal charges and double bond equivalent (DBE); orbital pictures of bonding (sp^3, sp^2, sp: C-C, C-N & C-O systems and s-cis and s-trans geometry for suitable cases). *Electronic displacements*: inductive effect, field effect, mesomeric effect, resonance energy; bond polarization and bond polarizability; electromeric effect; steric effect, steric inhibition of resonance. *MO theory*: qualitative idea about molecular orbitals, bonding and antibonding interactions, idea about σ, σ*, π, π *, n – MOs; concept of HOMO, LUMO and SOMO; sketch and energy levels of π MOs of i) acyclic p orbital system (C=C, conjugated diene, triene, allyl and pentadienyl systems) ii) cyclic p orbital system (neutral systems: [4], [6] annulenes; charged systems: 3-,4-,5-membered ring systems); Hückel's rules for aromaticity up to [8] annulene (including mononuclear heterocyclic compounds up to 6- membered ring); concept of antiaromaticity and homoaromaticity; non-aromatic molecules; Frost diagram (qualitative drawing).	07 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Third week of March 2021
		Manabendra Saha (MS)	*Physical properties:* influence of hybridization on bond properties: bond dissociation energy (BDE) and bond energy; bond distances, bond angles; concept of bond angle strain; melting point/boiling point and solubility of common	03 Lectures	

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Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Hons.) Semester – I		organic compounds in terms of covalent & non-covalent intermolecular forces; polarity of molecules and 8 dipole moments; relative stabilities of isomeric hydrocarbons in terms of heat of hydrogenation and heat of combustion data.		**Internal Exam:** Last week of February 2021 **Final Exam:** Third week of March 2021
		Manabendra Saha (MS)	**General Treatment of Reaction Mechanism I** *Mechanistic classification*: ionic, radical and pericyclic (definition and example); reaction type: addition, elimination and substitution reactions (definition and example); nature of bond cleavage and bond formation: homolytic and heterolytic bond fission, homogenic and heterogenic bond formation; curly arrow rules in representation of mechanistic steps; reagent type: electrophiles and nucleophiles (elementary idea).	03 Lectures	
		Debarati Ray (DR)	**CEMA-CC-1-2-TH: PHYSICAL CHEMISTRY-1** **Kinetic Theory and Gaseous state** Kinetic Theory of gases: Concept of pressure and temperature; Collision of gas molecules; Collision diameter; Collision number and mean free path; Frequency of binary collisions (similar and different molecules); Wall collision and rate of effusion 10 Maxwell's distribution of speed and energy: Nature of distribution of velocities, Maxwell's distribution of speeds in one, two and three dimensions; Kinetic energy distribution in one, two and three dimensions, calculations of average, root mean square and most probable values in each	15 Lectures	

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Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Hons.) Semester - I		case; Calculation of number of molecules having energy ≥ ε, Principle of equipartition of energy and its application to calculate the classical limit of molar heat capacity of gases Real gas and virial equation: Deviation of gases from ideal behavior; compressibility factor; Boyle temperature; Andrew's and Amagat's plots; van der Waals equation and its features; its derivation and application in explaining real gas behaviour, other equations of state (Berthelot, Dietrici); Existence of critical state, Critical constants in terms of van der Waals constants; Law of corresponding states; virial equation of state; van der Waals equation expressed in virial form and significance of second virial coefficient; Intermolecular forces (Debye, Keesom and London interactions; Lennard-Jones potential - elementary idea)		**Internal Exam:** Last week of February 2021 **Final Exam:** Third week of March 2021
		Sili Hansda (SH)	**Transport processes** Diffusion : Fick's law, Flux, force, phenomenological coefficients & their interrelationship (general form), different examples of transport properties Viscosity: General features of fluid flow (streamline flow and turbulent flow); Newton's equation, viscosity coefficient; Poiseuille's equation (with derivation); principle of determination of viscosity coefficient of liquids by falling sphere method and using Ostwald's viscometer. Temperature variation of viscosity of liquids and comparison with that of gases. Relation between viscosity coefficient of a gas and mean free path.	05 Lectures	

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Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Hons.) Semester - I	Debarati Ray (DR)	**Chemical kinetics** Rate law, order and molecularity: Introduction of rate law, Extent of reaction; rate constants, order; Forms of rates of First, second and nth order reactions; Pseudo first order reactions (example using acid catalyzed hydrolysis of methyl acetate); Determination of order of a reaction by half-life and differential method; Ratedetermining step and steady-state approximation – explanation with suitable examples;) Opposing reactions, consecutive reactions and parallel reactions (with explanation of kinetic and thermodynamic control of products; all steps first order) Role of Temperature : Temperature dependence of rate constant; Arrhenius equation, energy of activation; Homogeneous catalysis: Homogeneous catalysis with reference to acid-base catalysis; Enzyme catalysis; Michaelis-Menten equation, Lineweaver-Burk plot, turn-over number	09 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Third week of March 2021
		Supti Saha Roy (SSR)	**CEMA-CC-1-2-TH: ORGANIC CHEMISTRY-IB** **Stereochemistry I** Bonding geometries of carbon compounds and representation of molecules: tetrahedral nature of carbon and concept of asymmetry; Fischer, sawhorse, flying wedge and Newman projection formulae and their inter translations. Concept of chirality and symmetry: symmetry elements, molecular chirality and centre of chirality; asymmetric and dissymmetric molecules; enantiomers and diastereomers; concept of stereogenicity, chirotopicity and pseudoasymmetry; chiral centres and number of stereoisomerism:	13 Lectures	

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Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Hons.) Semester - I		in a given mixture using std. $KMnO_4$ soln. 4. Estimation of Fe(III) and Cu(II) in a mixture using $K_2Cr_2O_7$ soln. Acid and Base Titrations: 1. Estimation of CO_3^{2-} and OH present together in a mixture. 2. Estimation of free alkali present in different soaps/ detergents. **ORGANIC CHEMISTRY: O (1A) LAB**		**Final Exam:** Third week of March 2021
		Tapas Kumar Paira (TP)	Separation based upon solubility, by using common laboratory reagents like water (cold,hot), dil. HCl, dil. NaOH, dil. $NaHCO_3$, etc., of components of a binary solid mixture; purification of any one of the separated components by crystallization and determination of its melting point. The composition of the mixture should be of the following types [ANY THREE]: p-Nitrobenzoic acid/p-Aminobenzoic acid; p-Nitrotolune/p-Anisidine; benzoic acid/naphthalene; urea/phenyl benzoate; p-toluidine/benzophenone; p-chlorobenzoic acid/ benzophenone, Benzoic acid/Anthracene; Glucose/Biphenyl; Benzoic acid/Benzophenone; Urea/Benzophenone. Use of pH paper is recommended.	Study materials and demo classes	
		Debarati Ray (DR)	**CEMA-CC-1-2-Pr:** **PHYSICAL CHEMISTRY: P (1) LAB** 1: Study of kinetics of decomposition of H_2O_2 2: Study of kinetics of acid-catalyzed hydrolysis of methyl acetate 3: Study of viscosity of unknown liquid (glycerol, sugar) with respect to water. 4: Study of the variation of viscosity with the concentration of the solution 5: Determination of solubility of sparingly soluble salt in water, in electrolyte with common ions and in neutral electrolyte	Study materials and demo classes	

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Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Hons.) Semester - I	Manabendra Saha (MS)	**ORGANIC CHEMISTRY: O (1B) LAB** Determination of boiling point of common organic liquid compounds [ANY FIVE]n-butyl alcohol, cyclohexanol, ethyl methyl ketone, cyclohexanone, acetylacetone, isobutyl methyl ketone, isobutyl alcohol, acetonitrile, benzaldehyde and acetophenone. [Boiling points of the chosen organic compounds should preferably be within 180°C].	Study materials and demo classes	**Final Exam:** Third week of March 2021
Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Gen.) Semester - I	Debarati Ray (DR)	**CC1/ GE 1: Theory** **Kinetic Theory of Gases and Real gases** Concept of pressure and temperature; Collision of gas molecules; Collision number and mean free path. Nature of distribution of velocities, Maxwell's distribution of speed and kinetic energy; Average velocity, root mean square velocity and most probable velocity; Principle of equipartition of energy Deviation of real gases from ideal behavior; compressibility factor; Boyle temperature; Andrew's and Amagat's plots; van der Waals equation and its features; Existence of critical state, Critical constants in terms of van der Waals constants; Law of corresponding states.	07 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Third week of March 2021
		Debarati Ray (DR)	**Liquids** Definition of Surface tension, its dimension and principle of its determination using stalagmometer; Viscosity of a liquid and principle of determination of coefficient of viscosity using Ostwald viscometer; Effect of temperature on surface tension and coefficient of viscosity of a liquid (qualitative treatment only)	04 Lectures	

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Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Gen.) Semester - I	Averi Guha (AG)	**Chemical Kinetics** Introduction of rate law, Order and molecularity; Extent of reaction; rate constants; Rates of First, second and nth order reactions and their Differential and integrated forms (with derivation); Pseudo first order reactions; Determination of order of a reaction by half-life and differential method. Temperature dependence of rate constant; Arrhenius equation, energy of activation;	06 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Third week of March 2021
		Averi Guha (AG)	**Atomic Structure** Bohr's theory for hydrogen atom (simple mathematical treatment), atomic spectra of hydrogen and Bohr's model, Sommerfeld's model, quantum numbers and their significance, Pauli's exclusion principle, Hund's rule, electronic configuration of many-electron atoms, Aufbau principle and its limitations.	07 Lectures	
		Sili Hansda (SH)	**Chemical Periodicity** Classification of elements on the basis of electronic configuration: general characteristics of s-, p- , d- and f-block elements. Positions of hydrogen and noble gases. Atomic and ionic radii, ionization potential, electron affinity, and electronegativity; periodic and group-wise variation of above properties in respect of s- and p-block elements.	06 Lectures	
		Supti Saha Roy (SSR)	**Acids and bases** Brönsted–Lowry concept, conjugate acids and bases, relative strengths of acids and bases, effects of substituent and solvent, differentiating and leveling solvents. Lewis acid-base concept, classification of Lewis acids and bases, Lux-Flood concept and solvent system concept. Hard and soft acids and bases, applications of HSAB.	06 Lectures	

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Dec. 2020 – Feb. 2021	B.Sc. Chemistry (Gen.) Semester - I	Tapas Kumar Paira (TP)	**Fundamentals of Organic Chemistry** Electronic displacements: inductive effect, resonance and hyperconjugation; nucleophiles and electrophiles; reactive intermediates: carbocations, carbanions and free radicals.	07 Lectures	**Internal Exam:** Last week of February 2021
		Tapas Kumar Paira (TP)	**Stereochemistry** Different types of isomerism; geometrical and optical isomerism; concept of chirality and optical activity (upto two carbon atoms); asymmetric carbon atom; interconversion of Fischer and Newman representations; enantiomerism and diastereomerism, meso compounds; threo and erythro, D and L, cis and trans nomenclature; CIP Rules: R/S (only one chiral carbon atoms) and E/Z nomenclature.	08 Lectures	**Final Exam:** Third week of March 2021
		Manabendra Saha (MS)	**Nucleophilic Substitution and Elimination Reactions** Nucleophilic substitutions: SN1 and SN2 reactions; eliminations: E1 and E2 reactions (elementary mechanistic aspects); Saytzeff and Hofmann eliminations.	04 Lectures	
		Supti Saha Roy (SSR) and Averi Guha (AG)	**CC1/ GE 1: Practical** 1. Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture. 2. Estimation of oxalic acid by titrating it with $KMnO_4$. 3. Estimation of water of crystallization in Mohr's salt by titrating with $KMnO_4$. 4. Estimation of Fe (II) ions by titrating it with $K_2Cr_2O_7$ using internal indicator. 5. Estimation of Cu (II) ions iodometrically using $Na_2S_2O_3$. 6.Estimation of Fe(II) and Fe(III) in a given mixture using $K_2Cr_2O_7$ solution.	Study materials and demo classes	

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Academic Quarter	Class	Name of the Teacher	Topics to be covered	No. of lectures	Exam
April 2021 – July 2021	B.Sc. Chemistry (Hons.) Semester – II	Tapas Kumar Paira (TP)	**CEMA-CC-2-3-TH: ORGANIC CHEMISTRY-2** **Stereochemistry II** Chirality arising out of stereoaxis: stereoisomerism of substituted cumulenes with even and odd number of double bonds; chiral axis in allenes, spiro compounds, alkylidene cycloalkanes and biphenyls; related configurational descriptors (Ra/Sa); atropisomerism; racemisation of chiral biphenyls. Concept of prostereoisomerism: prostereogenic centre; concept of (pro) n -chirality: topicity of ligands and faces (elementary idea); pro-R/pro-S, pro-E/pro-Z and Re/Si descriptors; pro-r and pro-s descriptors of ligands on propseudoasymmetric centre. Conformation: conformational nomenclature : eclipsed, staggered, gauche, synand anti; dihedral angle, torsion angle; Klyne-Prelog terminology; P/M descriptors; energy barrier of rotation, concept of torsional and steric strains; relative stability of conformers on the basis of steric effect, dipole-dipole interaction and H-bonding; butane gauche interaction; conformational analysis of ethane, propane, n-butane, 2-methylbutane and 2,3-dimethylbutane; haloalkane, 1,2-dihaloalkanes and 1,2-diols (up to four carbons); 1,2-halohydrin; conformation of conjugated systems (s-cis ands-trans).	15 Lectures	**Internal Exam:** Middle of July 2021 **Final Exam:** Second week of August 2021

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April 2021 – July 2021	B.Sc. Chemistry (Hons.) Semester – II	Supti Saha Roy (SSR)	**General Treatment of Reaction Mechanism III** Reaction thermodynamics: free energy and equilibrium, enthalpy and entropy factor, calculation of enthalpy change via BDE, intermolecular & intramolecular reactions. Concept of organic acids and bases:effect of structure, substituent and solvent on acidityand basicity; proton sponge; comparison between nucleophilicity and basicity; application of thermodynamic principles in acid-base equilibria. Tautomerism:prototropy (keto-enol, nitro - aci-nitro, nitroso-oximino, diazo-amino and enamine-imine systems); valence tautomerism and ring-chain tautomerism; composition of the equilibrium in different systems (simple carbonyl; 1,2- and 1,3-dicarbonyl systems, phenols and related systems), factors affecting keto-enol tautomerism; application of thermodynamic principles in tautomeric equilibria. Reaction kinetics: rate constant and free energy of activation; free energy profiles for one-step, two-step and three-step reactions; catalyzed reactions: electrophilic and nucleophilic catalysis; kinetic control and thermodynamic control of reactions; isotope effect: primary and β-secondary kinetic isotopic effect (kH /kD); principle of microscopic reversibility; Hammond's postulate.	16 Lectures	**Internal Exam:** Middle of July 2021 **Final Exam:** Second week of August 2021
		Manabendra Saha (MS)	**Substitution and Elimination Reactions** Free-radical substitution reaction: halogentaion of alkanes, mechanism (with evidence) and stereochemical features; reactivity-selectivity principle in the light of Hammond's postulate. Nucleophilic substitution reactions:	15 Lectures	

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April 2021-July 2021	B.Sc. Chemistry (Hons.) Semester - II		substitution at sp3 centre[systems: alkyl halides, allyl halides, benzyl halides, alcohols, ethers, epoxides, α halocarbonyls]: mechanisms (with evidence), relative rates & stereochemical features: SN1, SN2, SN2', SN1' (allylic rearrangement) and SNi; effects of solvent, substrate structure, leaving group and nucleophiles (including ambident nucleophiles, cyanide & nitrite); substitutions involving NGP (with hetero atoms and aryl groups); role of crown ethers and phase transfer catalysts. Elimination reactions: E1, E2, E1cB and Ei (pyrolytic syn eliminations); formation of alkenes and alkynes; mechanisms (with evidence), reactivity, regioselectivity (Saytzeff/ Hofmann) and stereoselectivity; comparison between substitution and elimination. **CEMA-CC-2-4-TH: INORGANIC CHEMISTRY-2** **Chemical Bonding-I** *(i) Ionic bond:* General characteristics, types of ions, size effects, radius ratio rule and its application and limitations. Packing of ions in crystals.Born-Landé equation with derivation and importance of Kapustinskii expression for lattice energy.Madelung constant, Born-Haber cycle and its application, Solvation energy.Defects in solids (elementary idea). Solubility energetics of dissolution process *(ii) Covalent bond:* Polarizing power and polarizability, ionic potential,Fazan's rules. Lewis structures, formal charge. Valence Bond Theory. The hydrogen molecule (Heitler-London approach), directional		**Internal Exam:** Middle of July 2021 **Final Exam:** Second week of August 2021
		Averi Guha (AG)		15 Lectures	

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April 2021 – July 2021	B.Sc. Chemistry (Hons.) Semester – II		character of covalent bonds, hybridizations, equivalent and non-equivalent hybrid orbitals, Bent's rule, Dipole moments, VSEPR theory, shapes of molecules and ions containing lone pairs and bond pairs (examples from main groups chemistry) and multiple bonding (σ and π bond approach).		**Internal Exam:** Middle of July 2021 **Final Exam:** Second week of August 2021
		Sili Hansda (SH)	**Chemical Bonding-II** (i) Molecular orbital concept of bonding (The approximations of the theory, Linear combination of atomic orbitals (LCAO)) (elementary pictorial approach): sigma and pibonds and delta interaction, multiple bonding. Orbital designations: gerade, ungerade, HOMO, LUMO. Orbital mixing,. MO diagrams of H_2, Li_2, Be_2, B_2, C_2, N_2, O_2, F_2, and their ions wherever possible; Heteronuclear molecular orbitals: CO, NO, NO^+, CN^-, HF, BeH_2, CO_2 and H_2O. Bond properties: bond orders, bond lengths. (ii) Metallic Bond: Qualitative idea of valence bond and band theories. Semiconductors and insulators, defects in solids. (iii) Weak Chemical Forces: Hydrogen bonding (theories of hydrogen bonding, valence bond treatment), receptor-guest interactions, Halogen bonds. Effects of chemical force, melting and boiling points.	22 Lectures	
		Averi Guha (AG)	**Radioactivity** Nuclear stability and nuclear binding energy. Nuclear forces: meson exchange theory. Nuclear models (elementary idea): Concept of nuclear quantum number, magic numbers. Nuclear Reactions: Artificial radioactivity, transmutation of elements, fission, fusion and spallation. Nuclear energy and power generation. Separation and uses	07 Lectures	

