ANANDA CHANDRA COLLEGE

Lesson Plan
Semester – III

Subject – BOTANY (Hons.)
Title – CC-VII: Genetics

Paper – CC-VII (THEORY)
Teacher – **KRISHNENDU MAJHI**

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Mendelian genetics and its extension	Mendelism: History	1
	Principles of inheritance	1
	Chromosome theory of inheritance	2
	Autosomes and sex chromosomes	1
	Probability and pedigree analysis	2
	Incomplete dominance and codominance; Multiple alleles, Lethal alleles	2
	Epistasis	4
	Pleiotropy	1
	Recessive and Dominant traits	1
	Penetrance and Expressivity	2
	Numericals; Polygenic inheritance	2
Unit 2: Extrachromosomal Inheritance	Chloroplast mutation	2
	Variegation in Four o'clock plant	1
	Mitochondrial mutations in yeast	1
	Maternal effects-shell coiling in snail	1
	Infective heredity- Kappa particles in Paramecium	2
Unit 4: Variation in chromosome number and structure	Deletion	1
	Duplication	2
	Inversion	2
	Translocation	1
	Position effect	1
	Euploidy and Aneuploidy	3

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Lesson Plan
Semester – V

Subject – BOTANY (Hons.) Paper – CC-XI (THEORY)
Title – CC-XI: Reproductive Biology of Angiosperms Teacher – KRISHNENDU MAJHI

Chapter	Lecture Topics	Required Number of Lectures
Unit 4: Pollination and fertilization	Pollination types and significance; adaptations	3
	Structure of stigma and style	3
	Path of pollen tube in pistil	2
	Double fertilization	2
Unit 5: Self incompatibility	Basic concepts (interspecific, intraspecific	1
	Homomorphic, heteromorphic	1
	GSI and SSI	2
	Methods to overcome selfincompatibility	1
	Mixed pollination, bud pollination, stub pollination	3
	Intra-ovarian and in vitro pollination	2
	Modification of stigma surface	1
	Parasexual hybridization	1
	Cybrids, in vitro fertilization	1
Unit 6: Embryo, Endosperm and Seed	Structure and types	1
	General pattern of development of dicot and monocot embryo and endosperm	4
	Suspensor: structure and functions	2
	Embryo-endosperm relationship	2
	Nutrition of embryo	2
	Unusual features; Embryo development in Paeonia. Seed structure, importance and dispersal mechanisms	3
Units 7: Polyembryony and apomixis	Introduction	2
	Classification	2
	Causes and applications	2

Lesson Plan
Semester – V

Subject – BOTANY (Hons.) Paper – DSE-3 (THEORY)
Title – DSE3: Industrial and Environmental Microbiology Teacher – KRISHNENDU MAJHI

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Scope of microbes in industry and environment (6 lectures)	Scope of microbes in industry and environment	6
Unit 5: Microbes and quality of environment Unit 6: Microbial flora of water	Distribution of microbes in air	2
	Isolation of microorganisms from soil, air and water	6
	Water pollution	1
	Role of microbes in sewage and domestic waste water treatment systems	4
	Determination of BOD, COD, TDS and TOC of water samples	4
	Microorganisms as indicators of water quality	1
	Check coliform and fecal coliform in water samples	1
Unit 7: Microbes in agriculture and remediation of contaminated soils	Biological fixation	3
	Mycorrhizae	2
	Bioremediation of contaminated soils	2
	Isolation of root nodulating bacteria	1
	Arbuscular mycorrhizal colonization in plant roots	2

Lesson Plan
Semester – V

Subject – BOTANY (Program) Paper – DSE-1 (THEORY)
Title – DSE1: Industrial and Environmental Microbiology Teacher – KRISHNENDU MAJHI

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Scope of microbes in industry and environment (6 lectures)	Scope of microbes in industry and environment	6
Unit 5: Microbes and quality of environment Unit 6: Microbial flora of water	Distribution of microbes in air	2
	Isolation of microorganisms from soil, air and water	6
	Water pollution	1
	Role of microbes in sewage and domestic waste water treatment systems	4
	Determination of BOD, COD, TDS and TOC of water samples	4
	Microorganisms as indicators of water quality	1
	Check coliform and fecal coliform in water samples	1
Unit 7: Microbes in agriculture and remediation of contaminated soils	Biological fixation	3
	Mycorrhizae	2
	Bioremediation of contaminated soils	2
	Isolation of root nodulating bacteria	1
	Arbuscular mycorrhizal colonization in plant roots	2

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Lesson Plan

Submitted by: Ershad Ali
Department of Geography

Lesson Plan

Semester – 1st Semester (Honours)

Subject – Geography **Paper – GEO-H-DSC-1-02- PR**
Title – Geomorphology **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Identification of Rocks and Minerals	Identification of rocks and minerals: granite, basalt, limestone, shale, sandstone, phyllite, slate, marble, schist, quartzite, bauxite, calcite, chalcopyrite, feldspar, galena, haematite, magnetite, mica, quartz and talc	5

Lesson Plan

Semester – 1st Semester (Programme)

Subject – Geography **Paper – GEO-P-CC-1-01-PR**
Title – Physical Geography **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Construction of Scale	Plain (linear and comparative)	3
	Diagonal	2
	Vernier scale	2

Lesson Plan

Semester – 3rd Semester (Honours)

Subject – Geography **Paper – GEO-H-DSC-3-05-PR**
Title – Climatology **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Meteorological Instruments	Recording of Maximum and Minimum thermometer	2
	Hygrometer	2
	Fortin’s barometer	2

Lesson Plan

Semester – 3rd Semester (Honours)

Subject – Geography **Paper – GEO-SEC-A-3-01-TH**

Title – Remote Sensing **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Remote Sensing	Remote Sensing: Definition and development	2
	Remote Sensing: platforms and types	2
	Remote Sensing: photogrammetry	2
	Satellite Remote Sensing: Principles	2
	EMR Interaction with atmosphere and earth surface	2
	Satellites (Landsat and IRS)	4
	Sensors	2
	Visual Satellite Image Interpretation	2
	Application of Remote Sensing in Land use/Land cover mapping	2

Lesson Plan

Semester – 5th Semester (Honours)

Subject – Geography **Paper – GEO-H-CC-5-12-TH & GEO-H-CC-5-12-PR**

Title – Remote Sensing & GIS **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Remote Sensing and GIS	Remote Sensing and GIS: Definition and components	2
	Remote Sensing and GIS: development, platforms and types	2
	Aerial Photography and Satellite Remote Sensing: principles, types	4
	Geometry of aerial photograph	2
	Principles of remote sensing	2
	EMR interaction with atmosphere and earth surface	2
	Satellites (Landsat and IRS)	2
	Sensors	2
	GIS Data Structures: Types (spatial and non-spatial),	3

	Raster and Vector data structure	2
	Interpretation and application of Remote Sensing and GIS: Land use/Land Cover	2
	Urban sprawl analysis	2
	Forests monitoring	2
Remote Sensing and GIS (Practical)	Image Processing, Classification (supervised & unsupervised)	6
	Geo-referencing	4
	Editing and Output, Overlays	5