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April 2021 – July 2021	B.Sc. Chemistry (Hons.) Semester - II		of isotopes. Radio chemical methods: principles of determination of age of rocks and minerals, radio carbon dating, hazards of radiation and safety measures.		**Internal Exam:** Middle of July 2021
		Tapas Kumar Paira (TP) And Supti Saha Roy (SSR)	**CEMA-CC-2-3-Practical Organic Preparations** A. The following reactions (any eight)are to be performed, noting the yield of the crude product: 1. Nitration of aromatic compounds 2. Condensation reactions 3. Hydrolysis of amides/imides/esters 4. Acetylation of phenols/aromatic amines 5. Brine mediated benzoylation of amines/amino acids. 6. Side chain oxidation of aromatic compounds 7. Diazo coupling reactions of aromatic amines 8. Bromination of anilides using green approach (Bromate-Bromide method) 9. Redox reaction including solid-phase method 10. Green 'multi-component-coupling' reaction 11. Selective reduction of m-dinitrobenzene to m-nitroaniline	20 Lectures Study materials and Demo classes	**Final Exam:** Second week of August 2021
		Sili Hansda (SH) And Averi Guha (AG)	**CEMA-CC-2-4-Practical Inorganic Estimations** <u>Iodo-/ Iodimetric Titrations:</u> 1. Estimation of Vitamin C 2. Estimation of (i) arsenite and (ii) antimony iodimetrically 3. Estimation of available chlorine in bleaching powder. <u>Estimation of metal content in some selective samples:</u> 1. Estimation of Cu in brass. 2. Estimation of Cr and Mn in Steel. 3. Estimation of Fe in cement.	18 Lectures Study materials and Demo classes	

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April 2021 – July 2021	B.Sc. Chemistry (Gen.) Semester - II	Debarati Ray (DR)	**CC2/ GE 2: Theory** **Chemical Thermodynamics:** Intensive and extensive variables; state and path functions; isolated, closed and open systems; zeroth law of thermodynamics; Concept of heat, work, internal energy and statement of first law; enthalpy, H; relation between heat capacities, calculations of q, w, ΔU and ΔH for reversible, irreversible and free expansion of gases. Standard states; Heats of reaction; enthalpy of formation of molecules and ions and enthalpy of combustion and its applications; Laws of thermochemistry, Kirchhoff's equations. Statement of the second law of thermodynamics; Concept of heat reservoirs and heat engines; Carnot cycle; Physical concept of Entropy; Entropy change of systems and surroundings for various processes and transformations; Auxiliary state functions (G and A) and Criteria for spontaneity and equilibrium.	10 Lectures	**Internal Exam:** Middle of July 2021 **Final Exam:** Second week of August 2021
		Supti Saha Roy (SSR)	**Chemical Equilibrium:** Thermodynamic conditions for equilibrium, degree of advancement; Variation of free energy with degree of advancement; Equilibrium constant and standard Gibbs free energy change; Definitions of KP, KC and KX and relation among them; van't Hoff's reaction isotherm, isobar and isochore from different standard states; Shifting of equilibrium due to change in external parameters e.g. temperature and pressure; variation of equilibrium constant with addition to inert gas; Le Chatelier's principle	09 Lectures	

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April 2021 – July 2021	B.Sc. Chemistry (Gen.) Semester - II	Tapas Kumar Paira (TP)	**Solutions** Ideal solutions and Raoult's law, deviations from Raoult's law – non-ideal solutions; Vapour pressure-composition and temperature-composition curves of ideal and non-ideal solutions; Distillation of solutions; Lever rule; Azeotropes Nernst distribution law and its applications, solvent extraction	06 Lectures	**Internal Exam:** Middle of July 2021 **Final Exam:** Second week of August 2021
		Tapas Kumar Paira (TP)	**Phase Equilibria** Phases, components and degrees of freedom of a system, criteria of phase equilibrium; Gibbs Phase Rule; Derivation of Clausius – Clapeyron equation and its importance in phase equilibria; Phase diagrams of one-component systems (water and CO_2)	05 Lectures	
		Manabendra Saha (MS)	**Aliphatic Hydrocarbons** Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structures. Alkanes: (up to 5 Carbons). Preparation: catalytic hydrogenation, Wurtz reaction, Kolbe's synthesis. Alkenes: (up to 5 Carbons). Preparation: elimination reactions: dehydration of alcohols and dehydrohalogenation of alkyl halides; cis alkenes (partial catalytic hydrogenation) and trans alkenes (Birch reduction). Reactions: addition of bromine, addition of HX [Markownikoff's (with mechanism) and anti-Markownikoff's addition], hydration, ozonolysis. Alkynes: (up to 5 Carbons). Preparation: acetylene from CaC_2; by dehalogenation of tetra halides and dehydrohalogenation of vicinal dihalides.	08 Lectures	

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April 2021 – July 2021	B.Sc. Chemistry (Gen.) Semester - II	Averi Guha (AG)	**Solids** Forms of solids, crystal systems, unit cells, Bravais lattice types, Symmetry elements; Laws of Crystallography - Law of constancy of interfacial angles, Law of rational indices; Miller indices of different planes and interplanar distance, Bragg's law;	05 Lectures	**Internal Exam:** Middle of July 2021 **Final Exam:** Second week of August 2021
		Sili Hansda (SH)	**Error Analysis and Computer Applications** Error analysis: accuracy and precision of quantitative analysis, determinate, indeterminate, systematic and random errors; methods of least squares and standard deviations. Computer applications: general introduction to computers, different components of a computer; hardware and software; input and output devices; binary numbers and arithmetic; Introduction to computer languages.	07 Lectures	
		Sili Hansda (SH)	**Redox reactions** Ion-electron method of balancing equation of redox reaction. Elementary idea on standard redox potentials with sign conventions, Nernst equation (without derivation). Influence of complex formation, precipitation and change of pH on redox potentials; formal potential. Feasibility of a redox titration, redox potential at the equivalence point, redox indicators	05 Lectures	
		Debarati Ray (DR) And Manabendra Saha (MS)	**CC2/GE 2 Practical** Experiment 1: Study of kinetics of acid-catalyzed hydrolysis of methyl acetate Experiment 2: Study of kinetics of decomposition of H_2O_2 (Clock Reaction) Experiment 3: Study of viscosity of unknown liquid (glycerol,	15 Lectures Study materials and demo classes	

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April 2021 – July 2021	B.Sc. Chemistry (Gen.) Semester - II		sugar) with respect to water. Experiment 4: Determination of solubility of sparingly soluble salt in water, in electrolyte with common ions and in neutral electrolyte (using common indicator) Experiment 5:Preparation of buffer solutions and find the pH of an unknown buffer solution by colour matching method Experiment 6: Determination of surface tension of a liquid using Stalagmometer		**Final Exam:** Second week of August 2021

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Academic Quarter	Class	Name of the Teacher	Topics to be covered	No. of lectures	Exam
July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III	Debarati Roy (DR)	**CEMA-CC-3-5-TH** **PHYSICAL CHEMISTRY-1** **Chemical Thermodynamics1:** **1st law of Thermodynamics:** Intensive and extensive variables; state and path functions; isolated, closed and open systems; zeroth law of thermodynamics; Concept of heat, work, internal energy and statement of first law; enthalpy, H; relation between heat capacities, calculations of q, w, ΔU and ΔH for reversible, irreversible and free expansion of gases (ideal and van der Waals) under isothermal and adiabatic conditions; Joule's experiment and its consequence **Thermochemistry:** Standard states; Heats of reaction; enthalpy of formation of molecules and ions and enthalpy of combustion and its applications; Laws of thermochemistry; bond energy, bond dissociation energy and resonance energy from thermochemical data, Kirchhoff's equations ; Adiabatic flame temperature.	07 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021
		Debarati Roy (DR)	**Chemical Thermodynamics II** Second Law: Need for a Second law; statement of the second law of thermodynamics; Concept of heat reservoirs and heat engines; Carnot cycle; Carnot engine and refrigerator; Kelvin – Planck and Clausius statements and equivalence of the two statements with entropic formulation; Carnot's theorem; Values of §dQ/T and Clausius inequality; Physical concept of Entropy; Entropy is a measure of the microscopic disorder of the system. Entropy change of	15 Lectures	

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July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III		systems and surroundings for various processes and transformations; Entropy and unavailable work; Auxiliary state functions (G and A) and their variation with T, P and V. Criteria for spontaneity and equilibrium. Thermodynamic relations: Maxwell's relations; Gibbs-Helmholtz equation, Joule Thomson experiment and its consequences; inversion temperature; Joule-Thomson coefficient for a van der Waals gas; General heat capacity relations		**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021
		Sili Hansda (SH)	**Systems of Variable Composition:** Partial molar quantities, dependence of thermodynamic parameters on composition; Gibbs-Duhem equation, chemical potential of ideal mixtures, change in thermodynamic functions inmixing of ideal gases. Activities and activity coefficients. Fugacity and fugacity coefficient.	08 Lectures	
		Supti Saha Roy (SSR)	**Applications of Thermodynamics – I:** Thermodynamic conditions for equilibrium, degree of advancement; van't Hoff's reaction isotherm (deduction from chemical potential); Variation of free energy with degree of advancement; Equilibrium constant and standard Gibbs free energy change; Van't Hoff's reaction isobar and isochore from different standard states; Le Chatelier's principle and its derivation, variation of equilibrium constant under different conditions Nernst's distribution law; Application- (eg. dimerization of benzene in benzoic acid). Solvent Extraction.	10 Lectures	
		Tapas Kumar Paira (TP)	**ELECTROCHEMISTRY:** (i) Conductance and transport number Ion conductance; Conductance and measurement of conductance, cell constant, specific conductance and molar conductance; Variation of specific and equivalent conductance with	17 Lectures	

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July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III	Debarati Ray (DR)	dilution for strong and weak electrolytes; Kohlrausch's law of independent migration of ions, Equivalent and molar conductance at infinite dilution and their determination for strong and weak electrolytes; Debye –Huckel theory of ion atmosphere (qualitative)-asymmetric effect, relaxation effect and electrophoretic effect; Debye-Huckel limiting law-brief qualitative description. Estimation of activity coefficient for electrolytes using Debye-Huckel limiting law. Ostwald's dilution law; Ionic mobility; Application of conductance measurement (determination of solubility product and ionic product of water); Conductometric titrations. Transport number, Principles of Hittorf's and Moving-boundary method; Wien effect, Debye-Falkenhagen effect, Walden's rule (ii)Ionic equilibrium: 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; dissociation constants of mono-, di-and triprotic acids (exact treatment). Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts (exact Treatment).Determination of hydrolysis constant conductometrically. Buffer solutions; derivation of Henderson equation and its applications; buffer capacity, buffer range, buffer action . Qualitative treatment of acid – base titration curves (calculation of pH at various stages). Theory of acid–base indicators; selection of indicators and their limitations. Multistage equilibrium in polyelectrolyte systems; hydrolysis and hydrolysis constants (iii) **Electromotive Force:** Rules of oxidation/reduction of ions based on half-cell potentials,; Chemical cells, reversible and irreversible cells with examples; Electromotive force of a cell and its measurement, Thermodynamic derivation of Nernst	10 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021

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July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III		equation; Standard electrode (reduction) potential and its application to different kinds of half cells. Application of EMF measurements in determining (i) free energy, enthalpy and entropy of a cell reaction, (ii) equilibrium constants, and (iii) pH values, using hydrogen, quinone-hydroquinone and glass electrodes. Concentration cells with and without transference, liquid junction potential; determination of activity coefficients and transference numbers; Potentiometric titrations (acid-base, redox, precipitation)		**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021
		Averi Guha (AG)	**CEMA-CC-3-6-TH: INORGANIC CHEMISTRY-3** **Chemical periodicity** Modern IUPAC Periodic table, Effective nuclear charge, screening effects and penetration, Slater's rules, atomic radii, ionic radii (Pauling's univalent), covalent radii, lanthanide contraction. Ionization potential, electron affinity and electronegativity (Pauling's, Mulliken's and Allred-Rochow's scales) and factors influencing these properties, group electronegativities. Group trends and periodic trends in these properties in respect of s-, p- and d-block elements. Secondary periodicity, Relativistic Effect, Inert pair effect.	20 Lectures	
		Sili Hansda (SH)	**<u>Chemistry of s and p Block Elements</u>** Relative stability of different oxidation states, diagonal relationship and anomalous behaviour of first member of each group. Allotropy and catenation. Hydrides and their classification ionic, covalent and interstitial. Basic beryllium acetate and nitrate. Study of the following compounds with emphasis on structure, bonding, preparation, properties and uses. Beryllium hydrides and halides.	10 Lectures	

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July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III		Boric acid and borates, boron nitrides, borohydrides (diborane) and graphitic compounds, silanes, Oxides and oxoacids of nitrogen, phosphorus, sulphur and chlorine. Peroxo acids of sulphur, sulphur-nitrogen compounds, interhalogen compounds, polyhalide ions, pseudohalogens, fluorocarbons and basic properties of halogens.		**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021
		Sili Hansda (SH)	**Noble Gases:** Occurrence and uses, rationalization of inertness of noble gases, Clathrates; preparation and properties of XeF_2, XeF_4 and XeF_6; Nature of bonding in noble gas compounds (Valence bond treatment and MO treatment for XeF_2 and XeF_4). Xenon - oxygen compounds. Molecular shapes of noble gas compounds (VSEPR theory).	15 Lectures	
		Averi Guha (AG)	**Inorganic Polymers:** Types of inorganic polymers, comparison with organic polymers, synthesis, structural aspects and applications of silicones and siloxanes. Borazines, silicates and phosphazenes.	05 Lectures	
		Averi Guha (AG)	**Coordination Chemistry-I** Coordinate bonding: double and complex salts. Werner's theory of coordination complexes, Classification of ligands, Ambidentate ligands, chelates, Coordination numbers, IUPAC nomenclature of coordination complexes (up to two metal centers), Isomerism in coordination compounds, constitutional and stereo isomerism, Geometrical and optical isomerism in square planar and octahedral complexes.	10 Lectures	

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July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III	Mana-bendra Saha (MS)	**CEMA-CC-3-7-TH: ORGANIC CHEMISTRY-3** **Chemistry of alkenes and alkynes:** *Addition to C=C:* mechanism (with evidence wherever applicable), reactivity, regioselectivity (Markownikoff and anti-Markownikoff additions) and stereoselectivity; reactions: hydrogenation, halogenation, hydrohalogenation, hydration, oxymercuration demercuration, hydroboration-oxidation, epoxidation, *syn* and *anti*-hydroxylation, ozonolysis, addition of singlet and triplet carbenes; Simmons-Smith cyclopropanation reaction; electrophilic addition to diene (conjugated dienes and allene); radical addition: HBr addition; mechanism of allylic and benzylic bromination in competition with brominations across C=C; use of NBS; Birch reduction of benzenoid aromatics; interconversion of *E*- and *Z*-alkenes; contra-thermodynamic isomerization of internal alkenes. *Addition to C ≡C (in comparison to C=C):* Mechanism, reactivity, regioselectivity(Markownikoff and anti-Markownikoff addition) and stereoselectivity; reactions:hydrogenation, halogenations, hydrohalogenation, hydration, oxymercuration demercuration, hydroboration-oxidation, dissolving metal reduction of alkynes (Birch); reactions of terminal alkynes by exploring its acidity; interconversion of terminal and non-terminal alkynes. **Aromatic Substitution** *Electrophilic aromatic substitution:* Mechanisms and evidences in favour of it; orientation and	25 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021

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July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III	Tapas Kumar Paira (TKP)	reactivity; reactions: nitration, nitrosation, sulfonation, halogenation, Friedel-Crafts reaction; one-carbonelectrophiles (reactions: chloromethylation, 25 Gatterman-Koch, Gatterman, Houben-Hoesch, Vilsmeier-Haack, Reimer-Tiemann, Kolbe-Schmitt); *Ipso* substitituion. *Nucleophilic aromatic substitution:* addition-elimination mechanism and evidences infavour of it; SN1 mechanism; cine substitution (benzyne mechanism), structure of benzyne. **Carbonyl and Related Compounds** *Addition to C=O:* structure, reactivity and preparation of carbonyl compounds; mechanism (with evidence), reactivity, equilibrium and kinetic control; formation of hydrates, cyanohydrins and bisulphite adduct; nucleophilic addition-elimination reactions with alcohols, thiolsand nitrogen-based nucleophiles;reactions: benzoin condensation, Cannizzaro and Tischenko reactions, reactions with ylides: Wittig and Corey-Chaykovsky reaction; Rupe rearrangement, oxidations and reductions: Clemmensen, Wolff-Kishner, LiAlH4, NaBH4, MPV, Oppenauer, Bouveault-Blanc, acyloin condensation; oxidation of alcohols with PDC and PCC; periodic acid and lead tetraacetate oxidation of 1,2-diols. *Exploitation of acidity of α-H of C=O:* Formation of enols and enolates; kinetic and thermodynamic enolates; reactions (mechanism with evidence):halogenation of carbonyl compounds under acidic and basic conditions, Hell-	23 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021