Lesson Plan

Semester – 5th Semester (Generic Elective)

Subject – Geography **Paper – GEO-GE-01-TH**

Title – Physical Geography **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Physical Geography	Rocks: Major types of rocks and their characteristics	3
	Geomorphic processes: Weathering and mass wasting	3
	Geomorphology: Erosional and depositional features of river, glacier and wind	4

Lesson Plan

Semester – 5th Semester (Programme)

Subject – Geography **Paper – GEO-P-DSE-5-01-TH**

Title – Disaster Management **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Physical Geography	Disasters in India: (a) flood: causes, impact, distribution and mapping	2
	Landslide: causes, impact, distribution and mapping	2
	Drought: causes, impact, distribution and mapping	2
	Disasters in India: (b) earthquake and tsunami: causes, impact, distribution and mapping;	2
	Cyclone: causes, impact, distribution and mapping	2

Lesson Plan

Submitted by: Ershad Ali
Department of Geography

Lesson Plan

Semester – 1st Semester (Honours)

Subject – Geography **Paper – GEO-H-DSC-1-02- PR**
Title – Geomorphology **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Identification of Rocks and Minerals	Identification of rocks and minerals: granite, basalt, limestone, shale, sandstone, phyllite, slate, marble, schist, quartzite, bauxite, calcite, chalcopyrite, feldspar, galena, haematite, magnetite, mica, quartz and talc	5

Lesson Plan

Semester – 1st Semester (Programme)

Subject – Geography **Paper – GEO-P-CC-1-01-PR**
Title – Physical Geography **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Construction of Scale	Plain (linear and comparative)	3
	Diagonal	2
	Vernier scale	2

Lesson Plan

Semester – 3rd Semester (Honours)

Subject – Geography **Paper – GEO-H-DSC-3-05-PR**
Title – Climatology **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Meteorological Instruments	Recording of Maximum and Minimum thermometer	2
	Hygrometer	2
	Fortin’s barometer	2

Lesson Plan

Semester – 3rd Semester (Honours)

Subject – Geography **Paper – GEO-SEC-A-3-01-TH**

Title – Remote Sensing **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Remote Sensing	Remote Sensing: Definition and development	2
	Remote Sensing: platforms and types	2
	Remote Sensing: photogrammetry	2
	Satellite Remote Sensing: Principles	2
	EMR Interaction with atmosphere and earth surface	2
	Satellites (Landsat and IRS)	4
	Sensors	2
	Visual Satellite Image Interpretation	2
	Application of Remote Sensing in Land use/Land cover mapping	2

Lesson Plan

Semester – 5th Semester (Honours)

Subject – Geography **Paper – GEO-H-CC-5-12-TH & GEO-H-CC-5-12-PR**

Title – Remote Sensing & GIS **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Remote Sensing and GIS	Remote Sensing and GIS: Definition and components	2
	Remote Sensing and GIS: development, platforms and types	2
	Aerial Photography and Satellite Remote Sensing: principles, types	4
	Geometry of aerial photograph	2
	Principles of remote sensing	2
	EMR interaction with atmosphere and earth surface	2
	Satellites (Landsat and IRS)	2
	Sensors	2
	GIS Data Structures: Types (spatial and non-spatial),	3

	Raster and Vector data structure	2
	Interpretation and application of Remote Sensing and GIS: Land use/Land Cover	2
	Urban sprawl analysis	2
	Forests monitoring	2
Remote Sensing and GIS (Practical)	Image Processing, Classification (supervised & unsupervised)	6
	Geo-referencing	4
	Editing and Output, Overlays	5

Lesson Plan

Semester – 5th Semester (Generic Elective)

Subject – Geography **Paper – GEO-GE-01-TH**

Title – Physical Geography **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Physical Geography	Rocks: Major types of rocks and their characteristics	3
	Geomorphic processes: Weathering and mass wasting	3
	Geomorphology: Erosional and depositional features of river, glacier and wind	4

Lesson Plan

Semester – 5th Semester (Programme)

Subject – Geography **Paper – GEO-P-DSE-5-01-TH**

Title – Disaster Management **Teacher – Ershad Ali**

Chapter	Lecture Topics	Required Number of Lectures
Physical Geography	Disasters in India: (a) flood: causes, impact, distribution and mapping	2
	Landslide: causes, impact, distribution and mapping	2
	Drought: causes, impact, distribution and mapping	2
	Disasters in India: (b) earthquake and tsunami: causes, impact, distribution and mapping;	2
	Cyclone: causes, impact, distribution and mapping	2

Lesson Plan

Semester – 1

Subject – English
Paper – Discipline Specific Core
Title – Individual & Society
Teacher – Arkabrata Chaudhury

Chapter	Lecture Topics	Required Number of Lectures
Gender	Introduction to Gender Studies and Feminisms	2
	Virginia Woolf: 'Shakespeare's Sister'	6
	Rabindranath Tagore: 'The Exercise Book'	6
Violence and War	Introduction to Literature on War	1
	Brechtian Social Outlook	2
	Bertolt Brecht: 'General, Your tank is a Powerful Vehicle'	3

Lesson Plan

Semester – 3

Subject – English
Paper –LANGUAGE CORE COURSE1 [LCC1]: ALTERNATIVE ENGLISH
Title – PAPER 2: Literary Perceptions
Teacher – Arkabrata Chaudhury

Chapter	Lecture Topics	Required Number of Lectures
J. M. Synge's *Riders to the Sea*	Reading and Analysis of the primary text	3
	Discussions on the major themes	2
Fitzgerald's *The Great Gatsby*	Reading and Analysis of the primary text	3
	Discussions on the major themes	2
R. K. Narayan's *The Man-Eater of Malgudi*	Reading and Analysis of the primary text	3
	Discussions on the major themes	2
Mahesh Dattani's *Tara*	Reading and Analysis of the primary text	3
	Discussions on the major themes	2

Lesson Plan

Semester – 5

Subject – English
Paper – DSE
Title –TOPIC A: Literary Theory & Criticism
Teacher – Arkabrata Chaudhury

Chapter	Lecture Topics	Required Number of Lectures
Edward Said, 'The Scope of Orientalism' in Orientalism	Introduction to Postcolonial Theory	4
	Edward Said's *Orientalism*	2
	Reading and Analysis of the primary text	6
Aijaz Ahmad, " 'Indian Literature': Notes towards the Definition of a Category"	Introduction to the concept of Indian Literature	2
	Indian Postcolonial thinkers	2
	Reading and Analysis of the primary text	6

Lesson Plan

Semester – 5

Subject – English
Paper – GE
Title – Paper 1: Selections from Indian Literature
Teacher – Arkabrata Chaudhury

Chapter	Lecture Topics	Required Number of Lectures
Poems by Rabindranath Tagore	"The Golden Boat"	2
	"The Conch"	2
	"The Arrival"	2
Mulk Raj Anand's *Coolie*	Introduction to Indian English Novel	2
	Reading and Analysis of the primary text	6
	Discussions on the major themes	2
Vijay Tendulkar's *Silence!The Court is in Session*	Introduction to the Dramatic mode and Performance	1
	Reading and Analysis of the primary text	3

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Lesson Plan

Semester – 5 th

Subject –English (DSE)

Paper – DSE2

Title – literary theory and criticism.

Teacher – Astomi Roy

Chapter	Lecture Topics	Required Number of Lectures
Feminism.	Elaine Showalter, an influential feminist critic (biographical sketches), The term feminism (definition, the reason behind why a girl or woman become feminist according to Showalter).	3
	The situation of women novelist and writers (1845-1880, criticism of women writers in Victorian periodicals) in the literary canon.Feminist movement.	5
	Feminist waves.	2
"A literature of their own: British women novelists from Bronte to Lessing ".	Introduction of the text.	3
	Text. (discussion about the women novelists, their writings.	4
	Summary and critical analysis of the text chapterwise.Assignment.	4

Subject - English (DSC) Semester - 3 rd Paper -DSC 3

Title - British literature

Chapters	Lecture Topics	Required Number of Lectures
"Oliver Twist"(Chapter,1-30)	19 th century Victorian period (structure of the society in Britain), the miserable condition of the poor people. The novelist Charles Dickens(biographical sketches) and the subject and themes of	4

	his writings.	
	1834, the poor law.Life in workhouse. The characteristics of the main protagonist, an orphan boy, Oliver.	2
	Major and minor characters in the novel and their role. Chapterwise summary, analysis and discussion. The major themes of the novel.	3
'Oliver Twist "(chapter, 31-54)	Chapterwise summary, analysis and discussion.	6
	The critical analysis of the novel as a whole.	5
	Revision, discussion of broad and short type questions..	1

Subject - English (SEC) Semester - 5 th paper- SEC2

Title - Text Comprehension and editing.

Chapters	Lecture topics	Required number of lectures.
Comprehension text, and editing, proofreading.	Definition of comprehension, How to attempt questions answer from a comprehension text. Different types of comprehension text extract from either poem or prose. Types of questions asked from comprehension text. Assignment for practice.	4
	What is text editing. How to edit a text (discussion of rules). The importance of text editing in the field	5

	of journalism, writings,	
	Proofreading (what does it mean)Things keep in mind while doing proofreading.	5
Summary Writing.	What is summary writing. How to write summary out of a text. Rules to follow.	4
	Revision.	2
	Assignment.	1

Subject - English (DSC 1) semester - 1St paper -DSC 1

Title - Individual & society

Chapters	Topics of Lecture	Required number of lectures
"Joothan" and "Kallu"	Caste and Class depicted by Omprakash Valmiki (Dalit literature).	3
	"Joothan"(" a dalit's life", depiction)introduction, summary, the text, characters analysis, Descirimination, major thematic concern and so on..	5
	"Kallu", Ismat Chughtai (biographical sketches)the transition of a young man household servant to an eligible bachelor,major themes, summary, characters (major and minor)role and analysis.Discussion about broad and short type questions, Assignment.	5
"Ghosts of Mrs. Gandhi"	Biographical sketches of the author, analysis of his works. Introduction of the story, 1984,the Sikh	2

	massacre.	
	Summary, thematic concern of the story, analysis of yhe characters, critical analysis of the story. Questions & answer discussion. Assignment.	5
	Revision	1

Astomi Roy (dept. of English)

LESSON PLAN

DEPARTMENT OF ECONOMICS

A.C.COLLEGE

SEMESTER –I

Paper- DSC 101

Title- Introductory Microeconomics

Teacher – Dr. Sudip Chakraborty

Chapter	Lecture Topics	Required Number of Lectures (72)
1. Exploring the Subject Matter of Economics (15)	Scope and method of economics	03
	economic problem: scarcity and choice	04
	opportunity cost and decision making, prices	03
	Decision takers: Households, firms and Central authorities, Alternative to price system.	05
2. Demand and Supply: Elasticity and Market (13)	Determinants of individual demand and supply, Law of demand and Law of supply	03
	market versus individual demand and supply	02
	Market equilibrium: static & dynamic, Existence, Uniqueness and Stability of equilibrium	03
	The concept of elasticity of demand, point and arc elasticity, cross price elasticity and income elasticity of demand, elasticity of supply Consumer Surplus and Producer Surplus.	05
3. Consumer and House-holds Behaviour (22)	Cardinal utility theory: Law of diminishing Marginal	03
	Marshallian demand curve. Ordinal utility theory	03
	Indifference curves and their properties,	06

	budget line, consumer‘s equilibrium. Income Consumption Curve, price consumption curve	
	Price consumption curve and Engel’s curve. Demand elasticity and classification of commodities	06
	Income and Substitution effect. Indirect utility function, compensated demand curve and Revealed Preference Theory	04
4. Producer/Firm Behaviour (10)	The concepts of Total Revenue, Marginal Revenue and Average Revenue,Production function, law of variable proportion, fixed co-efficient production function	06
	Returns to scale, iso-quant and its properties, iso-cost line. Marginal rate of technical substitution, equilibrium of the producer, constrained output maximization and constrained cost minimization	02
	Expansion path, elasticity of substitution, some examples of technology (fixed proportion, perfect substitute, Cobb-Douglas and CES production function) homogeneous and homothetic production function and their properties.	02
5. Total Cost (12)	Fixed and Variable Cost, Average and Marginal Costs	04
	short-run cost, long-run cost	04
	Economies and Diseconomies of Scale.	04

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Paper – DSC 102

Title – Mathematical Methods for Economics-I

Teacher – Dr. Tapan Kumar Ghosh

Chapter	Lecture Topics	Required Number of Lectures (72)
1. Theory of Sets (08)	Sets, Set Notations, Set Operations, Convex Sets and their Properties, Relations, Functions and their Properties, the Number System.	08
2. Matrices and Determinants (12)	Vectors and Matrices, Matrix operations, Determinants, Inverse Matrix	04
	Solution of a system of linear equations, Bordered Hessian Determinant and Cramer's rule	04
	Applications in Economics: Comparative Static Analysis and Derivation of Slutsky Equation.	04
3. Basic Calculus and Applications in Economics (40)	Differential Calculus: Derivative of a Function, Rules of Differentiation, Partial and Total Differentiation, Euler's Theorem	02
	Differential Calculus: Applications in Economics- Demand Function, Elasticity of Demand, Marginal Revenue, Marginal Utility, Marginal Cost, Slope and Curvature of Indifference Curve	08
	Differential Calculus: Applications in Economics- Point of Inflexion, Returns to Scale, Homogeneous Functions and their Properties, Cobb-Douglas Production Function and their Properties.	08
	Integral Calculus: Concept of Integration, Rules of Integration, Definite and Indefinite Integral.	02
	Integral Calculus: Applications in	05