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July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III	Manabendra Saha (MS)	Volhard Zelinsky (H. V. Z.) reaction, nitrosation, SeO2 (Riley) oxidation; condensations (mechanism with evidence): Aldol, Tollens', Knoevenagel, Claisen-Schmidt, Claisen ester including Dieckmann, Stobbe; Mannich reaction, Perkin reaction, Favorskii rearrangement; alkylation of active methylene compounds; preparation and synthetic applications of diethyl malonate and ethyl acetoacetate; specific enol equivalents (lithium enolates, enamines and silyl enol ethers) in connection with alkylation, acylation and aldol type reaction. *Nucleophilic addition to α, β-unsaturated carbonyl system:* general principle and mechanism (with evidence); direct and conjugate addition, addition of enolates (Michael reaction), Stetter reaction, Robinson annulation. *Substitution at sp2 carbon (C=O system):* mechanism (with evidence): *BAC2, AAC2, AAC1, AAL1* (inconnection to acid and ester); acid derivatives: amides, anhydrides & acyl halides (formation and hydrolysis including comparison). **Organometallics** **Grignard reagent:** *Organolithiums; Gilman cuprates:* preparation and reactions (mechanism with evidence); addition of Grignard and organolithium to carbonyl compounds; substitution on -COX; directed ortho metalation of arenes using organolithiums, conjugate addition by Gilman cuprates; Corey-House synthesis; abnormal behaviour of Grignard reagents; comparison of reactivity among Grignard, organolithiums and organocopper reagents; Reformatsky reaction; Blaise reaction; concept of	10 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021

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July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III	Debarati Roy (DR) & Sili Hansda (SH)	*umpolung* **CEMA-CC-3-5-Pr:** **PHYSICAL CHEMISTRY: LAB** **Experiment 1:** Conductometric titration of an acid (strong, weak/ monobasic, dibasic, and acid mixture) against strong base. **Experiment 2:** Study of saponification reaction conductometrically **Experiment 3:** Verification of Ostwald's dilution law and determination of Ka of weak acid **Experiment 4:** Potentiometric titration of Mohr's salt solution against standard $K_2Cr_2O_7$ and $KMnO_4$solution **Experiment 5:** Determination of Ksp for AgCl by potentiometric titration of $AgNO_3$ solution against standard KCl solution **Experiment 6:** Determination of heat of neutralization of a strong acid by a strong base	Study materials and demo classes	**Final Exam:** Second week of March 2021
		AVERI GUHA (AG)	**CEMA-CC-3-6-Pr:** **INORGANIC CHEMISTRY (P): LAB** **Complexometric titration** 1. Zn(II) 2. Zn(II) in a Zn(II) and Cu(II) mixture. 3. Ca(II) and Mg(II) in a mixture. 4. Hardness of water. 5. Al(III) in Fe(III) and Al(III) in a mixture	6 Lectures Study materials and demo classes	
		Sili Hansda (SH)	**Chromatography of metal ions:** Principles involved in chromatographic separations. Paper chromatographic separation of following metal ions: 1. Ni (II) and Co (II) 2. Fe (III) and Al (III) **Gravimetry:** 1. Estimation of Ni(II) using Dimethylglyoxime (DMG). 2. Estimation of copper as CuSCN. 3. Estimation of Al(III) by precipitating with oxine and weighing as $Al(oxine)_3$ (aluminiumoxinate). 4. Estimation of chloride.	5 Lectures Study materials and demo classes 4 Lectures Study materials and demo classes	

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July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III	Tapas Kumar Paira (TP)	**CEMA-CC-3-7-Pr:** **ORGANIC CHEMISTRY (P): LAB** **A. Identification of a Pure Organic Compound** **Solid compounds**: oxalic acid, tartaric acid, citric acid, succinic acid, resorcinol, urea, glucose, cane sugar, benzoic acid and salicylic acid **Liquid Compounds**: formic acid, acetic acid, methyl alcohol, ethyl alcohol, acetone, aniline, dimethylaniline, benzaldehyde, chloroform and nitrobenzene	4 Lectures Study materials and demo classes	**Final Exam:** Second week of March 2021
		Mana-bendra Saha (MS)	**B. Quantitative Estimations:** 1. Estimation of glycine by Sörensen's formol method 2. Estimation of glucose by titration using Fehling's solution 3. Estimation of sucrose by titration using Fehling's solution 4. Estimation of aromatic amine (aniline) by bromination (Bromate-Bromide) method 5. Estimation of acetic acid in commercial vinegar 6. Estimation of urea (hypobromite method) 7. Estimation of saponification value of oil/fat/ester	05 Lectures Study materials and demo classes	
July 2020 – Dec. 2021	B.Sc. Chemistry (Hons.) Semester – III	Averi Guha (AG)	**CC3/ GE 3: Theory** **Chemical Bonding and Molecular Structure** *Ionic Bonding*: General characteristics of ionic bonding. Energy considerations in ionic bonding, lattice energy and solvation energy and their importance in the context of stability and solubility of ionic compounds. Statement of Born-Landé equation for calculation of lattice energy, Born- Haber cycle and its applications, polarizing power and polarizability. Fajan's rules, ionic character in covalent compounds, bond moment, dipole moment and percentage ionic character. *Covalent bonding*: VB Approach: Shapes of some inorganic	10 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021

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July 2020 – Dec. 2021	B.Sc. Chemistry (Gen.) Semester – III	Sili Hansda (SH)	molecules and ions on the basis of VSEPR and hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements. Concept of resonance and resonating structures in various inorganic and organic compounds. MO Approach: Rules for the LCAO method, bonding and antibonding MOs and their characteristics for *s-s*, *s-p* and *p-p* combinations of atomic orbitals, nonbonding combination of orbitals, MO treatment of homonuclear diatomic molecules of 1st and 2nd periods. (including idea of *s- p* mixing) and heteronuclear diatomic molecules such as CO, NO and NO+. Comparison of VB and MO approaches. **Comparative study of p-block elements:** Group trends in electronic configuration, modification of pure elements, common oxidation states, inert pair effect, and their important compounds in respect of the following groups of elements: i) B-Al-Ga-In-Tl ii) C-Si-Ge-Sn-Pb iii) N-P-As-Sb-Bi iv) O-S-Se-Te v) F-Cl-Br-I **Transition Elements (3*d* series)** General group trends with special reference to electronic configuration, variable valency, colour, magnetic and catalytic properties, ability to form complexes and stability of various oxidation states (Latimer diagrams) for Mn, Fe and Cu. Lanthanoids and actinoids: Electronic configurations, oxidation states, colour, magnetic properties, lanthanide contraction, separation of lanthanides (ion exchange	07 Lectures 10 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021

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July 2020 – Dec. 2021	B.Sc. Chemistry (Gen.) Semester – III	Debarati Ray (DR)	method only). **ELECTROCHEMISTRY** **1) 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; Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts; Buffer solutions; Solubility and solubility product of sparingly soluble salts – applications of solubility product principle **2) Conductance** Conductance, cell constant, specific conductance and molar conductance; Variation of specific and equivalent conductance with dilution for strong and weak electrolytes; Kohlrausch's law of independent migration of ions; Equivalent and molar conductance at infinite dilution and their determination for strong and weak electrolytes; Ostwald's dilution law; Application of conductance measurement (determination of solubility product and ionic product of water); Conductometric titrations (acid-base) Transport Number and principles Moving-boundary method	06 Lectures 08 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021
		Sili Hansda (SH)	**3) Electromotive force** Faraday's laws of electrolysis, rules of oxidation/reduction of ions based on half-cell potentials, applications of electrolysis in metallurgy and industry; Chemical cells, reversible and irreversible cells with examples; Electromotive force of a cell and its measurement, Nernst equation; Standard electrode (reduction) potential; Electrochemical series;	03 Lectures	

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July 2020 – Dec. 2021	B.Sc. Chemistry (Gen.) Semester – III	Supti Saha Roy (SSR)	**Aromatic Hydrocarbons** Benzene: Preparation from phenol, by decarboxylation, from acetylene. *Reactions*: electrophilic substitution reaction (general mechanism); nitration (with mechanism), halogenations (chlorination and bromination), and Friedel-Crafts reaction (alkylation and acylation) (up to 4 carbons on benzene).	04 Lectures	**Internal Exam:** Last week of February 2021 **Final Exam:** Second week of March 2021
		Tapas Kumar Paira (TKP)	**Organometallic Compounds** Introduction; *Grignard reagents*: *Preparations* (from alkyl and aryl halide); Reformatsky reaction.	03 Lectures	
		Mana-bendra Saha (MS)	**Aryl Halides** *Preparation*: (chloro- and bromobenzene): from phenol, Sandmeyer reactionand effect of nitro substituent (activated nucleophilic substitution	04 Lectures	
		Supti Saha Roy (SSR) and Averi Guha (AG)	**CC3/ GE 3: Practical** **Qualitative semimicro analysis of mixtures containing two radicals. Emphasis should be given to the understanding of the chemistry of different reactions.** Cation Radicals: Na^+, K^+, Ca^{2+}, Sr^{2+}, Ba^{2+}, Al^{3+}, Cr^{3+}, Mn^{2+}/Mn^{4+}, Fe^{3+}, Co^{2+}/Co^{3+}, Ni^{2+}, Cu^{2+}, Zn^{2+}, Pb^{2+}, Sn^{2+}/Sn^{4+}, NH^{4+}. Anion Radicals: F^-, Cl^-, Br^-, BrO^{3-}, I^-, IO^{3-}, SCN^-, S^{2-}, SO_4^{2-}, NO_3^-, NO_2^-, PO_4^{3-}, AsO_4^{3-}, BO_3^{3-}, CrO_4^{2-} / $Cr_2O_7^{2-}$.	07 Lectures Study materials and demo classes	

Successor Training College

SURENDRANATH EVENING COLLEGE
DEPARTMENT OF COMPUTER SCIENCE
LESSON PLAN
2021-22
Semester – I
Paper Code: CMS-G-CC-1-1-TH
Paper Name: Computer Fundamentals and Digital Logic Design
Core Course - 1
Total Hours: 60

Class/Hour Schedule	Topic covered	Faculty Name	Tentative Exam Date
Group A: Computer Fundamentals (20 hours)			
2	General Concepts: Introduction to Computer and Problem Solving: Information and Data	SP	Feb 2022
2	Hardware: CPU, Primary and Secondary storage, Cache Memory	SP	
2	I/O devices, Bus structure, BIOS	SP	
2	Software: Systems and Application. Generation of Computers: Super, Mainframe, Mini and Personal Computer, Work stations, Parallel machines (concept only)	SP	
2	Introduction to Programming Languages: Machine Language, Assembly Language, High Level Language.	SP	
2	Problem Solving: Flow Charts	SP	
2	Decision Tables and Pseudo codes. System Software: Classifications- Operating Systems (OS);	SP	
2	Translators – Compilers and Interpreters, Preprocessors, Assemblers, Loaders, Linkers, Line and Screen Editors, other utilities.	SP	
2	Virus: Concept, Detection and Protection Multimedia: Basic Concept, associated hardware and software	SP	
2	Object Oriented Paradigm: Basic characteristics, Definition, Brief comparison with other types of programming paradigms.	SP	
Group B: Digital Logic Design(40 hours)			
Number Systems and Codes: (08 hours)			
2	Number representation: Weighted Codes, Non-weighted codes, Positional, Binary, Octal, Hexadecimal.	SP	
2	Binary Coded Decimal(BCD), Conversion of bases.	SP	
2	Complement notions. Binary Arithmetic, Binary Codes: Gray, Alphanumeric, ASCII, EBCDIC.	SP	
2	Single Error-Detecting and Correcting Codes, Hamming Codes, Fixed point, Floating point representation.	SP	
Boolean Algebra: (08 hours)			
2	Fundamentals of Boolean Algebra, Switches and Inverters.	HNS	
2	Functionally Complete Gates (AND, OR, NOT), NAND. NOR, Switching function and Boolean Function.	HNS	
2	De Morgan's Theorem, Min-term, Max term, Truth tables and minimization of switching function upto four variables.	HNS	
2	Algebraic and K-map method of Logic circuit synthesis, two-level and multi-level.	HNS	
Digital Electronics: (24hours)			

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2	Combinational Circuits: Realization of AND and OR Gates using diodes and NOT Gate using transistors, Standard Gate Assemblies.	HNS	
2	IC chips packaging nomenclature. Half and Full Adder(3 & 4 bit), Multi-bit adders – Ripple carry and Carry Look Ahead Adder.	HNS	
2	Adder/subtractor, BCD Adder. Data selectors/multiplexers – expansions, reductions, function realization, universal function realization, multi-function realization.	HNS	
2	Decoders: function realization, De-multiplexer and function realization Encoder, Priority Encoder, Parity bit Generator/checker.	HNS	
2	Gray Code Generator, Code Converters, Keyboard encoder, Seven segment display unit, Comparators.	HNS	
2	Sequential Circuits: Model of Sequential computing, Difference between Combinational and Sequential circuit.	HNS	
2	RS-Latch: using NAND and NOR Gates. RS Latch as a Static RAM Cell. Problems of Basic Latch circuits.	HNS	
2	Digital Clock – Duty Cycle, Rising time, Falling time. Clocked Flip Flops - SR, JK, D, T.	HNS	
2	Level Trigger and Edge Trigger, Excitation Functions of each flip flops, Flip-flops with Preset and Clear	HNS	
2	Application of Flip-flops: Asynchronous Counter(UP/DOWN) upto 4 bit counter, Decade Counter, Mod – n Counter	HNS	
2	Finite State machine Model – State Transition Diagram and Table, Synchronous Counters – different mod-n counters, Ring counter	HNS	
2	Registers: Registers with parallel load, Shift Registers.	HNS	

Semester – I

CMS-G-CC-1-1-P

Word Processing, Spreadsheet, Presentation and Web design by HTML/ PHP

Core Course- 1

Practical: 40 Hours

Class/Hour Schedule	Topic covered	Teacher	Remarks
Word Processing: (08 hours)		SP	Feb 2022
2	Document creation, saving, editing; Formatting text and paragraphs	SP	
2	header and footers; clipart, tables; tools, Inserting images, files	SP	
2	mail merge; margins; Hyphenation; page setups	SP	
2	OLE; index and references; comments; templates; macros.	SP	
Spreadsheet: (08 hours)			
2	Workbook, worksheets, cell; address; entering, editing,	SP	
2	formatting ,filtering, sorting worksheet data;	SP	
2	Printing, charts, macros	SP	
2	functions and formulas, importing , exporting files	SP	
Presentation: (04 hours)			
2	Slides; formatting; wizard	HNS	
2	Layout; word art; animation	HNS	
Web Design: (20 hours) HTML			
Practice 1	HTML basic, heading, title, paragraph	HN	
Practice 2	Explanation of different tab part-I	HNS	
Practice 3	Explanation of different tab part-II	HNS	
Practice 4	Style, formatting, color	HNS	

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Practice 5	Link, image	HNS	
Practice 6	Table	HNS	
Practice 7	List	HNS	
Practice 8	Java Script Part-I	HNS	
Practice 9	Java Script Part-II	HNS	
Practice 10	Java Script Part-III	HNS	

Semester-II
Course Name: CMSG
Paper Name: Algorithm and Data Structure
Subject Code: CMS-G-CC-2-2-TH
Credit Point-4
Tentative Date of Exam: July 2022

LESSON PLAN OF COMPUTER SCIENCE :Algorithm and Data Structure

Faculty Name	Topic	Lecture No.
HNS	Introduction to Data Type	1
	Introduction to Data Structure	2
	Classification of Data Structure	3
	Introduction to Algorithm	4
	Introduction to Algorithm	5
	Introduction to Algorithm	6
	Introduction to C	7
	Introduction to C	8
	Introduction to C	9
	Introduction to C	10
HNS	Introduction to Stack	11
	PUSH POP DISPLAY operations	12
	Infix to Postfix	13
	Postfix Evaluation	14
	Infix to Prefix	15

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	Prefix Evaluation	16
HNS	Introduction to Queue	17
	Application of Queue	18
	INSERT DELETE DISLAY	19
	Introduction to Linear Queue	20
	Introduction to Circular Queue	21
	Introduction to Dequeue Queue	22
	Introduction to Priority Queue	23
	Introduction to Link List	24
	Single Link List Implementation using C	25
	Single Link List Implementation using C	26
	Single Link List Implementation using C	27
	Single Link List Implementation using C	28
	Single Link List Implementation using C	29
	Circular Link List Implementation using C	30
	Single Link List Implementation using C	31
	Single Link List Implementation using C	32
	Single Link List Implementation using C	33
	Double Link List Implementation using C	34
	Double Link List Implementation using C	35
	Application of Link List	36
SP	Introduction to Sorting and Searching	37
	Bubble Sort Algorithm	38
	Selection Sort Algorithm	39
	Insertion Sort Algorithm	40
	Radix Sort Algorithm	41
	Marge Sort Algorithm	42
	Heap Sort Algorithm	43
	Linear Search Algorithm	44
	Binary Search Algorithm	45

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	Application of Sorting and Searching	46
SP	Introduction to Tree	47
	Introduction Hashing	48
	Introduction to Time and Space Complexity	49
	Introduction to Time and Space Complexity	50

Semester-II
Course Name: CMSG
Paper Name: Programming with C
Subject Code: CMS-G-CC-2-2-P
Credit Point-2
Tentative Date of Exam: July 2022

LESSON PLAN OF COMPUTER SCIENCE : Programming with C

Faculty Name	Topic	Lecture No.
HNS	Introduction to C Data Type	1
	If else in C	2
	Loop in c	3
	Loop in c	4
	Loop in c (patters)	5
	Loop in c (patters)	6
	Array implementation in C	7
	Array implementation in C	8
	Array implementation in C	9
	Introduction to String in C	10
SP	Function in C	11

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	Structure and Union in C	12
	Structure and Union in C	13
	Stack/Queue/Linked list programs using C	14
	Stack/Queue/Linked list programs using C	15
	Stack/Queue/Linked list programs using C	16

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Semester – III

Paper Code: CMS-G-CC-3-3-TH
Paper Name: Computer Organization
Core Course – 3
Total Hours: 60