	Economics- Finding out Total Revenue Functions, Total Cost Function, Consumption Function and Saving Function when Marginal Functions are given. Consumer's Surplus and Producer's Surplus.	
	Maxima and Minima: Extreme Values of Bi-variate Functions, Sufficient Condition for Extreme Values, First and Second Order Conditions for Optimization without Constraints.	02
	Maxima and Minima: Constraints Optimization Problems in Economics- Lagrange Multiplier Method, Utility Maximization subject to Budget Constraint, Output Maximization subject to Cost Constraint, Cost Minimization subject to an Output Constraints	08
	Relation between AP and MP, Relation between AC and MC, Expansion Path, Derivation of Ordinary and Compensated Demand Curve.	05
4. Input-Output Analysis (12)	Meaning of Input-Output Analysis, Features, Assumptions, the Technological Coefficient Matrix	03
	Leontief's Input-Output Model, Closed and Open Input-Output Model, Input-Output Table,	05
	Determination of Gross Outputs, Hawkins-Simon Conditions, Role of Labour Supply Constraints and Consumption Possibility Locus.	04

SEMESTER –III

Paper – DSC 305

Title – Intermediate Microeconomics-I

Teacher – Dr. Tonmoy Chatterjee and Dr. Paramita Dasgupta

Chapter	Lecture Topics	Required Number of Lectures (72)
1. **Perfect Competition (13)**	Short-run profit maximization and supply curve of the firm and the industry, break-even and shut-down point	03
	Output choice and competitive equilibrium in the long-run	02
	long-run equilibrium of the firm & industry supply curve under constant, increasing and decreasing costs	04
	Consumer's and producer's surplus	01
	effects of tax and subsidy, price ceiling in a competitive industry	03
2. **Imperfect Competition (26)**	short-run and long-run equilibrium under monopoly, supply curve, monopoly power	04
	single plant monopolist, the multi-plant monopoly, natural monopoly, limiting market power	04
	Different Pricing Strategies	04
	two part tariff & Comparison of Perfect competition and monopoly	04
	Product Differentiation, Selling cost and demand curve	02
	equilibrium of the firm: short-run and long-run, Excess capacity and its interpretation	02
	Oligopoly	06
3. General equilibrium and Welfare Economics (16)	Pareto optimality and welfare	02
	2x2 exchange model, Pareto efficiency, Utility possibility frontier	04
	2x2 production model, Pareto efficiency, Production possibility frontier	04
	Social welfare function, Social indifference curve, grand utility possibility frontier	02
	Competitive equilibrium and Pareto efficiency	04

4. Mathematical Structure of Market Models (17)	Perfect Competition	05
	Monopoly	04
	Monopolistic Competition	03
	Oligopoly	05

Paper – DSC 306

Title – Intermediate Macroeconomics-I

Teacher – Dr. Tonmoy Chatterjee

Chapter	Lecture Topics	Required Number of Lectures (72)
1. **IS-LM Model in a Closed Economy (19)**	The concept of Keynesian liquidity preference schedule	05
	Speculative demand for money and liquidity trap, Money market and the LM curve	03
	Goods market and the IS curve	04
	Equilibrium of the economy & formal derivation	03
	Crowding-out' effect, Effectiveness of monetary and fiscal policies	04
2. **The Principle of Effective Demand - The Complete Keynesian Model (20)**	Derivation of aggregate demand curve	04
	Derivation of aggregate supply curves both in the presence and absence of wage rigidity	04
	Equilibrium & stability	03
	comparative statics - effects of monetary, fiscal policies & Effects of wage cut	03
	Unemployment equilibrium and its causes	02
	real balance effect	01
	Keynes vs. Classics	03
3. **Open Economy Models (15)**	Short-run open economy models & Foreign Trade Multiplier	03
	Mundell - Fleming model; exchange rate determination	05
	purchasing power parity &asset market approach	02
	Dornbusch's overshooting model, monetary approach to balance of payments	03

4. **Demand for Money and Money Supply (18)**	International financial markets	02
	Regressive Expectations and Tobin‘s portfolio choice models	03
	Baumol‘s inventory theoretic money demand	02
	M1,M2, M3 and M4	01
	High powered money, Deposit multiplier, currency multiplier, reserve multiplier, credit multiplier and money multiplier	06
	Interest sensitivity of money supply and the slope of the LM curve	03
	Open Market Operations, Statutory Liquidity Ratio, Bank rate, variable reserve ratio, repo rate	02
	Budget Deficit and Deficit Financing	01

Paper – DSC 307

Title – Statistical methods for Economics-I

Teacher – Dr. Paramita Dasgupta

Chapter	Lecture Topics	Required Number of Lectures (72)
1. Frequency Distribution (08)	Simple series and frequency distribution Useful terms associated with grouped frequency distribution	01
	Construction of frequency distribution Cumulative frequency distribution	03
	Diagrammatic representation of frequency distribution, Frequency curve	04
2. Measures of Central tendency (18)	Mean and their properties, Advantages and disadvantages, relation between AM, GM and HM	09
	Median, calculation of Median	03
	Mode, calculation of Mode, Relation between Mean, Median and Mode	03
	Quartile, Deciles and Percentile	03
3. Measures of Dispersion (19)	Meaning and Usefulness of measures of Dispersion	01

4. Correlation and Regression (19)	Quartile Deviation	03
	Mean Deviation	03
	Standard Deviation, Properties and calculation of SD	08
	Relation between SD and other measures	02
	Lorenze curve and construction of Lorenz curve	02
	Definition, Bivariate data, Bivariate frequency distribution	01
	Scatter diagram, Covariance, Measures of association	01
	Coefficient of Simple Correlation, properties and method of calculation	05
	Concept of Rank correlation, Spearman's Rank correlation	03
	Simple linear regression, properties of linear regression, Least square and Normal equations and Determinants of regression coefficients	09
5. Moments, Skewness and Kurtosis (08)	Moments, Central and Non Central moments	04
	Skewness and Kurtosis, different measures of Skewness and Kurtosis	04

Paper – SEC 301

Title – Basic Computer Applications

Teacher – Dr. Tapan Kumar Ghosh

Chapter	Lecture Topics	Required Number of Lectures (24)
1. Introduction to Computer (01)	History of development of Computers; Concepts of Computer System; Characteristics; Capabilities and limitations; Generations of Computers. Basic Components of Computer System.	Th- 01
2. Storage Devices (01)	Storage fundamentals; Primary vs Secondary,	Th- 01