Class/Hour Schedule	Topic covered	Faculty Name	Tentative Exam Date
Basic Computer Organization: (13 hours)			
1	Introduction to Computer Organization, IAS Computer.	HNS	
2	Von Neumann Computer, System Bus.	HNS	
2	Instruction Cycle, Data Representation	HNS	
2	Machine instruction and Assembly Language	HNS	
2	CPU Organization: Arithmetic and Logic Unit, Control Unit	HNs	
2	CPU Registers, Instruction Registers, Program Counter, Stack Pointer.	HNS	
2	CISC & RISC processors.	HNS	
Instruction:(4 hours)			
2	Operation Code and Operand. Zero, One, Two and Three address instruction.	HNS	
2	Instruction types. Addressing modes. Stack organization.	HNS	
Control Unit:(05 hours)			
1	Control Structure and Behavior.	HNS	
2	Hardwired Control and Micro programmed Control : Basic Concept.	HNS	
2	Parallelism in Microinstruction.	HNS	
ALU: (10 hours)			
2	Basic Structure of ALU	SP	
2	Addressing mode, Instruction Formats	SP	
2	Handling of interrupts and subroutines, Combinational ALU	SP	
2	2's Complement Addition, Subtraction Unit,	SP	
2	Booth's Algorithm for multiplication and division.	SP	
Memory:(15 hours)			
1	Types of Memory, Need of them. Features.	SP	
2	RAM, ROM	SP	
2	EPROM, EEPROM	SP	
2	DRAM, SRAM, SAM, PLA.	SP	
2	Different storage technology	SP	
2	Memory Hierarchy: CPU Register	SP	
2	Cache Memory, Primary Memory	SP	
2	Secondary Memory and Virtual Memory.	SP	
I/O: (08 hours)			
2	Polling, Interrupts, DMA	HNS	
2	I/O Bus and Protocol	HNS	
2	Memory mapped I/O and I/O mapped I/O,I/O system organization and interfacing	HNS	
2	Bus: SCSI, PCI, USB, Bus arbitration.	HNS	
Computer Peripherals: (05 hours)			
1	Introduction to peripherals, their types and uses	HNS	
2	VDU, Keyboard, Mouse,	HNS	
2	Printer, Scanner etc.	HNS	

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Semester – III
Paper Code: CMS-G-CC-3-3-P
Paper Name: Programming using Python
Core Course – 3
Total Hours: 40

Class/Hour Schedule	Topic covered	Faculty Name	Tentative Date of Exam
2	Concept of problem solving, Problem definition, Program design, Debugging	HNS	Feb 2022
2	Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.	HNS	
2	Structure of a Python Program, Elements of Python	HNS	
2	Python Interpreter, Using Python as calculator, Python shell, Indentation, Atoms, Identifiers and keywords.	HNS	
2	Literals, Strings, Operators(Arithmetic operator, Relational operator, Logical or Boolean operator)	HNs	
2	Input and Output Statements.	HNS	
2	Control statements, Conditional Statement, Nested conditionals, Return statement	HNS	
2	For Loop, program using for loop	HNS	
2	While Loop, program using while loop	HNS	
2	Numerical problem solving using loop	HNS	
2	Pattern generation using loop	HNS	
2	Exit function, Difference between break, continue and pass.	SP	
2	Defining Functions, default arguments.	SP	
2	Recursion, Stack diagrams for recursive functions, Multiple assignments	SP	
2	String as a compound data type, Length, String operation	SP	
2	String slices, String comparison	SP	
2	List values, Accessing elements, List length	SP	
2	List membership, Lists and for loops, List operations, List deletion.	SP	
2	Introduction to Classes, Objects, uses, simple program	SP	
2	Methods	SP	

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Semester-IV
Course Name: CMSG
Paper Name: Operating System
Subject Code: CMS-G-CC-4-4-TH
Credit Point-4
Tentative Date of Exam: July 2022

LESSON PLAN OF COMPUTER SCIENCE : OPERATING SYSTEMS		
Faculty Name	**Topic**	**Lecture No.**
HNS	Basic OS functions	1
	Resource abstraction	2
	Types of operating systems–multiprogramming systems, batch systems , time sharing systems (Part-1)	3
	Types of operating systems–multiprogramming systems, batch systems , time sharing systems(Part-2)	4
	Types of operating systems–multiprogramming systems, batch systems , time sharing systems(Part-3)	5
	Types of operating systems–multiprogramming systems, batch systems , time sharing systems(Part-4)	6
	Operating systems for personal computers	7
	Operating systems for workstations	8
	process control	9
	Real time systems	10
HNS	Processor and user modes (Part-1)	11
	Processor and user modes (Part-2)	12
	Kernels (Part-1)	13
	Kernels (Part-2)	14
	System calls	15
	System programs	16
HNS	System view of the process and resources	17

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	Process abstraction	18
	Process hierarchy	19
	Threads	20
	Threading issues	21
	Thread libraries	22
	Process Scheduling	23
	Non-pre-emptive scheduling algorithms	24
	Pre-emptive scheduling algorithms	25
	Concurrent processes (Part-1)	26
	Concurrent processes (Part-1)	27
	Critical section	28
	Semaphores	29
	Methods for inter-process communication	30
	Deadlocks	31
	Physical and virtual address space	32
	Memory allocation strategies –fixed and variable partitions	33
	Paging	34
	Segmentation,	35
	Virtual memory	36
SP	Directory structure	37
	File operations (Part-1)	38
	File operations (Part-2)	39
	File operations (Part-3)	40
	File allocation methods (Part-1)	41
	File allocation methods (Part-2)	42
	File allocation methods (Part-3)	43
	Device management (Part-1)	44
	Device management (Part-2)	45
	Device management (Part-3)	46
SP	Policy mechanism	47

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	Authentication (Part-1)	48
	Authentication (Part-2)	49
	Internal access Authorization	50

Semester-IV
Course Name: CMSG
Paper Name: Shell Programming (Unix/Linux) Lab
Subject Code: CMS-G-CC-4-4-P
Credit Point-2
Tentative Date of Exam: July 2022

LESSON PLAN OF COMPUTER SCIENCE : SHELL PROGRAMMING (UNIX/LINUX) LAB

Faculty Name	Topic	Lecture No.
HNS	Introduction to Unix and Linux	1
	Introduction to Unix and Linux	2
	Introduction to Shell programming	3
	Introduction to Shell programming	4
	Linux basic commands (cat,ls, echo, date etc.)	5
	Linux basic commands (cat,l s, echo, date etc.)	6
	Linux basic commands (cat,l s, echo, date etc.)	7
	Filter(Grep,egrep,frep etc)	8
	Filter(Grep, egrep, frep etc)	9
	Shell programming practice using if elif etc.	10
SP	Shell programming practice using if elif etc.	11
	Shell programming practice using if elif etc.	12
	Shell programming practice using arithmetic expression	13
	Shell programming practice using loop(while ,for)	14

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	Shell programming practice using loop(while ,for)	15
	Shell programming practice using loop(while ,for)	16

Semester-IV
Course Name: CMSG
Paper Name: Communication, Computer Network and Internet
Subject Code: CMS-G-SEC-A-X-1-TH

Credit Point-2
Tentative Date of Exam: July 2022

LESSON PLAN OF COMPUTER SCIENCE: COMPUTER NETWORK AND INTERNET

Faculty Name	Topic	Lecture No.
HNS	Introduction to Computer Network and Communication	1
	Introduction to OSI/ISO Model	2
	Introduction to OSI/ISO Model	3
	Introduction to TCP/IP protocol stack	4
	Introduction to TCP/IP protocol stack	5
	Introduction to Physical layer	6
	Framming , Error control and Flow control	7
	Framming , Error control and Flow control	8
	Framming , Error control and Flow control	9
	Ip addressing	10
SP	Routing and Routing protocols	11
	Routing and Routing protocols	12
	Introduction to Transport layer	13
	Introduction to Transport layer	14
	Introduction to Transport layer	15

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	Introduction to Application layer	16

Semester-V
Course Name: CMSG
Paper Name: Database Management System(DBMS)
Subject Code: CMS-G-DSE-A-5-1-TH
Credit Point-4
Tentative Date of Exam: February 2022

LESSON PLAN OF COMPUTER SCIENCE : DBMS

Faculty Name	Topic	Lecture No.
HNS	Introduction to DBMS	1
	Advantages and Disadvantages of DBMS	2
	ER model	3
	ER model	4
	ER model to Relational Model Mapping	5
	ER model to Relational Model Mapping	6
	Normalization	7
	Normalization	8
	Normalization	9
	Indexing and File Structure	10
SP	Relational Algebra	11
	Relational Algebra	12
	Database Language (SQL)	13
	Database Language (SQL)	14
	Stack/Queue/Linked list programs using C	15

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	Introduction To Transaction	16

Semester-V
Course Name: CMSG
Paper Name: Database Design and Application Lab
Subject Code: CMS-G-DSE-A-5-1-P
Credit Point-2
Tentative Date of Exam: February 2022

LESSON PLAN OF COMPUTER SCIENCE : DBMS LAB

Faculty Name	Topic	Lecture No.
HNS	Introduction to SQL	1
	Introduction to SQL	2
	SQL DDL (create , alter ,drop ,etc.)	3
	SQL DDL (create , alter ,drop ,etc.)	4
	SQL ML(insert, delete, update ,select etc.)	5
	SQL ML(insert, delete, update, select etc.)	6
	SQL ML(insert, delete, update,s elect etc.)	7
	Introduction to aggregate function	8
	Introduction to aggregate function	9
	SQL nested query	10
SP	SQL joining query	11
	SQL joining query	12
	SQL joining query	13
	SQL DCL (revoke, grant, etc.)	14
	SQL DCL (revoke, grant, etc.)	15
	Introduction to PL/SQL	16

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Semester – VI
Paper Code: CMS-G-SEC-B-X-2-TH
Paper Name: Information Security Skill Enhancement
Core Course – B (SEC-B-2)
Total Hours: 40

Class/Hour Schedule	Topic covered	Faculty Name	Tentative Date of Exam
2	Overview of Security Parameters: Confidentiality, Integrity and availability	HNS	June 2022
2	Cryptography, its type, uses	HNS	
2	Security violation, OSI security architecture.	HNS	
2	Mathematical Tools for Cryptography	HNS	
2	Symmetric Encryption Algorithm, Theory of Block cipher design	HNS	
2	Network security management, Firewalls	HNS	
2	Web and wireless security management	HNS	
2	Computer security log management,	HNS	
2	IT security infrastructure, Operating system security	HNS	
2	user security, program security	HNS	
2	Groups, Rings, Fields-Modular, Prime numbers	SP	
2	Fermat's and Euler's Theorem, Chinese remainder Theorem, Discrete Logarithm.	SP	
2	Internet Firewalls for Trusted System: Roles of Firewalls, Firewall related terminology	SP	
2	Types of Firewalls, Firewall designs	SP	
2	E-Mail, IP & Web Security (Qualitative study)	SP	
2	E-mail Security: Security Services for E-mail-attacks possible through E-mail	SP	
2	Pretty Good S/MIME.	SP	
2	IP Security: Overview of IPSec, IP Security Architecture, Authentication Header, Encapsulation Security Payload.	SP	
2	Web Security: Secure Socket Layer/Transport Layer Security, Basic Protocol,	SP	
2	SSL Attacks, Secure Electronic Transaction (SET).	SP	

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Semester – VI
Paper Code: CMS-G-DSE-B-6-1-TH

Paper Name: Embedded Systems Discipline Specific Elective
Core Course - B (DSE-B-1)
Total Hours: 60

Class/Hour Schedule	Topic covered	Faculty Name	Tentative Exam Date
2	Introduction to 8051:Overview of Microcontroller	HNS	June2 022
2	Memory I/O interface	HNS	
2	Intel Microcontroller 8051: Architecture	HNS	
2	Peripheral Interface Controller (PIC)	HNS	
2	Assembly Language Programming	HNS	
2	Instruction set, Addressing Modes	HNS	
2	Jump, Loop and Call instructions	HNS	
2	I/O Manipulation	HNS	
2	Serial communication	HNS	
2	Arithmetic and logical instructions	HNS	
2	Introduction to Embedded System Programming	SP	
2	Data types and time delays	SP	
2	I/O programming	SP	
2	Logic operations	SP	
2	Data conversions	SP	
2	Data serialization	SP	
2	Interrupt programming	SP	
2	LCD and Keyboard interfacing	SP	
2	ADC, DAC	SP	
2	Sensors	SP	
2	I/O interfacing for 8051	SP	
2	Interfacing 8255, 8257	SP	
2	interfacing 8259/8279	SP	
2	Hardware Description Language (VHDL): (20 hours) Basic Terminology	SP	
2	Entity Declaration	SP	
2	Architecture body	HNS	
2	Configuration and package declaration	HNS	
2	Package body	HNS	
2	Model analysis	HNS	
2	Simulation	HNS	

Semester – VI
Paper Code: CMS-G-DSE-B-6-1-P
Paper Name: Embedded Systems Lab
Total Hours: 60

Class/Hour Schedule	Topic covered	Faculty Name	Tentative Date of Exam
2	VHDL programming concepts.	SP	June 2022
2	VHDL program to construct AND gate	SP	
2	VHDL program to construct OR gate	SP	
2	VHDL program to construct NOT gate	SP	
2	VHDL program to construct NAND gate	SP	
2	VHDL program to construct NOR gate	SP	
2	VHDL program to construct XNOR gate	SP	
2	VHDL program to construct S-R flip-flop	HNS	
2	VHDL program to construct J-K flip-flop	HNS	
2	VHDL program to construct D flip-flop	HNS	
2	VHDL program to construct Half-Adder flip-flop	HNS	

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2	VHDL program to construct Full-Adder flip-flop	HNS	
2	VHDL program for 8-bit Compactor	HNS	
2	VHDL program to construct 4-bit Multiplexer	HNS	
2	VHDL program to construct 8-bit Multiplexer	HNS	
2	VHDL program to construct Octal Encoder	HNS	
2	VHDL program to construct Hexadecimal Encoder	HNS	
2	VHDL program to construct Octal Decoder	HNS	
2	VHDL program to construct Hexadecimal Decoder	HNS	
2	Test	HNS	

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SURENDRANATH EVENING COLLEGE

Department of Economics

Lesson plan 2021-22

Undergraduate (General course)

Semester	Subject and Code	Content	Name of teacher	Tentative date of Examination
I	CC1/GE1	Introductory Microeconomics	Urmila Sen	February 2022
II	CC2/GE2	Introductory Macroeconomics	Urmila Sen	July 2021
III	CC3/GE3	Issues in Economic Development and India	Urmila Sen	February 2022
III	SEC-A	Introductory Methods of Field Survey	Urmia Sen	February 2022
IV	CC4/GE4	Indian Economic Policies	Urmila Sen	July 2021
IV	SEC-B	Economic data Analysis and Report Writing	Urmila Sen	July 2021
V	DSE-A	Money and Banking	Urmila Sen	January 2021
V	SEC-A	Introductory Methods of Fields Survey	Urmila Sen	January 2021
VI	DSE-B	Economic History of India (1857-1947)	Urmila Sen	June 2022
VI	SEC-B	Economic data analysis and Report Writing	Urmila Sen	June 2022

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DEPARTMENT OF GEOGRAPHY

SURENDRANATH EVENING COLLEGE

LESSON PLAN FOR THE UNDERGRADUATE COURSE

Semester – I to VI (Gen.)

(ACADEMIC SESSION 2021-2022)

Subject Code	Name of the Teacher	Topics to be covered	Tentative Date for Exam
B.A/B.Sc. Geography (Gen.) **Semester – I** **GEO-G-CC1**	Peula Sinha Roy (P.S.R)	**PHYSICAL GEOGRAPHY (TH)** **GEOTECTONICS:** 1. Earth's Interior with special reference to seismology. 2. Plate Tectonics as a unified theory of global tectonics. Formation of major relief features of ocean floor and continents acc. to plate tectonics. 3. Fold and faults. **Geomorphology:** 4. Degradation all processes weathering mass wasting and result resultant landforms. 5. Principal geographies agents classification and evolution of fluvial postal and glacial landforms 6. Basic models of slope evolution: decline, replacement and retreat. Systems approach and its significance in geomorphology.	February 2022

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		7. Global hydrological cycle : Its physical and biological role. 8. Run of controlling factors concept of ecological flow. 9. Drainage basin as a hydrological unit principles of watershed management **Oceanography** 10. Physical and chemical properties of ocean water distribution and determinants of temperature and salinity 11. Ocean circulation wave and tide 12. Marine resources classification and sustainable utilisation	
GEO-G-CC1-01-P		**PHYSICAL GEOGRAPHY (Practical)** 1.Megascopic identification of mineral samples bauxite calcite Chalcopyrite feldspar Galena Hematite mica Quartz talc and Tourmaline 2. Megascopic identification of rocks a Granite Bay short letter write limestone sale sandstone, conglomerate, Slate, phyllite, schist, gneiss, quartz. 3. Extraction of physiography formation from Survey of India won is 250 kc topographical map of Plateau region interpretation and construction of relief profile superimpose projected composite 4.Extraction of drainage formation from Survey of India topographical maps of Plateau region : extraction and and interpretation of general features and Drainage patterns, construction of channel profiles. 5. Viva-voce based on Laboratory notebook 5 marks	

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SEMESTER-II GEO-G-CC2-2		**Environmental Geography (TH)** **Climatology** 1. Insolation and heat budget original and vertical distribution of atmospheric temperature and pressure 2. Overview of planetary wind system Indian monsoon mechanism and control 3. Atmospheric disturbances tropical and temperate cyclone thunderstorm 4. Overview of global climate change greenhouse effect and ozone depletion 5. World climatic classification by koppen **Soil Geography** 6. Factors of soil formation. 7. Soil profile development and the different climatic condition laterite, podsol and chernozem. 8. Physical and chemical properties of soil texture structured PH salinity and npk status 9. Usda classification of soils soil erosion and its management **Biogeography** 10 Ecosystem and biome distribution and characteristics of Tropical rainforest Savannah and hot desert biome 11.Plant type and ecological adaptations helophytes, xerophytes, mesophyte and hydrophyte 12. Biodiversity type trees and management with special reference to India.	July 2021
GEO-G-CC2-02-P		**Environmental Geography (Practical)**	

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		1. Interpretation of daily weather map of India pre monsoon or monsoon or post monsoon. 2. Construction and interpretation of hythergraph. Climograph and windrose. 3. Determination of soil type by ternary diagram textural plotting 4. Preparation of people's biodiversity register 5. Viva-voce	
Semester – III **GEO-G-CC3-03**		**HUMAN GEOGRAPHY (TH)** **Economic Geography** 1. Sectors of economy primary secondary tertiary and quaternary factors affecting location of economic activities. 2. Location of economic activities theories Vonthunen, Losch and Weber. 3. Location of industries with special reference to India cotton iron and steel 4. Globalisation and integration of world economy **Social Geography** 1. Human society structure function and social system population and migration overview cause and effect 2. Types and characteristics of Social organisations primitive hunting gathering agrarian and industrial 3. Race language and religion origin characteristics and special variations 4. Social issues: conflicts and transformations. **Cultural Geography** 1. Carl sauer cultural landscape and its element 2. Rural and urban settlements. 3. Cultural region and cultural realms	Feb 2022

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EO-G-CC3-03-P		4. Diffusion of culture and innovation **HUMAN GEOGRAGHY (PRACTICAL)** 1 State wise variation in occupational structure by proportional divided Circle 2. Time series analysis of industrial production using any two manufactured goods from India 3. Measuring arithmetic growth rate of population comparing two data sets 4. Nearest neighbour analysis rural example from Survey of India 1:50 k topographical maps	
SEMESTER-IV GEO-G-CC4		**Cartography (TH)** 1. Maps classification and type scales type significance and application 2. Co-ordinate system polar and rectangular bearing magnetic and through hole circle and reduced 3. Map projections classification properties and uses concept of magnification of UTM projection **Topographic and thematic map** 4. Survey of India topographical maps reference scheme of old and Open series information on the margin of map 5. Representation of data by Dots and proportional circles 6. The presentations of data by isopleth and choropleth 7. Principal National Agencies producing thematic maps in India GSI NATMO NBSSLUP, NHO and NRSC	July 2021

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GEO-G-CC4-04-P		**Remote sensing and geographical information system** 1. Basics of Remote sensing types of satellites sensors band and resolution with special reference to the ISRO mission 2. Principles of preparing standard FCCS and classified raster images 3. Principles of geographical information system concept of vector type attribute tab buffers and overlay analysis **Serving** 1.Basic concepts of serving and survey equipment Prismatic compass 2. Basic concepts of survey and survey equipment Dumpy level **(Practical)** 1. Graphical construction of scales plain and comparative 2. Construction of projections simple conic with one standard parallel cylindrical equal area and polar zenithal stereographic 3. Construction of thematic map proportional square proportional Circle choropleths and Isopleth 4. Preparation of annoted thematic overlays from satellite standard fees of 1 : 50k	
SEMESTER-V GEO-DSE-A-5-01-TH		**REGIONAL DEVELOPMENT(TH)** 1 Definition of region types and need of regional planning	January:2022

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		2. Choice of a region for planning characteristics of an ideal planning region delineation of planning region 3. Regionalization of India for planning Agro ecological zones 4. Strategies of regional planning growth pole model of Perroux 5. Growth Centre model of Indian context concept of village cluster 6. Problem regions and regional planning backward regions and regional plants special and area development plans in India DVC success and failure 7. Changing concept of development and underdevelopment 8. Indicators of development economic demographic and environment concept of Human Development 9. Regional development in India regional inequality disparity and diversity 10. Development and regional disparities in India since independence disparities in agricultural development 11. Development and regional disparities in India since independence disparities in industrial development 12. Development and regional disparities in India since independence disparities in human resource development (education and health)	
GEO-G-DSE-A-5-01-P		**REGIONAL DEVELOPMENT (practical)** 1. Delineation of regions according to the given criteria using waivers method	

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		2. Determination of sphere of influence of by gravity model 3. Measurement of inequality by Lawrence curve and location quotient 4. Preparation of Z score and composite index from suitable data 5. viva-voce based on Laboratory notebook 5 marks	
SEMESTER-VI GEO-DSE-B-6-04-TH		**POPULATION GEOGRAPHY(TH)** **Population Dynamics** 1. Development of population geography as a field of specialisation relation between population geography and democracy source of population data their level of reliability and problems of mapping 2. Population distribution density and growth classical and modern theories of population growth demographic transition model 3. World pattern and determinants of population distribution and growth concept of optimum population 4. Population distribution density and growth in India **population and development** 5. Types of population composition age sex, rural urban literacy and education 6. Measurement of fertility and mortality concept of cohort and life table 7. Population composition of India urbanization and occupational structure 8. Migration causes and type 9. National and international and pattern of migration with reference to India 10. Population and development population resource regions (sekerman), concept of	June 2021

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Human Development Index and its components

11. Population policies in developed and less developed countries Indians population policies population and environment
12. Contemporary issues ageing of population declining sex ratio population and environmental dichotomy, impact of HIV/AIDS

PRACTICAL

GEO-DSE-B-6-04-P

1. population projection by arithmetic method
2. population density mapping State wise for India
3. Analysis of work participation rate total and gender wise for India
4. Analysis occupational structure by dominant and distinctive functions

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SURENDRANATH EVENING COLLEGE

Department of Mathematics

Lesson Plan 2021 – 2022

Undergraduate (General Course)

Semester 2

Subject and Code	Content	Name of Teacher	Tentative date of examination
MTMG (CC2 / GE2)	Differential Calculus II	MANIK DAS SUPARNA GHOSH	July 2021
	Differential Equation II	DR. BHAVANANDA THAKUR	
	Vector Algebra	DR. BHAVANANDA THAKUR	
	Discrete Mathematics	DR. DEBASIS MAHATA	

Semester 4

Subject and Code	Content	Name of Teacher	Tentative date of examination
MTMG (CC4 / GE4)	Algebra-II	SUPARNA GHOSH	July 2021
	Computer Science & Programming	DR. BHARADWAJ SAHA	
	Probability & Statistics	DR. DEBASIS MAHATA	
MTMG (SEC B1)	Mathematical Logic	DR. DEBASIS MAHATA	

Semester 6

Subject and Code	Content	Name of Teacher	Tentative date of examination
MTMG (DSE B2)	Advanced Calculus	MANIK DAS DR. BHAVANANDA THAKUR	June 2021
MTMG (SEC B1)	Boolean Algebra	MANIK DAS	

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Semester 1

Subject and Code	Content	Name of Teacher	Tentative date of examination
MTMG (CC1 / GE1)	Algebra-I	SUPARNA GHOSH	February 2022
	Differential Calculus-I	DR. DEBASIS MANNA	

Semester 3

Subject and Code	Content	Name of Teacher	Tentative date of examination
MTMG (CC3 / GE3)	Integral Calculus	Dr. Debasis manna	February 2022
	Numerical Methods	DR. NITYANANDA THAKUR	
	Linear Programming	DR. NITYANANDA THAKUR	
MTMG (SEC A1)	:		
	C Programming Language	DR. NITYANANDA THAKUR	

Semester 5

Subject and Code	Content	Name of Teacher	Tentative date of examination
MTMG (DSE A2)	Particle Dynamics	MANIK DAS	January 2022
MTMG (SEC A1)	Object Oriented Programming in C++	DR. HIMADRINATH SAHA	

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ODD SEM
(Lesson Plan)
Physics

PAPER (CODE)	TOPIC	TEACHER	NO OF LECTURES ASSIGNED	DATE OF EXAMINATION (Tentative)
SEM 1(HONS)				
Mathematical Physics I-Theory (CC1)	1. Calculus	C. LAHIRI S. SARKAR	20	February
	2. Vector Algebra and Vector Calculus		25	
	3. Matrices		15	
Mechanics -Theory (CC2)	1.Fundamentals of Dynamics	A. L. SAFI	12	
	2. Work and Energy		8	
	3. Gravitation and Central Force Motion		10	
	4. Non-Inertial Systems	A. DEBANGSHI	12	
	5. Rotational Dynamics		12	
	6. Fluid Motion		6	
SEM 1(GEN)				
Mechanics -Theory (CC1/GE1)	1. Mathematical Methods	A. DEBANGSHI	15	February
	2. Introduction to Newtonian Mechanics		5	
	3. Rotational Motion		10	
	4. Central force and Gravitation	A.L. SAFI	10	
	5. Oscillations		9	
	6. Elasticity		6	
	7. Surface Tension		5	
SEM 3(HONS)				
Mathematical Physics II - Theory(CC5)	1. Fourier Series	A. DEBANGSHI	10	February
	2. Frobenius Method and Special Functions		20	
	3. Some Special Integrals		4	
	4. Integrals Transforms		10	
	5. Introduction to probability		6	
	6. Partial Differential Equations		10	
Thermal Physics - Theory(CC6)	1.Introduction to Thermodynamics	A.L. SAFI	25	
	2. Thermodynamic Potentials		15	
	3. Kinetic Theory of Gases		15	
	4. Conduction of Heat		5	
Modern Physics - Theory(CC7)	1. Radiation and its nature	C. LAHIRI	15	

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	2. Basics of Quantum Mechanics		15	
	3. Nuclear Structure		10	
	4. Interaction with and within nucleus		12	
	5. Lasers		8	
Renewable energy and Energy Harvesting - Theory(SEC-A2)	1. Fossil fuels and Alternate Sources of energy	S. SARKAR	5	
	2. Solar energy		5	
	3. Wind Energy harvesting		4	
	4. Ocean Energy		4	
	5. Geothermal Energy		2	
	6. Hydro Energy		2	
	7. Piezoelectric Energy harvesting		3	
	8. Electromagnetic Energy Harvesting		3	
SEM 3(GEN)				
Thermal Physics and Statistical Mechanics - Theory(CC3/GE3)	1. Laws of Thermodynamics	S. BHOWAL A. L .SAFI	18	February
	2. Thermodynamical Potentials		9	
	3. Kinetic Theory of Gases		10	
	4. Theory of Radiation		8	
	5. Statistical Mechanics		15	
SEM 5(HONS)				
Electromagnetic Theory - Theory (CC11)	1.Maxwell Equations	S. BHOWAL	12	January
	2. EM Wave Propagation in Unbounded Media		10	
	3. EM Wave in Bounded Media		10	
	4. Polarization		7	
	5. Polarization in uniaxial crystals		15	
	6. Rotatory polarization		6	
Statistical Physics -Theory (CC12)	1. Classical Statistical Mechanics	C. LAHIRI S SARKAR	25	
	2. Systems of Identical particles		6	
	3. Bose-Einstein Statistics		12	
	4. Radiation: classical and quantum aspects		7	
	5. Fermi-Dirac Statistics		10	

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Laser and Fiber Optics - Theory (DSEA1)	1.Einstein coefficients and Rate equations	A DEBANGSHI	20	January
	2. Basic properties of laser		4	
	3. Resonantors		8	
	4. Transient effect		5	
	5. Basic Laser Systems		7	
	6. Practical properties and uses of laser		5	
	7. Fiber optics		12	
	8. Holography		4	
	9. Introductory Nonlinear Optics		10	
Nuclear and Particle Physics -Theory (DSEB1)	1. Introduction	A. L. SAFI	5	
	2. Nuclear Reactions		10	
	3. Interaction of Nuclear Radiation with matter		15	
	4. Detector for Nuclear Radiations		15	
	5. Particle Accelerators		15	
	6. Particle Physics		15	
SEM 5(GEN)				
Analog Electronics-Theory (DSEA1)	1. Circuits and Network	S . SARKAR	6	January
	2. Semiconductor Devices		20	
	3. Regulated Power Supply		4	
	4. Field Effect transistors		5	
	4. Feedback Amplifiers		5	
	5. Operational Ampliers		15	
	6. Sinusoidal Oscillators		5	
Modern Physics -Theory (DSEA2)	1. Radiation and its nature	C. LAHIRI	22	
	2. Foundation of Quantum Mechanics		28	
	3. Special Theory of Relativity		15	
	4. Lasers		10	

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EVEN SEM

PAPER (CODE)	TOPIC	TEACHER	NO OF LECTURES ASSIGNED	DATE OF EXAMINATION (Tentative)
		SEM 2(HONS)		
Electricity and Magnetism - Theory (CC3)	1. Dirac delta function and it's properties	A. DEBANGSHI	3	July
	2. Electrostatics		12	
	3. Dielectric properties of matter		6	
	4. Method of Images		4	
	5. Electrostatic Energy		3	
	6. The Magnetostatic Field	A. L. SAFI	10	
	7. Magnetic properties of matter		7	
	8. Electro-magnetic induction		7	
	9. Electrical circuits		8	
Waves and Optics -Theory (CC4)	1. Oscillations	A. DEBANGSHI S.BHOWAL	8	
	2. Superposition of Harmonic Oscillations		4	
	3. Wave motion		4	
	4. Superposition of Harmonic Waves		9	
	5. Wave optics		4	
	6. Interference		10	
	7. Interferometers		5	
	8. Diffraction		10	
		SEM 2(GEN)		
Electricity and Magnetism - Theory (CC2/GE2)	1. Essential Vector Analysis	C. LAHIRI A. L. SAFI	5	July
	2. Electrostatics		25	
	3. Magnetism		15	
	4. Electromagnetic Induction		5	
	5. Electrodynamics		10	
		SEM 4(HON)		
Mathematical Physics III - Theory (CC8)	1. Complex Analysis	C. LAHIRI	20	July
	2. Variational calculus in Physics		20	
	3. Special theory of Relativity		20	
Analog Systems and Applications -Theory (CC9)	1. Circuits and Network	A. L. SAFI S. SARKAR	4	

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	2. Semiconductor Diodes and application		8	
	3. Bipolar Junction transistors and biasing		10	
	4. Field Effect transistors		5	
	5. Regulated power supply		3	
	6. Amplifiers		5	
	7. Feedback amplifiers and OPAMP		15	
	8. Multivibrator:		5	
	9.Oscillators		5	
Quantum Mechanics - Theory (CC10)	1. Wave packet description	C. LAHIRI	5	
	2. General discussion of bound states in an arbitrary potential		8	
	3. Quantum mechanics of simple harmonic oscillator		6	
	4. Quantum theory of hydrogen-like atoms		8	
	5. Generalized Angular Momenta and Spin		10	
	6. Spectra of Hydrogen atom and its fine structure		5	
	7. Atoms in Electric & Magnetic Fields		8	
	8. Many electron atoms		10	
SEM 4(GEN)				
Waves and Optics - Theory(CC4/GE4)	1. Accoustics	S. BHOWAL A. DEBANGSHI	10	July
	2. Superposition of vibrations		5	
	3. Vibrations in String		8	
	4. Introduction to wave Optics		2	
	5. Interference		15	
	6. Diffraction		10	
	7. Polarization		10	
SEM 6(HON)				
Digital Systems and Applications -Theory(CC13)	1. Integrated Circuits	S. SARKAR	5	June
	2. Number System		7	
	3. Digital Circuits		16	
	4. Implementation of different circuits		6	

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	5. Data processing circuits		5	June
	6. Sequential Circuits		6	
	7. Registers and Counters		6	
	8. Computer Organization		6	
	9. Data Conversion	A. L. SAFI	3	
Solid State Physics - Theory(CC14)	1. Crystal Structure		12	
	2. Elementary Lattice Dynamics		10	
	3. Magnetic Properties of Matter		8	
	4. Dielectric Properties of Materials		8	
	5.Drude's theory		4	
	6.Elementary band theory		12	
	7. Superconductivity		6	
Nano Materials and Applications -Theory (DSEA2)	1. Nanoscale Systems	S. SARKAR	10	
	2. Synthesis of Nanostructure Materials		15	
	3. Characterization		10	
	4. Optical Properties		15	
	5. Electron Transport		10	
	6. Applications		15	
SEM 6(GEN)				
Nuclear & Particle Physics - Theory (DSEB)	1 General Properties of Nuclei	A. L. SAFI	10	June
	2. Nuclear Models		10	
	3. Radioactivity		12	
	4. Nuclear Reactions		7	
	5. Detector for Nuclear Radiations		15	
	6. Particle Accelerators		15	
	8. Particle Physics		6	

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SURENDRANATH EVENING COLLEGE

Department of Political Science

Lesson Plan 2021 – 2022

Undergraduate (General Course)

Semester 2			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
PLSG (CC2 / GE2)	Comparative Government and Politics: *Module I (Topic- 1,2,3)*	Nousheen Baba Khan	July 2021
	Module II (Topic- 4,5)	Sohini Gupta	

Semester 4			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
PLSG (CC4 / GE4)	International Relations: *Module I (Topic- 1,2)*	Nousheen Baba Khan	July 2021
	Module II (Topic- 3,4)	Sohini Gupta	
PLSG (SEC B1)	Elementary Dimensions of Research: *Module I (Topic- 1,2,3,4)*	Sohini Gupta	
	Module II (Topic- 5,6,7)	Nousheen Baba Khan	

Semester 6			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
PLSG (DSE B2)	Human Rights: Theory and Indian Context: *Module I (Topic- 1,2,3)*	Sohini Gupta	June 2021
	Module II (Topic- 4,5,6)	Nousheen Baba Khan	
PLSG (SEC B1)	Elementary Dimensions of Research: *Module I (Topic- 1,2,3,4)*	Sohini Gupta	
	Module II (Topic- 5,6,7)	Nousheen Baba Khan	

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Semester 1			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
PLSG (CC1 / GE1)	Introduction to Political Theory *Module I (Topic- 1,2,3,4)*	Nousheen Baba Khan	February 2022
	Module II (Topic- 5,6,7)	Sohini Gupta	

Semester 3			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
PLSG (CC3 / GE3)	Government and Politics in India: *Module I (Topic- 1,2,3,4,5,6)*	Sohini Gupta	February 2022
	Module II (Topic- 7,8,9,10,11,12)	Nousheen Baba Khan	
PLSG (SEC A1)	Legal Literacy: *Module I (Topic- 1,2,3)*	Nousheen Baba Khan	
	Module II (Topic- 4,5,6)	Sohini Gupta	

Semester 5			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
PLSG (DSE A2)	Indian Foreign Policy: *Module I (Topic- 1,2,3)*	Sohini Gupta	January 2022
	Module II (Topic- 4,5,6)	Nousheen Baba Khan	
PLSG (SEC A1)	Legal Literacy: *Module I (Topic- 1,2,3,4)*	Nousheen Baba Khan	
	Module II (Topic- 5,6,7)	Sohini Gupta	

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SURENDRANATH EVENING COLLEGE

Department of Political Science

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Undergraduate (General Course)

Semester 2			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
PLSG (CC2 / GE2)	Comparative Government and Politics: *Module I (Topic- 1,2,3)*	Nousheen Baba Khan	July 2020
	Module II (Topic- 4,5)	Sohini Gupta	

Semester 4			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
PLSG (CC4 / GE4)	International Relations: *Module I (Topic- 1,2)*	Nousheen Baba Khan	July 2020
	Module II (Topic- 3,4)	Sohini Gupta	
PLSG (SEC B1)	Elementary Dimensions of Research: *Module I (Topic- 1,2,3,4)*	Sohini Gupta	
	Module II (Topic- 5,6,7)	Nousheen Baba Khan	

Semester 6			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
PLSG (DSE B2)	Human Rights: Theory and Indian Context: *Module I (Topic- 1,2,3)*	Sohini Gupta	June 2020
	Module II (Topic- 4,5,6)	Nousheen Baba Khan	
PLSG (SEC B1)	Elementary Dimensions of Research: *Module I (Topic- 1,2,3,4)*	Sohini Gupta	
	Module II (Topic- 5,6,7)	Nousheen Baba Khan	

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Semester 1

Subject and Code	Content	Name of Teacher	Tentative date of examination
PLSG (CC1 / GE1)	Introduction to Political Theory: *Module I (Topic- 1,2,3,4)*	Nousheen Baba Khan	February 2021
	Module II (Topic- 5,6,7)	Sohini Gupta	

Semester 3

Subject and Code	Content	Name of Teacher	Tentative date of examination
PLSG (CC3 / GE3)	Government and Politics in India: *Module I (Topic- 1,2,3,4,5,6)*	Sohini Gupta	February 2021
	Module II (Topic- 7,8,9,10,11,12)	Nousheen Baba Khan	
PLSG (SEC A1)	Legal Literacy: *Module I (Topic- 1,2,3)*	Nousheen Baba Khan	
	Module II (Topic- 4,5,6)	Sohini Gupta	

Semester 5

Subject and Code	Content	Name of Teacher	Tentative date of examination
PLSG (DSE A2)	Indian Foreign Policy: *Module I (Topic- 1,2,3)*	Sohini Gupta	January 2021
	Module II (Topic- 4,5,6)	Nousheen Baba Khan	
PLSG (SEC A1)	Legal Literacy: *Module I (Topic- 1,2,3,4)*	Nousheen Baba Khan	
	Module II (Topic- 5,6,7)	Sohini Gupta	

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Department of Sanskrit- Lesson Plan of 2021 – 2022.