	Data Storage and Retrieval methods, Sequential, Direct and Index Sequential and Various Storage Devices.	
3. Word Processing - MS Word (06)	Introduction to Word Processing, Introduction to MS Word: Features, Creating, Saving and Opening documents in Word, Interface, Toolbars, Ruler, Menus, Keyboard, Shortcut. Editing a Document, Selecting, Inserting, Deleting, Moving text. Previewing documents, Printing documents, shrinking a document to fit a page.	Th- 01 Pr - 02
	Formatting Documents: Paragraph formats, Aligning Text and Paragraph, Borders and Shading, Headers and Footers, Multiple Columns.	Th – 01 Pr -02
4. Worksheet & MS Excel (06)	Worksheet basics, creating worksheet, entering data into worksheet, heading information, data, text, dates, cell formatting values, saving & protecting worksheet. Working with single and multiple workbook – coping, renaming, moving, adding and deleting, coping entries and moving between workbooks	Th- 01 Pr - 01
	Working with formulas & cell referencing Previewing & Printing worksheet, Graphs and charts, various charts type, formatting grid lines & legends, previewing & printing charts.	Th- 01 Pr - 03
5. Presentation Graphics - MS Power Point (03)	Features and various versions, Creating presentation using Slide master and template in various colour scheme Working with different views and menus of power point, Working with slides, Drawing and inserting objects using Clip Art's pictures and charts. Custom , Animation, slide transition effects and other animation effects.	Th- 01 Pr - 02
6. Applications in Economics (07)	Population census versus sample surveys, Random sampling	Th- 01
	Frequency distribution and summary Statistics,	Th – 01

Data entry, Mathematical Functions, Financial functions, Statistical Functions	Pr - 01
Creating simple Line, Bar and Pie charts, Simple two variable regressions.	Th- 01 Pr - 03

Paper- GE 1

Title- Indian Economy

Teacher – Dr. Sudip Chakraborty

Chapter	Lecture Topics	Required Number of Lectures (72)
1. India's Economic Structure (14)	India's Transition from Planned Economy to the Market Economy	05
	Third World, Main Features of Less Develop Countries	04
	Causes of Underdevelopment of the Indian Economy.	05
2. India's National Income (14)	Trends and Feature, Estimation and Distribution and Causes of Low Growth of National Income	06
	Difficulties in Measuring National Income in India.	03
	Sectoral Composition of India's National Income	05
3. India's Population Problem (14)	Features, Theory of Demographic Transition	05
	Problem of India's Overpopulation	03
	Factors behind India's Population Growth, Recent Population Policy of the Government.	06
4. Agriculture (15)	Features of Indian Agriculture, Causes of Low Productivity and its Remedies,	05
	Role of Agricultural Development in India's Economic Development	03
	New Technology and Green Revolution and its Effects	07
5. Land Reforms in India	Agrarian Structure, Relationship between	04

(15)	Man and Land	
	Programme of Land Reform in India and its Evaluation	06
	Land Reforms in West Bengal, Operation Barga in West Bengal	05

SEMESTER - V

Paper – DSC 11

Title – Indian Economy

Teacher – Dr. Tapan Kumar Ghosh

Chapter	Lecture Topics	Required Number of Lectures (72)
1. Economic Development since Independence (14)	Major features of the economy at independence, Nationalism, Planning and rise of Indian State	03
	Structural constraints and Indian development strategy, Debates between Growth and distribution	04
	Public sector vs. Private sector	02
	Consumer goods vs. Capital goods	02
	Import substitution vs. Export promotion	03
2. Major Issues and their impact in Indian Agriculture (16)	Land reforms with special reference to West Bengal; Tenancy of different kinds and their effects	03
	Marketable surplus; Green Revolution in India	04
	Minimum agricultural prices and Public Distribution System	03
	Problem of credit- Institutionalization of rural credit	03
	Agricultural marketing	03
3. Major Issues in Indian industry and their impact	Industrial Licensing: justification and problems	03

(15)	Industrial Stagnation and Crisis of the Indian economy	04
	New industrial policy and the Changing Indian state in the era of Globalisation	08
4. Growth and Distribution (11)	Trends and policies in poverty including Sen's Entitlement Analysis, inequality and unemployment	06
	The State and social programmes	05
5. Economic Reforms in India (16)	Monetary and Fiscal policy	06
	Structural transformation of the Indian economy	03
	Trade Policy, Special economic zones, Foreign Investment inflows since 1991, FII & FDI, Recent changes in exchange rate policy.	07

Paper – DSC-512

Title – Development Economics

Teacher – Dr. Tonmoy Chatterjee

Chapter	Lecture Topics	Required Number of Lectures (72)
1. **Conceptions of Development (10)**	Definitions of Economic Development & Growth, Distinguish between Development & Growth	03
	Measurement of Development and Growth	02
	Comparing development trajectories across nations and within them	02
	Human Development Indices,	01
	Obstacles to Development, Factors of Growth	02
2. **Poverty and Inequality (18)**	Definitions, Measures & Causes of Poverty	03
	Poverty alleviation Programmes	03

	Growth versus Equality	02
	Estimates & Causes of Inequalities of India	03
	Policy measures	02
	Connections between inequality & development	03
	poverty measurement & characteristics of the poor	02
3. **Theories of Economic Development (30)**	The Marxian Theory	04
	Rostow's Stages of Economic Growth	03
	Nelson's Low-Level Equilibrium Trap and Leibenstein's Critical Minimum Effort Thesis	07
	"Big Push" Theory & Balanced and Unbalanced Growth Theories	06
	Dualistic Theories and Lewis Theory of Unlimited Supplies of Labour; Rural-Urban Migration	10
4. **Environment and Sustainable Development (14)**	Defining sustainability for renewable resources	03
	brief history of environmental change	02
	environmental externalities	04
	Economic activity and climate change	02
	Common-pool resources	01
	state regulation of the Environment	02

Paper - DSE- 702

Title - Economic History of India (1857 – 1947)

Teacher – Dr. Sudip Chakraborty

Chapter	Lecture Topics	Required Number of Lectures (72)
1. Introduction (20)	India: 1857 to 1947	05
	Theories of Economic History	06
	Market-led Growth, Class and power	04
	Overview of Colonial India	05
2. Agriculture and Common Property	Production, Investment and Technology	05

Resources (22)	Agriculture Production before 1890, Agricultural Production 1890-1947, Land	06
	Famines and Food Security	04
	Agrarian structure and land relations, agricultural markets and institutions credit, trends in performance and productivity	07
3. Railways and Industry (12)	the de-industrialization debate	04
	evolution of entrepreneurial and industrial structure	03
	evolution of entrepreneurial and industrial structure, constraints to industrial breakthrough, labor relations.	05
4. Economy and State in the Imperial Context (18)	The imperial priorities and the Indian economy	06
	Drain of wealth, international trade, capital flows	06
	the colonial economy, changes and continuities, government and fiscal policy	06

Paper – DSE 1

Title – Topics in Public Economics

Teacher – Dr. Paramita Dasgupta

Chapter	Lecture Topics	Required Number of Lectures (72)
1. Principle of Public Finance (14)	The Principle of Maximum Social Advantage, Musgrave's view of the Principle of Maximum Social Advantage, How Maximum Social Advantage achieved? Test of Social advantage, Limitations and conclusions	08
	Principle of Opportunity cost in Public Finance	03

	Principle of Allocation of Resources	03
2. Public economic Theory (24)	Public Goods: definition, models of efficient allocation	04
	Pure and impure goods, free riding	02
	Externalities: the problems and its solutions	03
	Taxes versus regulations	02
	Property rights , the Coase theorem	03
	Taxation: its economic effects, dead weight loss and distortion, efficiency and equity considerations, tax incidence, optimal taxation	06
	VAT and GST	04
3.Indian Public Finance (16)	Tax system: structure and reforms	06
	Budget, deficits	02
	Fiscal Federalism in India	08
4. Local Finance (18)	Meaning and problems of local finance	04
	Functions and resources of local bodies	04
	Municipalities and Municipal corporation finance	04
	Finance of Village Panchayats, Gram Panchayats, Panchayat Samitis and Zilla Parisads	06