SUBJECT AND CODE	CONTENT	NAME OF THE TEACHER	TENTATIVE EXAMINATION DATE
SAN-G-CC-1 **Sanskrit Poetry**	***Raghuvaṃśam :*** **UNIT I** **Canto I** **A.M-10** **Verses : 1-10** Introduction(Author & Text),Meaning/translation, Explanation, Story, Characteristics of Raghu clan,Characteristics of Dilīpa. **Verses : 11-25** Meaning/translation, Explanation, Role of Dilīpa forthe welfare of the Subjects. Appropriateness of Title, Background of given contents.	TOTON GHOSH (T.G.)	INTERNAL ASSESSMENT– 18/01/2022 FINAL EXAMINATION- 02/02/2022
	***Śiśupālavadham*:** **UNIT I** **Canto IA.M-10** **Verses : 1-15** Introduction(Author & Text), Appropriateness of Title, Background of given contents. Grammar, Translation, Explanation, Poetic excellence,thematic analysis **Verses : 16-30** Grammar, Translation, Explanation, Poetic excellence,thematic analysis. सन्तित्रयोगुणा, मेघे माघे गतो वयः, तावद् भारवेर्भातियावन्माघस्यनोदयः।	TOTON GHOSH (T.G.)	
	***Nītiśatakam* :** **Verses : 1-10A.M-10** Translation, Explanation Translation, Explanation, Social experiences of Bhartṛhari, Types of Fool.	NAMITA BHATTACHARYA (N.B.)	

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	History of Sanskrit Poetry **Allotted Marks-30LH-20** Aśvaghoṣa, Kālidāsa, Bhāravi,Māgha, Śriharṣa, Jayadeva, Bhartṛhari and their works. Origin and Development of Different types of MahākāvyaandGitikāvya with special reference to the above mentioned Poets and their works.	SURANJIT CH. ROY (S.C.R.)	
SAN-G-CC-2 **Sanskrit Prose**	***Śukanāsopadeśa*** **Allotted Marks(A.M)-30LH-35** **UNIT I (A.M)-15** Introduction- Author/Text (upto the end of the text.) **UNIT II (A.M)-15** Society and political thought depicted in *Śukanāsopadeśa*, logical meaning and applicationof sayings.	TOTON GHOSH (T.G.)	INTERNAL ASSESSMENT– MID OF JULY 2021 FINAL EXAMINATION- 11/08/2021
	Śivarājavijayam,Niśvāsa-I **Allotted Marks-30** **LH-35** Introduction- Author/Text, Textreading (Grammar, Translation,and Explanation), poetic excellence, plot, Timing of Action. **UNIT II (A.M)-15** **From Para 21 to the end of thetext.** Text reading (Grammar, Translation, and Explanation),Poetic excellence, plot, Timingof Action.	NAMITA BHATTACHARYA (N.B.)	

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	Survey of Sanskrit Literature: **Prose** **Allotted Marks-30LH-30** **UNIT I (A.M)-15** Origin and development ofprose and important proseromances : Subandhu, Bāṇa, Daṇḍin, AmbikādattaVyāsa. **UNIT II (A.M)-15** Pañcatantra, Hitopadeśa, Vetālapañcaviṃśatikā, Siṃhāsanadvātriṃśikā and Puruṣaparīkṣā.	SURANJIT CH. ROY (S.C.R.)	
SAN-G-CC-3 **Sanskrit Drama**	**Section- A** ***Abhijñānaśākuntalam*:Kālidāsa** **Acts I-IV** **Allotted Marks-25LH-30** **UNIT I** **Acts I-IV** (a) Explanation of terms like nāndī, prastāvanā, sūtradhāra, naṭi, viṣkambhaka andvidūṣaka. (b) Text Reading (Grammar, Translation, and Explanation),Poetic excellence, Plot.	TOTON GHOSH (T.G.)	INTERNAL ASSESSMENT– 05/01/2022 FINAL EXAMINATION- 15/01/2022
	Section -B ***Abhijñānaśākuntalam:*** **Kālidāsa** **Act V-VII** **Allotted Marks-15LH-30** **UNIT I** **Acts V-VII** (a) Text Reading (Grammar, Translation, Explanation), Poetic excellence, Plot, Timingof Action. Personification of nature. (b) Kāvyeṣunāṭakamramyam, upamā, Language of Kālidāsa, dhvani in Kālidāsa, Purpose and	TOTON GHOSH (T.G.)	

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	design behind Abhijñānaśākuntalam and other problems related to thetext.		
	Section- C **Technical Terms from Sanskrit Dramaturgy:** **Allotted Marks-20LH-20** **UNIT I** **Allotted Marks-10** नाटक, नायक, नायिका, पूर्वरङ्ग, नान्दी, सूत्रधार, नेपथ्य, प्रस्तावना, कञ्चुकी एवं विद्रूषक। **UNIT II** **Allotted Marks-10** अङ्क, स्वगत, प्रकाश ,अपवारित, जनान्तिक, आकाशभाषित, विष्कम्भक, प्रवेशक, भरतवाक्यम्।	NAMITA BHATTACHARYA (N.B.)	
	Section- D **History of Sanskrit Drama andan Introduction to Principle ofSanskrit Drama** **Allotted Marks-30LH-20** **UNIT I** **Allotted Marks-15** Origin and Development **UNIT II** **Allotted Marks-15** Some important dramatists and dramas: Bhāsa, Kālidāsa, Śūdraka, Viśākhadatta, Harṣa, Bhavabhūti, and their works	SURANJIT CH. ROY (S.C.R.)	

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SAN-G-CC-4 **Sanskrit Grammar**	**Section- A** **Laghusiddhāntakaumudī :** **Saṃjñāprakaraṇa Allotted** **Marks(A.M)-20LH-25** **UNIT I** **Saṃjñāprakaraṇa**	NAMITA BHATTACHARAYA (N.B.)	INTERNAL ASSESSMENT–MID OF JULY 2021 FINAL EXAMINATION- 03/08/2021
	Section -B **Laghusiddhāntakaumudī :** **Sandhiprakaraṇa Allotted** **Marks-35** **LH-35** **UNIT I (A.M)-15** ac sandhi: yaṇ, guṇa, dīrgha, ayādi, vṛddhiand pūrvarūpa. (b) Text Reading (Grammar, Translation, Explanation), Poetic excellence, Plot, Timingof Action. Personification ofnature . **UNIT II (A.M)-10** halsandhi: ścutva, utva, anunāsikatva, chhatva andjaśtva: **UNIT III (A.M)-10** visargasandhi: utva, lopa, ṣatvaand rutva	TOTON GHOSH (T.G.)	
	Section –C **Laghusiddhāntakaumudī:** **VibhaktyarthaPrakaraṇa Allotted** **Marks-35** **LH-40** **UNIT I** Vibhaktyarthaprakaraṇa	SURANJIT CH. ROY (S.C.R)	

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Semester 5 **SAN-G-DSE-A 1.** **Philosophy, Religion and Culture in Sanskrit Tradition**	**Section-A** **Dharma** **Alloted Marks-30** **Lecture Hours (LH)-35** **UNIT I** **Allotted Marks-10** Form of God, Mode of worship, Bhakta as a morally evolved person-Gita Chapter XII Unit II Allotted Marks-10 Dharma-ten-fold dharma and its versions, definitions of satya, ahimsa, asteya, aparigraha, pancamahayajna; theory of three debts. Unit III Allotted Marks-10 Man's initiative and God's design; God's lila and Krpa, Daiva versus purusakara, adrsta, three types of karma-sancita, kriyamana and prarabdha karma.	NAMITA BHATTACHARYA (N.B.)	INTERNAL ASSESSMENT– 05/01/2022 FINAL EXAMINATION- 15/01/2022
	<u>Section -B</u> <u>Saṃskāra and Puruṣārtha</u> <u>Allotted Marks-30 LH-35</u> **UNIT I** **Allotted Marks-15** Process of acculturation – importance of Saṃskāra. **UNIT II** **Allotted Marks-15** Aim of human life – theory of Puruṣārtha.	TOTON GHOSH (T.G.)	

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	Section- C **Svadharma** **Allotted Marks-30 LH-30** **UNIT I** **Allotted Marks-15** An 'amoral' person – svadharma and karmayoga, sthitaprajña in the Gitā (Chapter II). UNIT II Allotted Marks-15 Prakṛti – three guṇas and their impact on personality.	SURANJIT CH. ROY (S.C.R.)	
2. Indian Perspectives in Personality Development	**Section- A** **Historical Perspective Allotted Marks(A.M)-15LH-20** **UNIT I** Historical Perspective: Ṛgveda, 1.164.37; Chāndogyopaniṣad,VI. 2.3, VI.8.6, VIII.1.4 Bṛhadāraṇyakopaniṣad, II.5.18- 19	SURANJIT CH. ROY (S.C.R.)	
	Section -B Concept of a person Allotted Marks-30 LH-30 **UNIT I** Concept of a person, Gītā,	TOTON GHOSH (T.G.)	
	Section- C Personality Types Allotted Marks-15 LH-20 **UNIT I** Personality Types Gītā, Chapter-14, Verses:5-14, Chapter-17, Verses:2-6, Chapter-17, Verses:11.21	SURANJIT CH. ROY (S.C.R.)	

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	Section- D **Measures for behavioural Improvement** **Allotted Marks-30** **LH-30** **UNIT I** Measures for behavioural Improvement Control of Senses and Mind Recognition of Svadharma - Inner Urge;	NAMITA BHATTACHARYA (N.B.)	
Semester 6 **SAN-G-DSE-3** **Literary Criticism**	**Section- A** Kāvyaprakāśa: Kāvyavaiśiṣṭya and KāvyaPrayojana Allotted Marks-35 LH-35 **UNIT I** Kāvyaprakāśa: KāvyaVaiśiṣṭya and KāvyaPrayojana	TOTON GHOSH (T.G.)	INTERNAL ASSESSMENT– MID OF JULY 2021 FINAL EXAMINATION- 29/07/2021
	Section –B Kāvyaprakāśa: KāvyaKāraṇa Allotted Marks-25 LH-30 **UNIT I** Kāvyaprakāśa: KāvyaKāraṇa	TOTON GHOSH (T.G.)	
	Section- C Kāvyaprakāśa: KāvyaSvarūpa and Kāvyabheda Allotted Marks-30 LH-35 **UNIT I** Kāvyaprakāśa: KāvyaSvarūpa and Kāvyabheda	TOTON GHOSH (T.G.)	

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DSE-4 Nationalism in Sanskrit Literature	**Section- A** Concepts and Basic Features of Indian Nationalism Allotted Marks-30 LH-35 **UNIT I** **Allotted Marks-15** Meaning, Definitions and Elements of Indian Nation 'Rāṣṭra' **UNIT II** **Allotted Marks-15** Meaning, Definitions and Elements of Indian Nationality:	NAMITA BHATTACHARAYA (N.B.)	
	Section –B **Name of Country, National Symbols and Rise of Nationalism** **Allotted Marks-30 LH-35** **UNIT I** **Allotted Marks-15** Name of the Country 'Bharatavarsha' and National Symbols: **UNIT II** **Allotted Marks-15** **Rise of Indian Nationalism and Freedom Struggle Movement:**	SURANJIT CH. ROY (S.C.R.)	
	Section- C Nationalistic Thought and Modern Sanskrit Literature **Allotted Marks-30** **LH-30** **UNIT I** **Allotted Marks-15 Contributions of Sanskrit Literature to Freedom StruggleMovement:** **UNIT II** **Allotted Marks-15** **Modern Nationalistic Thoughtand Gandhian Sanskrit Literature:**	NAMITA BHATTACHARYA (N.B.)	

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SAN-G-SEC-A-1 **Basic Sanskrit**	1. **Translation : 40 marks** Vernacular to Sanskrit 20marks Sanskrit to Vernacular- 20marks	SURANJIT CH. ROY (S.C.R.)	
	1. **Comprehension in Sanskrit -10 marks** 2. **Paragraph Writing-10 marks**	NAMITA BHATTACHARYA (N.B.)	
	1. **Letter Writing- 10 marks** **Easy Writing- 20marks**	TOTON GHOSH (T.G.)	
SAN-G-SEC-B Spoken Sanskrit and Computer Awareness	Spoken Sanskrit	NAMITA BHATTACHARYA (N.B.)	
	Computer Awareness for Sanskrit (Basic Computer	TOTON GHOSH (T.G.)	
	Basic Computer Awareness, Typing in Unicodefor Preservation and Digitalization of Sanskrit Text Web Publishing) (Marks: 50)	SURANJIT CH. ROY (S.C.R.)	
SEC-A-2 **Basic Elements of Āyurveda**	Introduction of Āyurveda(Marks – 30)	SURANJIT CH. ROY (S.C.R.)	
	Carakasaṃhitā- (Sūtrasthānam) (Marks – 30)	NAMITA BHATTACHARYA (N.B.)	
	Taittirīyopaniṣad(Marks – 30)	TOTON GHOSH (T.G.)	

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SEC-B-2 **Yogasūtra of Patañjali**	**(Samādhipāda,** **Sādhanapāda,** **Vibhūtipāda)**	NAMITA BHATTACHARYA (N.B.) SURANJIT CH. ROY (S.C.R.) TOTON GHOSH (T.G.)	

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SURENDRANATH EVENING COLLEGE

Department of Mathematics

Lesson Plan 2021 – 2022

Undergraduate (Honours Course)

Semester 2			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
MTMA (CC3)	Real Analysis		July 2021
	Unit-1	MANIK DAS	
	Unit-2	DR. DEBASIS MANNA	
	Unit-3	DR. NITYANANDA THAKUR	
MTMA(CC4)	Group Theory-I		
	Unit-(1,2,3)	SUPARNA GHOSH	

Semester 4			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**
MTMA (CC8)	Riemann Integration & Series of Functions		July 2021
	Unit-1 : Riemann integration	SUPARNA GHOSH	
	Unit-2 : Improper integral	DR. NITYANANDA THAKUR	
	Unit-3 : Series of functions	MANIK DAS	
MTMA(CC9)	Partial differential equation & Multivariate Calculus-II		
	Unit-1 : Partial differential equation	DR. NITYANANDA THAKUR	
	Unit-2 : Multivariate Calculus-II	MANIK DAS SUPARNA GHOSH	
MTMA(CC10)	Mechanics		
	Unit-(1,2,3,4,5)	DR. DEBASIS MANNA MANIK DAS	
MTMA (SEC B)	Scientific computing with SageMath or R	DR. DEBASIS MANNA	

Semester 6			
Subject and Code	**Content**	**Name of Teacher**	**Tentative date of examination**

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MTMAA(CC13)	Metric Spaces & Complex Analysis		June 2021
	Unit 1 : Metric spaces	SUBHOYAN PURKAYAS	
	Unit-2 : Complex analysis	GOPAL CHANDRA	
MTMAA(CC14)	Unit-(1,2,3,4,5,6)	DR.NITYANANDA THAKUR	
MTMAA (CC14 PRACTICAL)	Numerical Methods Lab	DR.NITYANANDA THAKUR	
MTMAA(DSE-A1)	Advanced Algebra		
	Unit-1: Group Theory	SUPARNA GHOSH	
	Unit-2: Ring Theory	SUPARNA GHOSH	
MTMAA(DSE-B2)	Point Set Topology		
	Unit-(1,2,3)	SUPARNA GHOSH	

Semester 1			
Subject and Code	Content	Name of Teacher	Tentative date of examination
MTMAA(CC1)	Calculus, Geometry & Vector Analysis		February 2022
	Unit-1 : Calculus	MANIK DAS	
	Unit-2 : Geometry	DR. DEBASIS MANNA	
	Unit-3 : Vector Analysis	DR. NITYANANDA THAKUR	
MTMAA(CC2)	Algebra		
	Unit-1	DR.NITYANANDA THAKUR	
	Unit-2	SUPARNA GHOSH	
	Unit-3	MANIK DAS	
Semester 3			
Subject and Code	Content	Name of Teacher	Tentative date of examination

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MTMA(CC5)	Theory of Real Functions		February 2022
	Unit-1 : Limit & Continuity of functions	SUPARNA GHOSH MANIK DAS	
	Differentiability of functions	DR.NITYANANDA THAKUR	
MTMA(CC6)	Ring Theory & Linear Algebra-I		
	Unit-1 : Ring theory	SUPARNA GHOSH	
	Unit-2 : Linear algebra	SUPARNA GHOSH	
MTMA(CC7)	Ordinary Differential Equation & Multivariate Calculus-I		
	Unit-1 : Ordinary differential equation	DR.NITYANANDA THAKUR	
	Unit-2 : Multivariate Calculus-I	DR. DEBASIS MANNA	
MTMA(SEC A)	C Programming Language	DR. HIMADRINATH SAHA	

Semester 5

Subject and Code	Content	Name of Teacher	Tentative date of examination
MTMA(CC11)	Probability & Statistics:		January 2022
	Unit-(1,2,3,4,5)	DR. DEBASIS MANNA	
MTMA(CC12)	Group Theory-II & Linear Algebra-II		
	Unit-1 : Group theory	SUPARNA GHOSH	
	Unit-2 : Linear algebra	MANIK DAS	
MTMA(DSE-A1)	Advanced Algebra		
	Unit-1: Group Theory	SUPARNA GHOSH	
	Unit-2: Ring Theory	SUPARNA GHOSH	
MTMA(DSE-B1)	Linear Programming & Game Theory		
	Unit-(1,2,3,4)	MANIK DAS DR. NITYANANDA THAKUR	

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Department of Philosophy- Lesson Plan of 2021 – 2022.

SUBJECT AND CODE	CONTENT	NAME OF THE TEACHER	TENTATIVE EXAMINATION DATE
PHI-G-CC-1 Indian Epistemology and Metaphysics	Nyāya Epistemology: The nature of perception; laukikasannikarṣa; Determinate (savikalpaka) and Indeterminate (nirvikalpaka): anumāna; sādhya, pakṣa, hetu, vyāpti, parāmarśa and vyāptigraha. Svārthānumiti and parārthānumiti, pañcāvayavīnyāya.	GOUTAM MUKHERJEE	INTERNAL ASSESSMENT - 18/01/2022 FINAL EXAMINATION - 02/02/2022
	Vaiśeṣika Metaphysics: Categories – dravya, guṇa, karma, sāmānya, viśeṣa, samavāya and abhāva.	AMITA DE	
	Cārvāka Epistemology: Perception as the only source of knowledge; Refutation of Inference and Testimony as source of knowledge.	LOPA DE	
	Advaita Metaphysics: Brahman, māyā, The relation between jīva and Brahman.	Dr. SUNON NANDY	

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PHI-G-CC-2 Western Epistemology and Metaphysics	Theories of the origin of Knowledge: Rationalism, Empiricism, Kant's Critical Theory. Mind- Body Problem: Interactionism, Parallelism and the Identity Theory.	GOUTAM HEMBRAM	INTERNAL ASSESSMENT– MID OF JULY 2021 FINAL EXAMINATION- 11/08/2021
	Different senses of 'Know'. Conditions of Propositional Knowledge, Origin of Concepts. Concept Rationalism-Views of Descartes and Leibniz, Concept Empiricism –Views of Locke, Berkeley and Hume.	Dr. SUNON NANDY	
	Realism: Naive Realism, Locke's Representative, Realism, Subjective Idealism (Berkeley).	LOPA DE	
	Causality: Entailment Theory, Regularity Theory.	AMITA DE	

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PHI-G-CC-3Western Logic	Tautology, Contradiction, Contingent statement forms. Construction of truth-table, using truth-tables for testing the validity of arguments and statement forms.	GOUTAM HEMBRAM	INTERNAL ASSESSMENT– 05/01/2022 FINAL EXAMINATION- 15/01/2022
	Categorical syllogism: Figure, mood, rules for validity, Venn Diagram method of testing validity, fallacies. Symbolic Logic: Use of symbols, Truth-functions: Negation, Conjunction, disjunction, implication, equivalence.	AMITA DE	
	Aristotelian classification of categorical propositions, distribution of terms. Existential Import, Boolean interpretation of categorical propositions. Immediate inference. Immediate inference based on the square of opposition, conversion, obversion and contraposition.	Dr. SUNON NANDY	
	Introductory topics: Sentence, proposition, argument, truth and validity.	LOPA DE	

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PHI-G-CC-4Philosophy of Mind.	Memory: Factors of memory, Laws of association, Forgetfulness. Learning: The trial and Error theory, Pavlov's Conditioned Response theory, Gestalt theory.	GOUTAM HEMBRAM	INTERNAL ASSESSMENT– MID OF JULY 2021 FINAL EXAMINATION- 03/08/2021
	Intelligence: Measurement of Intelligence, I.Q.Test of Intelligence, Binnet-Simon test.	AMITA DE	
	Consciousness: Conscious, Subconscious, Unconscious, Evidence for the existence of the Unconscious, Freud's theory of dream.	LOPA DE	
	Sensation: What is sensation? Attributes of sensation. Perception: What is perception? Relation between sensation and perception, Gestalt theory of perception, illusion and hallucination.	Dr.SUNON NANDY	

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Semester 5 **PHI-G-DSE-A 1. Ethics: Indian and Western**	A. Four Puruṣārthās – dharma, artha, kāma and mokṣa and their interrelation. Karma (Sakāma&Niṣkāma), CārvākaEthics. B. Buddhist Ethics: The Four Noble Truths and the Eight-Fold Path.	AMITA DE	INTERNAL ASSESSMENT- 05/01/2022 FINAL EXAMINATION- 15/01/2022
	C. Moral and Non-Moral Actions, Object of Moral Judgement. D. Teleological Ethics: Utilitarianism (Bentham and Mill) Deontological Ethics: Kant's Moral Theory. E. Theories of Punishment.	GOUTAM HEMBRAM	
2. Social and Political Philosophy	A. Relation between Social Philosophy and Political Philosophy B. Primary Concepts: Society, Community, Association, Institution, Family. C. Social Class and Caste: Principles of Class and Caste; Marxist conception of class; Class Attitudes and Class consciousness	Dr. SUNON NANDY	
	D. Social Codes and Sanctions; Custom and Law; Culture and Civilisation. E. Social Changes: Marx and Gandhi. F. Political Ideals: Democracy: Its Different Forms. Socialism: Utopian and Scientific Socialism.	LOPA DE	

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Semester 6 **PHI-G-DSE-B** **Any one from the following options** **3. Applied Ethics and Philosophy of Religion.**	A. Concepts of Applied Ethics. B. Killing: Suicide, Euthanasia. C. Famine, Affluence and Morality. D. Environmental Ethics: Value Beyond Sentient Beings, Reverence for life, Deep Ecology.	GOUTAM HEMBRAM	INTERNAL ASSESSMENT– MID OF JULY 2021 FINAL EXAMINATION- 29/07/2021
	E. Nature & Concerns of Philosophy of Religion. Argument for the existence of God: Cosmological argument, Ontological argument and Teleological argument. F. Problem of Evil and Suffering. G. Grounds for disbelief in God: Sociological theory of Durkheim, Freudian Theory, CārvākaView.	LOPA DE	
4. Contemporary Indian Thought	i)Swami Vivekananda: Nature of Man, Nature of Religion, Ideal of 46 universal religion, Practical Vedānta	AMITA DE	
	ii)M.K. Gandhi : Nature of man, non-violence, satyāgraha, theory of trusteeship iii)B.R. Ambedkar: Critique of social evils, Dalit movement	Dr. SUNON NANDY	

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PHI-G-SEC-A **2. Logical Reasoning and Application**	1.The main objective of logical reasoning. 2. Definitions: Pakṣa, sādhya, hetu, sapakṣa and Vipakṣa. 3.Construction of kevalānvayī, kevalavyātirekī anvayvyātirekī anumiti. 4.Hetvābhāsa and its different kinds, detection of hetvābhāsa.	GOUTAM HEMBRAM	
	5.Reasoning in practice: i)Fallacy of relevance, Fallacies of ambiguity, Fallacies of weak induction, Avoiding fallacies ii)Logical applications of the concept of pakṣatā iii)Functional applications of ordinary operative relations between sense-organs and respective objects. 6.Inductive reasoning in Law (i) The method of Inquiry in Law 47 (ii) Causation in Legal reasoning (iii)Analogical Reasoning in legal argument (iv) Probability in legal argument. 7.Deductive Reasoning in Law (i) Determining the correct rule of Law (ii) Identifying, formulating, and applying rules of law. (iii) The law of libel (iv) Logic is right reasoning	AMITA DE	

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2. Business Ethics	1.Why Study Business Ethics? i)Ethical Issues in business ii) Ethical principles in business 2.Environment and Business Ethics i)Business ethics and environmental values ii)Ethics of conserving depletable resources	Dr. SUNON NANDY	
	3.Ethics in Management i)Management by Value Programmes: a qualitative appraisal ii) Ethical vision of Management : A Vedantic outline	LOPA DE	
PHI-G-SEC-B **3. Man and Environment**	**C.** Intrinsic Value of nature B.Moore's talk of 'intrinsic properties', ii) Chilsom's idea of intrinsic value, iii) Attfield on the intrinsic value of nature, iv) Callicott's idea of intrinsic value of nature, v) Rolston III on intrinsic value of nature, vi) intrinsic value and objective value **D.** Deep Ecology and its Third World Critique i)Arne Naess on Deep Ecology, ii) Ramchandra Guha's critique of Deep Ecology **E.** Eco-feminism i) Understanding nature and the feminine, ii) Dualisms in Western tradition, iii) Masculinity, humanity and nature.	Dr. SUNON NANDY	

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	A. Classical Indian Attitude to Environment i) The Upanisadic world-view, ii) Tagore's understanding of nature, iii) The post-Upanisadic view of nature B. Respect for Nature i) The attitude of respect, ii) Bio-centric outlook to nature, iii) Ethical standards and rules that follow from the attitude of respect to nature, iv) The idea of inherent worth of nature.	GOUTAM HEMBRAM	
4. Value Education	a) Meaning, Characteristics, significance and objectives of Value education b) Values in different contexts: Individual, Social, Cultural, Moral and Global and Spiritual.	AMITA DE	
	c) Meaning and Characteristics of Peace education d) Aims and Objectives of Peace Education e) Types of peace education f) Peace and Value Education in Global Perspective.	LOPA DE	

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(DEPARTMENT OF HINDI)

Teaching plan for the session 2021-22

HINDI HONOURS, SEMESTER-1

Sl. NO.	Subject and Code	Content	Name of the Teachers	Tentative date/month of the examination
1.	**Hindi Sahitya ka Itihas (Ritikal tak) HIN-A-CC-1-1-TH(TU)**	**Hindi Sahitya ka Itihas (Ritikal tak)** **Unit 1-** Aadikaal: Samanya Parichay, pramukh pravrittiyan, Siddha Sahitya, Nath Sahitya, Jain Sahitya, Raso Kavya, Laukik Sahitya. **Unit 2-** Bhaktikaal: Samanya Parichay, Pramukh pravrittiyan, Sufi Kavya, Raam kavya, Krishna kavya. **Unit 3-** Reetikaal: Samanya Parichay, Pramukh pravrittiyan, Reetibaddha, Reetisiddha evam Reetimukta kavyadhara.	V.S M.T S.J.	JANUARY
2.	**Hindi Sahitya ka Itihas (Aadhunik Kaal) HIN-A-CC-1-2-TH(TU)**	**Hindi Sahitya ka Itihas (Aadhunik Kaal)** **Unit 1-** Aadhunik Kaal (Raajneetik, Samajik, Sanskritik prishthabhoomi) Hindi Navjagran, Bhartendu Yug, Dwivedi Yug, Chhayawaad, Prayogwaad, Pragatiwaad, Nayi Kavita, Samkaleen Kavita. **Unit 2-** Hindi Gadya Ka Vikas: Swatantrata poorva hindi gadya, Swatantryottar hindi gadya.	D.P S.S	

Teaching plan for the session 2021-22

Hindi Honours, Semester-2

Sl. No.	Subject and code	Content	Name of the Teachers	Tentative date/month of the examination

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1.	Aadikaalin Evam Madhyakaalin Hindi Kavita HIN-A-CC-2-3-TH(TU)	Unit 1- Vidyapati	D.P	IGNE
		Unit 2- Kabir	S.I	
		Unit 3- Malik Muhammad Jaysi	D.P	
		Unit 4- Surdas	M.T	
		Unit 5- Tulsidas	M.T	
		Unit 6- Rahim	S.S	
		Unit 7- Meerabai	M.T	
		Unit 8- Bihari	V.S	
		Unit 9- Ghananand	V.S	
		Unit 10- Raskhan	S.S.	
2.	Aadhunik Hindi Kavita (Chhayawaad Tak) HIN-A-CC-2-4-TH(TU)	Aadhunik Hindi Kavita(Chhayawaad Tak) Unit 1- Bhartendu: Naye Zamane Ki Mukriyan(1 se 14 tak)	V.S	
		Unit 2- Ayodhya Singh Upadhyay 'Hariaudh': Ek Tinka, Karmaveer, Sarita, Khadyayot, Phool aur Kanta	V.S	
		Unit 3- Maithilisharan Gupta: Yashodhara(Mahabhinishkraman)	V.S	
		Unit 4- Ramnaresh Tripathi: Anveshan	D.P	
		Unit 5- Jayshankar Prasad: Himadri tung shring se, arun yah madhumay desh hamara, tum kanak kiran ke antral mein, uth-uth ri laghu-laghu lol leher, madhup gungunakar keh jata, le chal wahan bhulawa dekar, peshola ki pratidhwani.	M.T	
		Unit 6- Suryakant Tripathi 'Nirala': Sandhyasundari, tum aur main, adhiwas, jago fir ek baar2, gahan hai yah andhkara,	D.P	

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		sneh nirjhar beh gaya hai, Dhwani, daga ki, charkha chala, Moscow dialogues. Unit 7- Sumitranandan Pant: Pratham Rashmi, Badal, Maun nimantran, Taaj, Bharatmata, Gaa kokil barsa pawak kan, Main nahi chahta chir sukh, Dhup ka tukda, Sandhya. Unit 8- Mahadevi Verma: Dheere Dheere utar kshitij se, Virah ka jaljat jivan, kya puja kya archan re, Main neer bhari dukh ki badli, Chir sajag aankein unindi, Panth rehne do aparichit, Yah mandir ka deep ise niraw jalne do.	M.T M.T	

Teaching plan for the session 2021-22

Hindi honours, Semester-3

Sl. No.	Subject and Code	Content	Name of the Teacher	Tentative Date/month of the examination
1.	Chhayawaadottar Hindi Kavita HIN-A-CC-3-5-TH(TU)	Chhayawaadottar Hindi Kavita Unit 1- Kedarnath Agarwal: Jo jivan ki dhool chatkar bada hua hai, hamari zindagi, pehla pani, majdoor ke Janam par, os ki boond kehti hai, maat dena nahi janti. Unit 2- Nagarjuna: Badal ko ghirte dekha hai, pratibaddha hoon, akal aur uske baad, ghin to nahi aati, bahut dino ke baad, shashan ki bandook, kaalidas sach-sach batlana, tum Kishor tum tarun, manushya hoon. Unit 3- Ramdhari Singh 'Dinkar': Rashmirathi(Tritiya sarga) Unit 4- Makhanlaal Chaturvedi: Kaidi aur kokila, pushpa ki	S.J M.T M.T M.T	JANUARY

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		Abhilasha, badariya tham-thamkar jhar ri.		
		Unit 5- Sachchidananda Hiranand Vatsyayan 'Ajneya': Yah deep akela, main wahan hoon, kalgi bajre ki, katki puno, ek boond sehsa uchhali, hari ghas par chhan bhar, kitni navon mein kitni baar.	D.P	
		Unit 6- Bhawaniprasad Mishra: Geet pharosh, satpuda ke jangal, kala-1, kala-2, buni hui rassi, kathputli.	V.S	
		Unit 7- Raghuvir Sahay: Hanso hanso jaldi hanso, raamdas, padhiye geeta, duniya, rashtrageet, todo.	V.S	
		Unit 8- Sarweshwar Dayal Saxena: Prarthana 1, kath ki ghantiyan, bhookh, pathshala khula do maharaj, leek par we chalen, aatmsakshatkar, vyangya mat bolo.	S.S	
		Unit 9- Girija kumar Mathur: Itihas ki kaalhin kasauti, pandrah august, do paton ki duniya, aadmi ka anupaat, Chhaya mat chhuna, naya banne ka dard.	D.P	
2.	**BHARTIYA KAVYASHASHTRA HIN-A-CC-3-6-TH(TU)**	**BHARTIYA KAVYASHASHTRA:** **Unit 1-** Kavya lakshan, kavya hetu, kavya prayojan.	V.S	
		Unit 2- Ras Siddhant- Ras ki avdharna, ras nishpatti aur sadharnikaran.	V.S	
		Unit 3- Dhwani Siddhant: Dhwani ki awdharna, Dhwani ka vargikaran.	M.T	
		Unit 4- Alankar Siddhant: Alankaar ki awdharna, alankaar aur alankarya, alankaron ka vargikaran, alankaar Siddhant.	M.T	