Lesson Plan

Semester – III

Subject – HISTORY (H) Paper – VI

Title – Rise of Modern West-I Teacher – Dr. Parimal Bapari

Chapter/Unit	Lecture Topics	Required Number of Lectures
IV:- Origins, course and results of the European Reformation in the 16th century	Introduction and Origins of the European Reformation in the 16th century	2 classes
	Course of the European Reformation in the 16th century	4-5 classes
	Results of the European Reformation in the 16th century	4-5 classes
V:-Economic developments of 5the 16th century:	Introduction on the whole Unit.	1class
	Shift of economic balance from the Mediterranean to the Atlantic	2 classes
	Commercial Revolution	2 classes
	Influx of American Silver and price Revolution	3-4 classes
VI:- Emergence of European State System	Introduction on the whole Unit	1 class
	Spain	1 class
	France	1 class
	England	2 classes
	Russia	1 class

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Lesson Plan

Semester – V

Subject – HISTORY (H) Paper – XI

Title: History of Modern Europe -1 (C-1780-1939) Teacher – Dr. Parimal Bapari

Chapter/Unit	Lecture Topics	Required Number of Lectures
III: - Capitalist Industrialization and Social and Economic Transformation (Late 18th Century to 1914).	Introduction on the whole unit	1class
	A) Process of capitalist development in industry and Agriculture: Case Study of Britain, France the German States and Russia.	6 classes
	b) Evolution of Social Classes: Bourgeoisie, Proletariat, Land Owing Class and peasantry.	4-5 classes
	C) Changing Trends in demography and urban patterns	3 classes
	D) Family, Gender and process of industrialization	2classes
IV:-Verities of Nationalism and the Remaking of States in the 19th and 20th centuries.	Introduction on the whole Unit.	1class
	Shift of economic balance from the Mediterranean to the Atlantic	2 classes
	Commercial Revolution	2 classes
	Influx of American Silver and price Revolution	3-4 classes
VI:- Emergence of European State System	Introduction on the whole Unit and verities of Nationalism	2 classes
	Intellectual currents, Popular movements and the fo4rmation of national identities in Germany, Italy, Ireland and Balkans.	5-6 class
	Specificities of economic development, political and administrative reorganization- Italy and Germany	4-5classes

Lesson Plan
Semester – 3rd (program)

Subject – Botany **Paper – GE-III**
Title – Plant anatomy & embryology **Teacher – Dipak Barman**

Chapter	**Lecture Topics**	**Required Number of Lectures**
Structural organisation of flower	Structure of anther and pollen	2
	Structure and types of ovules	2
	Types of embryo sacs	2
	organization and ultrastructure of mature embryo sac	1

LESSON PLAN 3RD SEM

SUB- POLITICAL SCIENCE PAPER- DSC303

TITLE- COMPARATIVE POLITICS TEACHER- PARAMITA DEB

CHAPTER	LECTURE TOPICS	REQURIED NUMBER OF CLASS
1 COMPARATIVE POLITICS	DEVELOPMENT	2
	NATURE	1
	SCOPE	1
2 APPROACHES	INSTITUTIONAL AND NEOINSTITUTIONAL	2
	SYSTEMS	1
	STRUCTURAL FUNCTIONAL	2
	MARXIST	2
3 MAJOR GOVERNING PRINCIPLES	CONSTITUTIONALISM	2
	CONVENTIONS	1
	RULE OF LAW	2
	PARLIAMENTARY SOVEREIGNTY	2
	SEPARATION OF POWER	2
	JUDICIAL REVIEW	1
	DEMOCRATICCENTRALISM	2
	REFERENDUM	1
	INITIATIVE	1
4 COMPARATIVE STUDIES	U.K	3
	U.S.A	3

	CHAINA	2
	FRANCE	2
5 FEDERALISM	USA	2
	RUSSIA	2
6 PARTY SYSTEM	LIBERAL DEMOCRATICES	3
	SOCIALIST POLITICAL SYSTEM	3
REVISION		10

LESSON PLAN -5TH SEM

SUB- POLITICAL SCIENCE PAPER- DSE A

TITLE- PARTY SYSTEM IN INDIA TEACHER- PARAMITA DEB

CHAPTER	LECTURE TOPICS	REQURIED NUMBER OF CLASS
1 POLITICAL PARTY	MEANING AND KINDS	3
	FEATURES AND CHARACTERISTICS	2
	EMERGING TRENDS	2
2 NATIONAL POLITICAL PARTY	INC	3
	BJP	2
	ELECTORAL PERFORMANCE	2
3POLITICAL PARTY	CPIM	3
	BSP	1
	ELECTORAL PERFORMANCE	3
4 REGIONAL POLITICAL PARTY		6
REVISION		7

LESSON PLAN 5TH SEM

SUB- POLITICAL SCIENCE PAPER- GE 501

TITLE- READING GANDHI TEACHER- PARAMITA DEB

CHAPTER	LECTURE TOPICS	REQURIED NUMBER OF CLASS
1	INTRODUCTION OF GANDHI'S 'HIND SWARAJ'	1
2	GANDHI'S IDEA OF 'SATYAGRAHA' AND 'CRITQUE OF MODERNITY'	3
3	GANDHI ON NATIONALISM	2
4	GANDHI ON COMMUNAL UNITY	1
5	GANDHI ON WOMEN'S QUESTION	1
6	GANDHI ON UNTOUCHABILITY	3
7	TOLERANCE : ANTI-RACISM MOVEMENT	3
8	THE PACIFIST MOVEMENT	1
9	WOMEN'S MOVEMENT AND GANDHI IN INDIA	5
10	GANDHIGIRI	2

Lesson Plan

Semester – 5th

Subject – history Paper – 12th

Title – History of India Teacher – Partha Protim Bhadra

Chapter	Lecture Topics	Required Number of Lectures
1.Rural Economy and society 2.Famine	Land revenue system.commercialisation of cropes	6
3.trade and Industry 4.Popular Resistance	De industrialization,drain of wealth	8 Finish
	Santhal uprising,Indigo rebellion,Deccan riots, Uprising of 1857	8 on going