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		Unit 5- Reeti Siddhant: Reeti ki awdharna, reeti evam gun, reeti ka vargikaran.	V.S	
		Unit 6- Vakrokti Siddhant: Vakrokti ki awdharna, vakrokti ka vargikaran, vakrokti aur abhivyanjanawaad.	M.T	
		Unit 7- Auchitya Siddhant: Auchitya ki awdharna.	D.P	
		Unit 8- Hindi kavyashashtra ka itihaas-samanya Parichay.	V.S	
3.	**PASHCHATYA KAVYASHASHTRA HIN-A-CC-3-7-TH(TU)**	**PASHCHATYA KAVYASHASHTRA** **Unit 1-** Plato: Kavya sambandhi manyatacn.	M.T	
		Unit 2- Arastoo: Anukriti evam virechan.	V.S	
		Unit 3- Longinus: Kavya mein uddat ki awdharna.	D.P	
		Unit 4- Wordsworth: Kavya bhasha ka Siddhant.	M.T	
		Unit 5- Colridge: Kalpana aur fantasy.	V.S	
		Unit 6- Croce: Abhivyanjanawaad.	D.P	
		Unit 7- T.S. ELIOT: Parampara aur vyaktik Pratibha, nirwayaktikta ka Siddhant.	S.S	
		Unit 8- I.A. RICHARDS: Moolya Siddhant, sampreshan Siddhant.	S.J	
		Unit 9- Nayi Samiksha	D.P	
		Unit 10- Marx waadi Samiksha.	M.T	
		Unit 11- Shastriyatawaad, swachhandatawaad, yatharthawaad, Shaili vigyan.	V.S	

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	Unit 12- Adhunikta, uttar aadhunikta evam aupniveshikta, sanrachnawaad, uttar sanrachnawaad.	D.P	

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4.	**VIGYAPAN: AWADHARNA, NIRMAN EVAM PRAYOG** **HIN-A-SEC-A-3-1-TH**	**VIGYAPAN: AWDHARNA, NIRMAN EVAM PRAYOG** **Unit 1-** Vigyapan: Awdharna, uddeshya evam mahatva.	S.S	
		Unit 2- Vichardharayen, nactik prashna aur samajik sandarbha.	S.J	
		Unit 3- Vigyapan aur vipanan ka sandarbha, samajik vipanan aur vigyapan.	S.S	
		Unit 4- Upbhokta vargikaran aur vigyapan abhiyan mein madhyam yojna ki Bhoomika.	S.J	
		Unit 5- Vigyapan aur madhyam bhed: Mudrit, Drishya, shravaya evam Drishya-shravaya madhyam.	S.S	
		Unit 6- Vigyapan Srijan	V.S	
		Unit 7- Vigyapan bhasha ki vishishtataen	D.P	
	HIN-A-SEC-A-3-1-TH	**SAHITYA AUR HINDI CINEMA** **Unit 1-** Cinema aur samaj	D.P	
		Unit 2- Manoranjan madhyamon ka jantantrikaran aur cinema, cinema aur samaj, cinema ki samajik Bhoomika.	S.S	
		Unit 3- Cinema ka takniki paksha: Film nirman ki prakriya	S.J	
		Unit 4- Hindi cinema ka sankshipta itihas	S.S	
		Unit 5- Sahitya aur cinema	S.J	
		Unit 6- Film Samiksha	S.S	

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				JUNE
1.	BHASHA VIGYAN EVAM HINDI BHASHA HIN-A-CC-4-8-TH(TU)	BHASHA VIGYAN EVAM HINDI BHASHA **Unit 1-** Bhasha: Paribhasha, Visheshtayein, Bhasha Parivartan ke karan, Bhasha aur Boli.	M.T.	
		Unit 2- Bhasha vigyan: Paribhasha, Anga, Bhasha vigyan ka gyan ki anya shakhaon se sambandh.	D.P.	
		Unit 3- Swanim vigyan: Paribhasha, Swana, Vageendriyaan, wanon ka vargeekaran – sthana aur prayatna ke adhar par. Swana Parivartan ke karan.	V.S.	
		Unit 4- Roopim Vigyan – Shabda aur roop (pada), Pada Vibhaga – naam, aakhyaat, upsarga, nipaat.	V.S.	
		Unit 5- vakya vigyan- Vakya ki paribhasha, vakya ke anivarya tatva, Vakya ke prakaar, Vkaya Parivartan ke karan.	D.P.	
		Unit 6- Arth Vigyan – Shabda aur arth ka sambandh, arth Parivartan ke karan aur dishayein.	M.T.	
		Unit 7- Apabhamsha, Rajasthani, Avadhi, Braj tha Khadi boli ki samanya visheshtayein.	V.S.	
		Unit 8- Rashtrabhasha, Rajbhasha, evam Sampark bhasha ke roop mein Hindi.	M.T.	
		Unit 9- Devanagri lipi ki visheshtayein evam sudhar ke prayas.	D.P.	
2.	HINDI UPANYAS HIN-A-CC-4-9-TH(TU)	HINDI UPANYAS **Unit 1-** Gaban – Premchand	S.S.	

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		Unit 2- Tyagapatra – Jaynendra Kumar. **Unit 3-** Mriganayani – Vrindavan Lal Verma. **Unit 4-** Manas ka hans – Amritalal Nagar. **Unit 5-** Mahabhoj – Mannu Bhandari	S.J.	
3.	**HINDI KAHANI HIN-A-CC-4-10-TH(TU)**	**HINDI KAHANI** **Unit 1-** Usne Kaha Tha – Chandradar sharma Guleri **Unit 2-** Poos ki Raat – Premchand **Unit 3-** Akhashdeep – Jayshankar Prasad. **Unit 4-** Haar ki Jeet – Sudarshan. **Unit 5-** Paajeb – Jaynendra **Unit 6-** Teesri Kasam – Phaneeshwar Nath Renu. **Unit 7-** Misspal – Mohan Rakesh. **Unit 8-** Parindey – Nirmal Verma. **Unit 9-** Dopahar ka Bhojan – Amarkant. **Unit 10-** Sikka Badal Gaya – Krishna Sobti. **Unit 11-** Pita – Jnanaranjan	M.T. M.T. M.T. M.T. M.T. M.T. M.T. M.T. V.S. V.S. V.S.	
4.	**A. ANUVAAD SIDDHANTA AUR PRAVIDHI HIN-A-SEC-B-4-2-TH**	**ANUVAAD SIDDHANTA AUR PRAVIDHI** **Unit 1-** Anuvaad ka arth, Swaroop evam prakriti. Anuvaad karya ki avashyakta evam mahatva.	D.P.	

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		Unit 2- Bahubhashi samaj mein Parivartan tatha Bandhik, samskritik aadaan-pradaan mein anuvaad karya ki Bhumika. **Unit 3-** Anuvaad ke prakarya, shabdik anuvaad, Bhavanuvaad, Chhayanuvaad evam Saranuvaad. **Unit 4-** Anuvaad prakriya ke teen Charan, Vishleshan, Anataran evam punargthan. **Unit 5-** Sarjanatmak sahitya ke anuvaad kin apekshayein. Sarjnatmak sahitya ke anuvaad aur takniki anuvaad mein antar. Do anudit krityon ka samikshatmak Adhyayan. 1. Gitaanjali ka Hindi anuvaad – Hans Kumar Tiwari 2. Acharya Ramchandra Shukla dwara Hindi mein mein kiya gaya bhavanuvaad. **Unit 6-** Vishwaprapancha ki Bhumika. **Unit7-** Karyalayeen anuvaad, Shashakeeya patra, ardh-shashakeeya patra, paripatra, karyalaya Aadesh, adhisuchna, nivida, vigyapan. **Unit 8-** Paribhashik shabdavali ke nirman ke siddhanta, karyalaya prashashan vidhi, nanviki, bank evam railway mein prayukt hone wale pramukh paribhashik shabdawali.	V.S.	
	B. DRISHYA-SHRAVYA MADHYAM LEKHAN	**DRISHYA-SHRAVYA MADHYAM LEKHAN** **Unit 1-** Madhyamopayogi Lekhan ka Swaroop aur pramukh prakar, Electronic	D.P.	

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		madhyamon mein Bhasha prayoga: lekhan sampadan aur prasaran ka sandarbh. Radio, Television, cinema evam video ka vyakarana evam bhashik vaishishtya. **Unit 2-** Bhasha prayog: Parichay, sangeet, sanlaap evam ekalaap, pratyaksh evam apratyaksh kathan, sahprayoga. Shravya aur Bhasha ki prakriti, Dhwani prabhav, Manak Uchcharan, Samachar Pathan. **Unit 3-** Drishya-shravya madhyamon mein bhasha ki prakriti, Drishya bhasha, Drishya aur Shravya samagri ka samanjasya tatha bhashik sanyojan. **Unit 4-** Radio lekhan, Radio patrika, Feature, Varta, Sakshatkaar aur paricharcha, Samachar lekhan, Radio natak aur Rupak ke liye samvaad lekhan, Radio vijnapan. **Unit 5-** Television lekhan, Samachar, Charcha paricharcha, sakshatakaar aur sidhe prasaran ki bhashik sanrachna aur prastuti. **Unit 6-** Cinema – Sujata, Satranja ke Khiladi jaisi filmon ke bahane Hindi Cinema ki samvedna aur bhasha par vichar. Film Samiksha lekhan.	V.S.	

Teaching plan for the session 2021-22

Hindi honours, Semester-5

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SL. No.	Subject and code	Content	Name of the Teachers	Tentative dates
1.	**HINDI NATAK EVAM EKANKI HIN-A-CC-5-11-TH(TU)**	**HINDI NATAK EVAM EKANKI** **NATAK** **Unit1-** Andher Nagri: Bhartendu Harishchandra **Unit 2-** Skandagupta: Jayshankar Prasad **Unit 3-** Aashad ka ek din: Mohan Rakesh Unit 4- Madhavi: Bhishma Sahani **EKANKI** **Unit 1-** Aurangzeb ki akhri raat: Ramkumar Verma **Unit 2-** Vishkanya: Govind Vallabh Pant **Unit 3-** Aur wah jaa na saki: Vishnu Prabhakar **Unit 4-** Bhor ka tara: Jagdishchandra Mathur	 V.S M.T D.P S.J S.S S.J D.P V.S	JANUARY
2.	**HINDI NIBANDH EVAM ANYA GADYA VIDHAYEN HIN-A-CC-5-12-TH(TU)**	**HINDI NIBANDH EVAM ANYA GADYA VIDHAYEN** **Unit 1-** Sardar Poorna Singh-Majdoori aur prem **Unit 2-** Ramchandra Shukla- Karuna **Unit 3-** Hazariprasad Dwivedi- Devdaaru **Unit 4-** Vidyaniwas Mishra- Mere Raam ka mukut bheeg raha hai	S.J M.T M.T M.T D.P	

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		Unit 5- Nirpujan Sahay- Mahakavi Jayshankar Prasad **Unit 6-** Ramvriksha Benipuri- Raziya **Unit 7-** Dr. Nagendra- Dada swargiya Balkrishna Sharma 'Naveen' **Unit 8-** Mukhanlal Chaturvedi- Tumhari smriti **Unit 9-** Vishnukant Shastri- Ye hain Professor Shashank	V.S S.S V.S	
3.	**A. LOKSAHITYA** **HIN-A-DSE-A(1)-5-TH(TU)**	**LOKSAHITYA** **Unit 1-** Lok aur lokvarta, lok sanskriti ki awdharna, lok varta aur lok sanskriti. **Unit 2-** lok sanskriti aur sahitya, sahitya aur lok ka antah sambandh, lok sahitya ke adhdhyan ki samasyaen. **Unit 3-** Bharat mein lok sahitya ke adhdhyan ka itihas, lok sahitya ke pramukh roopon ka vargikaran. **Unit 4-** lokgeet: sanskargeet, vratgeet, shramgeet, hritugeet, jaatigeet. **Unit 5-** Loknatya: Raamleela, Rasleela, kirtaniyan, Swang, videshiya, bhaand, tamasha, nautanki. **Unit 6-** Lokkatha: Vratkatha, Purikatha, Naag-katha, katha rudhiyan aur andhvishwas.	D.P V.S S.S S.J M.T S.S D.P	

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		Unit 7- Lokbhasha: Loksambhasit anubhavaen, kahavaten, lokoktiyan, paheliyan.	S.S M.T	
	B. RASHTRIYA KAVYADHARA	**Unit 8-** Lokcitya evam loksangeet.	D.P V.S	
		RASHTRIYA KAVYADHARA **Unit 1-** Maithilisharan Gupta	S.S S.J	
		Unit 2- Makhanlaal Chaturvedi		
		Unit 3- Sohanlaal Dwivedi		
		Unit 4- Balkrishna Sharma 'Naveen'		
		Unit 5- Ramdhari Singh 'Dinkar'		
4.	**A. ASMITAMOOLAK VIMARSH AUR HINDI SAHITYA** **HIN-A-DSE-B(1)-5-TH(TU)**	**ASMITAMOOLAK VIMARSH AUR HINDI SAHITYA**		
		Unit 1- Vimarshon ki saedhantiki A. Dalit vimarsh B. Stree vimarsh C. Aadiwasi vimarsh	V.S V.S	
		Unit 2- Vimarshmoolak katha sahitya: A. Omprakash Valmiki- Salaam B. Jayprakash Kardam- Naobaar C. Hariram Meena- Dhooni tapeteer D. Mohandas naemishray- Muktiparwa E. Sumitra kumari Sinha- Vaektitva ki bhookh F. Nasira Sharma- Khuda ki vapsi	D.P	

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		Unit 3- Vimarshmoolak Kavita: A. Dalit Kavita- Dalit kahn tak pahc rahenge, kitni vyatha, dalit vimarsh, sonwa ka pinjara B. Stree Kavita: Kiti Chaudhri- seemarekha Katyayini- saat bhaeyon ke beech champa Savita singh-Main kiski aurat hoon	D.P	
		Unit 4- Vimarshmoolak anya gadya vidhaen A. Prabha Khetan- Anya se ananya B. Tulsiram- Murdahiya C. Mahadevi Verma- Streek e arth swatantrya ka prashna D. Dr. Dharmaveer- Abhishapta chintan se itihas chintan ki or	M.T	
	B. CHHAYAWAAD	**Unit 1-** Jayshankar Prasad **Unit 2-** Suryakant Tripathi 'Nirala' **Unit 3-** Sumitranandan Pant **Unit 4-** Mahadevi Verma		

Teaching plan for the session 2021-22

Hindi honours, Semester-6

Sl. No.	Subject and code	Content	Name of the Teachers	Tentative dates
1.	HINDI KI SAHITYIK PATRAKARITA	HINDI KI SAHITYIK PATRAKARITA	D.P	JUNE

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	HIN-A-CC-6-13-TH(TU)	**Unit 1-** Sahityik Patrakarita: Artha, swdharma aur mahatwa. **Unit 2-** Bhartendu yugeen sahityik patrakarita: Parichay aur pravrittiyan **Unit 3-** Dwivedi yugeen sahityik patrakarita: Parichay aur pravrittiyan. **Unit 4-** Premchand aur chhayawaad yugeen sahityik patrakarita: Parichay aur pravrittiyan. **Unit 5-** Swatantrayottar sahityik patrakarita: Parichay aur pravrittiyan. **Unit 6-** Samkaleen sahityik patrakarita: Parichay aur pravrittiyan. **Unit 7-** Sahityik patrakarita mein anuwaad ki Bhumika. **Unit 8-** Mahatwapoorna patra- Patrikayen: Banaras akhbar, Bharat mitra, Hindi Pradip, Hindosthan, Swadesh, Karmaveer, Vishal bharat tatha Jansatta.		
2.	**PRAYOJANMOOLAK HINDI** **HIN-A-CC-6-14-TH(TU)**	**PRAYOJANMOOLAK HINDI** **Unit 1-** Matribhasha evam anya bhasha ke roop mein Hindi,sampark bhasha, rajbhasha ke roop mein Hindi. **Unit 2-** Bolchaal ki samanya Hindi, manak Hindi, sahityik hindi, sanvidhan mein hindi. **Unit 3-** Hindi ki shaeliyan: Hindi,Urdu aur Hindustani. **Unit 4-** Hindi bhasha ka udbhav aur vikas.	V.S	

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	Unit 5- Hindi ka mankikaran. **Unit 6-** Hindi ke prayog kshetra: Bhasha prayukti ki sankalpana, varta-prakaraur shaeli. **Unit 7-** Vaegyanik Hindi aur uske pramukh lakshan, vyavasayik Hindi aur uske lakshan. **Unit 8-** Sanchar madhyam ki hindi aur uske pramukh lakshan. **Unit 9-** Bhasha vyavahaar: Sarkaari patrachar, tippani tatha masauda-lekhan,Sarkari athwa vyavasayik patra-lekhan. **Unit 10-** Hindi mein paribhashik shabda nirman prakriya evam prastuti.		
A. PRAVASI SAHITYA **HIN-A-DSE-A(2)-6-TH(TU)**	**PRAVASI SAHITYA** **Unit 1-** Upanyas A. Abhimanyu Anat- Laal pasina B. Susham Bedi- Lautna C. Neena Paul- Kuch gaanw gaanw kuch sheher sheher D. Divya Mathur- Sham bhar baatein **Unit 2-** Kahaniyan A. Tejendra Sharma- Kokh ka kiraya B. Jakiya Juberi- Sankal C. Jay Verma- Gulmohar D. Sudha Om Dhingra- Kaun si zameen apni E. Usha Raje Saxena- Antopreneur F. Poornima Barman- Yo hi chalte huye G. Anil Prabha kumar- Bemausam ki barf	D.P	

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	B. TULSIDAAS	**TULSIDAAS** **Unit 1-** Ramcharitmanas: Ayodhyakaand (Doha 67 se 185 tak) **Unit 2-** Kavitawali (uttar kand 30 chhand) **Unit 3-** Geetawali (baalkanda 20 pad) **Unit 4-** Vinay patrika(40 pad)	M.T.	
4.	**A. HINDI SANT KAVYA** **HIN-A-DSE-B(2)-6-TH(TU)**	**HINDI SANT KAVYA** **Unit 1-** Naamdev **Unit 2-** Kabirdas **Unit 3-** Raedas **Unit 4-** Jambhnath **Unit 5-** Dadudayal **Unit 6-** Sundardas **Unit 7-** Paltudas **Unit 8-** Gulaal Sahab	S.J	
	B. PREMCHAND	**PREMCHAND** **Unit 1-** Upanyas– Sevasadan **Unit 2-** Natak- Karbala **Unit 3-** Nibandh- Sahitya ka uddeshya **Unit 4-** Kahaniyan- Poos ki raat, Shatranj ke Khiladi, Panchparmeshwar, Idgaah, Dobaelon ki katha.	S.S.	

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