Lesson Plan

B.A 1st Semester

Subject – Bengali Paper – CC2 (Honours)& GE

Teacher – Dr Ranjana Bhattacharjee

Text Book	Lecture Topics	Required Number of Lectures
বৈষ্ণব পদাবলী	মধ্যযুগের বাংলা সাহিত্য বিষয়ে সামগ্রিক ধারণা	২
	প্রাচীন ও মধ্যযুগের সাহিত্যে কৃষ্ণ ও রাধার অবস্থান	২
	বৈষ্ণব পদাবলীর তাত্ত্বিক আলোচনা	২
	কবিদের পরিচয়	১
	গৌরাঙ্গ বিষয়ক পদ ও গৌরচন্দ্রিকার সংজ্ঞা ও স্বরূপ আলোচনা	১
	পদের ব্যাখ্যা	২
	পূর্বরাগের সংজ্ঞা আলোচনা	১
	পদের ব্যাখ্যা	১
	রূপানুরাগের পরিচয় ও পদের ব্যাখ্যা	১
	অভিসারের সংজ্ঞা	১
	পদের ব্যাখ্যা	২
	আক্ষেপানুরাগ ও প্রেমবৈচিত্ত্য	১
	পদের ব্যাখ্যা	১
	মাথুর সংজ্ঞা ও পদের ব্যাখ্যা	২
	ভাবোল্লাস সংজ্ঞা ও পদের ব্যাখ্যা	২
	প্রার্থনা সংজ্ঞা ও পদের ব্যাখ্যা	২
	বৈষ্ণব কবিদের সম্পর্কে আলোচনা	৪
GE	আধুনিক কাব্যসাহিত্যের ইতিহাস	২
	ঈশ্বর গুপ্ত	২
	মধুসূদন দত্ত	২
	রঙ্গলাল বন্দ্যোপাধ্যায়	২
	হেমচন্দ্র বন্দ্যোপাধ্যায়	২
	নবীনচন্দ্র সেন	২
	বিহারীলাল চক্রবর্তী	১
	রবীন্দ্রনাথ ঠাকুর	৩

B.A 3rd Semester

Text Book	Paper	Lecture Topics	Required Number of Lectures
চণ্ডীমণ্ডল-মুকুন্দ চক্রবর্তী	CC5	মঙ্গলকাব্য সম্পর্কে সাধারণ আলোচনা	২
		চণ্ডীমঙ্গলের অন্যান্য কবিদের পরিচয়	১
		মঙ্গলকাব্যের গঠন বিষয়ক আলোচনা	১
		দেবী চণ্ডীর স্বরূপ আলোচনা	১
		Text পাঠ	২০
		Topic আলোচনা	৩
চৈতন্যভাগবত-বৃন্দাবনদাস	CC5	বাংলা সমাজ সংস্কৃতিতে চৈতন্যদেবের ভূমিকা	২
		ভারতবর্ষের ধর্ম-আন্দোলনের সাপেক্ষে চৈতন্যদেবের অবস্থান	১
		চৈতন্যজীবনীকাব্য বিষয়ক আলোচনা	১
		Text পাঠ	১২
		Topic আলোচনা	৩

B.A 5th Semester

Paper	Text Books	Lecture Topics	Required no of lectures
CC11	সুভাষ মুখোপাধ্যায়ের কবিতা(২টি)	আধুনিক কবিতার বৈশিষ্ট্য আলোচনা	১
		চল্লিশের দশকের প্রেক্ষাপট আলোচনা	১
		সুভাষের কবিতার কাব্যগ্রন্থগুলির সংক্ষিপ্ত পরিচয় ও বৈশিষ্ট্য আলোচনা	১
		প্রথম কবিতা পাঠ ও আলোচনা	৪
		দ্বিতীয় কবিতা পাঠ ও আলোচনা	৩
DSE1	বঙ্কিমচন্দ্রের প্রবন্ধ(৩টি)	উনিশ শতকের প্রবন্ধ রচনার ইতিহাস আলোচনা	২
		প্রবন্ধের ইতিহাসে বঙ্কিমের ভূমিকা ও প্রবন্ধগ্রন্থগুলির সংক্ষিপ্ত পরিচয়	২
		পাঠ্য প্রবন্ধগুলি পাঠ ও বিশ্লেষণ	১৪
	গোপাল হালদারের প্রবন্ধ	গোপাল হালদারের সাহিত্যজীবন	১
		পাঠ্য প্রবন্ধ পাঠ ও আলোচনা	৬

M.A 1st Semester

Paper	Text Books	Lecture Topics	Required no of lectures
101	সাহিত্যের ইতিহাস (পঞ্চদশ শতাব্দী পর্যন্ত)	প্রাচীনযুগের বাংলাদেশের রাজনৈতিক ইতিহাস ও সংস্কৃতি	২
		সপ্তম শতাব্দী থেকে বাংলদেশে রচিত সাহিত্য	২
		চর্যাপদ : আবিষ্কারের ইতিহাস, পুথি সংক্রান্ত আলোচনা, সাহিত্যিক গুরুত্ব, সমাজজীবন	৩
		তুর্কি আক্রমণ : সমাজ ও সাহিত্যে প্রভাব	২
		শ্রীকৃষ্ণকীর্তন	২
		পঞ্চদশ শতকের অনুবাদ সাহিত্য রামায়ণ	৩
		মালাধর বসুর ভাগবত	২
		চতুর্দশ ও পঞ্চদশের পদাবলী সাহিত্য : বিদ্যাপতি ও চণ্ডীদাস	৪
106	মানিক দত্তর চণ্ডীমঙ্গল	চণ্ডীমঙ্গল সম্পর্কে সামগ্রিক ধারণা	১
		মানিক দত্তর পরিচয় ও পুথি পরিচয়	২
		Text আলোচনা	১২
		Topic আলোচনা	৫

M.A – 3rd Semester

Paper	Text Books	Topics	Required no of lectures
101	অ্যারিস্টটলের কাব্যতত্ত্ব	১ অ্যারিস্টটলের জীবন ও গ্রিক সাহিত্য	১
		২ প্লেটো ও অ্যারিস্টটলের সম্পর্ক	১
		৩ অনুকরণ তত্ত্ব	২
		৪ ট্র্যাজিডির সংজ্ঞা ও উপাদান	১
		৫ কাহিনির আলোচনা	৫
		৬ চরিত্র	১
		৭ অন্যান্য উপাদান	১
		৮ ইতিহাস ও কাব্য	১
		৯ মহাকাব্য ও ট্র্যাজিডি	২
	ভারতীয় কাব্যতত্ত্ব	১ ধ্বনিবাদ	৪
		২ রসবাদ	৫
		৩ বক্রোক্তিবাদ	২

		৪ ঔচিত্যবাদ	২
		৫ অলংকারবাদ	২
102		১ অবয়ববাদ	২
		২ বাকতিনের তত্ত্ব	২
		৩ পাঠক প্রতিক্রিয়াবাদ	২

পাঠ পরিকল্পনা ২০২১

অভিলাষ চট্টোপাধ্যায় **বঙ্গভাষা ও সাহিত্য বিভাগ**

ষাণ্মাসিক – প্রথম সাম্মানিক (সাপ্তাহিক ক্লাস – ২টি)

মূল বিষয়	আলোচ্য বিষয়	প্রয়োজনীয় ক্লাসের সংখ্যা
নাথ সাহিত্য	১) সাধারন আলোচনা ২) গোরক্ষনাথ ৩)গোপীচন্দ্র - ময়নামতী	৫ টি
আরাকান রাজসভার সাহিত্য	১) সাধারন আলোচনা ২) দৌলত কাজী ৩)সৈয়দ আলাওল	৫টি
শাক্ত পদাবলী	১) শক্তি সাধনার বিভিন্ন ধারা ২) কীর্তন ও পদাবলীর ধারনা ৩) রামপ্রসাদ সেন ৪) কমলাকান্ত ভট্টাচার্য	৬ টি

ষাণ্মাসিক – প্রথম G. E. (সাপ্তাহিক ক্লাস – ১ টি)

মূল বিষয়	আলোচ্য বিষয়	প্রয়োজনীয় ক্লাসের সংখ্যা
আধুনিক যুগের গদ্য সাহিত্যের ইতিহাস	১) সাধারন আলোচনা ২)শ্রীরামপুর মিশন ৩)ফোর্ট উইলিয়ম কলেজ ৪)রামমোহন রায় ৫)ঈশ্বরচন্দ্র বিদ্যাসাগর ৬)বঙ্কিমচন্দ্র ৭) রবীন্দ্রনাথ ঠাকুর	১০ টি

ষাণ্মাসিক – তৃতীয় সাম্মানিক (সাপ্তাহিক ক্লাস – ১টি)

মূল বিষয়	আলোচ্য বিষয়	প্রয়োজনীয় ক্লাসের সংখ্যা
গদ্যের রূপান্তর	১) আলোচনা ২)উদাহরণ ৩)অভ্যাস	৫ টি
শব্দের ব্যুৎপত্তি	১) আলোচনা ২)উদাহরণ ৩)অভ্যাস	৫টি

ষাণ্মাসিক – পঞ্চম সাম্মানিক (সাপ্তাহিক ক্লাস – ৩টি)

মূল বিষয়	আলোচ্য বিষয়	প্রয়োজনীয় ক্লাসের সংখ্যা
নজরুল ইসলামের কবিতা (বিদ্রোহী ও আমার কৈফিয়ৎ)	১) কবি নজরুল সাধারন আলোচনা ২)বিদ্রোহী – বিষয়বস্তু, বিদ্রোহের স্বরূপ ৩) বিদ্রোহী – পুরান প্রসঙ্গ ৪)বিদ্রোহী – নামকরণ ৫) আমার কৈফিয়ৎ - বিষয়বস্তু ৬)আমার কৈফিয়ৎ - ঐতিহাসিকতা ৭) আমার কৈফিয়ৎ- নামকরণ	১০ টি
মোহিতলাল মজুমদারের কবিতা (পান্থ ও মোহমুদ্গর)	১) মোহিতলাল সম্পর্কে সাধারন আলোচনা ২)পান্থ কবিতার আলোচনা ৩) মোহমুদ্গর কবিতার আলোচনা	৮ টি
যামিনী রায়ের প্রবন্ধ (পটুয়া শিল্প)	১) যামিনী রায় সম্পর্কে আলোচনা ২)পট শিল্প সম্পর্কে আলোচনা ৩)প্রবন্ধ পাঠ ও আলোচনা	৬ টি
মানিক বন্দ্যোঃ গল্প (অতসী মামী , প্রাগৈতিহাসিক , শিল্পী , দুঃশাসনীয় , কুষ্ঠরোগীর বউ , হারানের নাতজামাই)	১)মানিক বন্দ্যোঃ সম্পর্কে আলোচনা ২) গল্প পাঠ ও আলোচনা	১২ টি

LESSON PLAN

Subject: Physics

Sub: Physics Paper: Core T1

Sem:1st

Title :Mathematical Physics Teacher: Priyanka Mandal

Chapter	Lecture Topics	Required no of lectures
Vector Calculus	1.Recapitulation of vectors	5
	2.Vector Differentiation	6
	3.Vector Integration	5

SEM:5th

Title :Advanced Mathematical Physics Paper:DSET1

Chapter	Lecture Topics	Required no of lectures
Cartesian Tensors	1.Transformation of coordinates, Einstein's summation convention ,Relation between direction cosines	4
	2.Algebra of Tensors.	2
	3.Contraction,Quotient law of Tensors ,Symmetric and Anti symmetric Tensors	3
	4.Cartesian tensors	3
General Tensors	1.Covariant and Contravariant Vectors and Tensors	4

Sem:3rd

Title :Thermal Physics Paper:GET3

Chapter	Lecture Topics	Required no of lectures
Laws of Thermodynamics	1.Zeroth law, First law ,Conversion of heat into work	3
	2.Application of First law ,Isothermal and Adiabatic process	2
	3.Second law and Entropy	2
	4.Third law and T-S diagram	1
Thermo-dynamical potential	1.Enthlpy,Gibbs,Helmholtz and Internal energy function	2
	2.Maxwell's relation and application	3
	3.J-T effect	1
	4.Clausius-Clapeyron equation, TdS Equation	2

Lesson Plan

Semester- 1st

Subject: Microbiology

Paper: 2 & 2.1

Title: Bacteriology (Theory & Practical)

Teacher: Liza Sarkar

CHAPTERS	Lecture Topics	Required No. Of Lectures
Cell Organiztion	Cell size, shape, arrangement	1
	Glycocalyx, Capsule	
	Flagella, emdoflagella, fimbriae, pili	1
	Cell Wall (Bacterial, archaeal, LPS)	2
	Gram and Acid fast staining	1
	Effect of antibiotics	1
Bacteriological Techniques	Pure culture isolation	1
	Cultivation, maintenance & preservation	1
	Anaerobic bacteria cultivation	1
	Accessing VBNC	1
Important Archaeal & Eubacterial groups	Archaebacteria:	3
	Eubacteria:	
	Gram Negative	2
	Gram positive	2
	Cyanobacertia:	1
Practical	Preparation of Different Media	1
	Streaking	1
	CFU count by spread plate/pour plate method	1

Lesson Plan

Semester- 1st

Subject: Microbiology

Paper: 2 & 2.1

Title: Bacteriology (Theory & Practical)

Teacher: Liza Sarkar

CHAPTERS	Lecture Topics	Required No. Of Lectures
Cell Organiztion	Cell size, shape, arrangement	1
	Glycocalyx, Capsule	
	Flagella, emdoflagella, fimbriae, pili	1
	Cell Wall (Bacterial, archaeal, LPS)	2
	Gram and Acid fast staining	1
	Effect of antibiotics	1
Bacteriological Techniques	Pure culture isolation	1
	Cultivation, maintenance & preservation	1
	Anaerobic bacteria cultivation	1
	Accessing VBNC	1
Important Archaeal & Eubacterial groups	Archaebacteria:	3
	Eubacteria:	
	Gram Negative	2
	Gram positive	2
	Cyanobacertia:	1
Practical	Preparation of Different Media	1
	Streaking	1
	CFU count by spread plate/pour plate method	1

Lesson Plan

Semester- 5th

Subject: Microbiology **Paper: 12 & 12.1**

Title: Immunology (Theory & Practical) **Teacher: Liza Sarkar**

CHAPTERS	Lecture Topics	Required No. Of Lectures
Immune Cells & Organs	Immune Cells	2
	Immune Organs	2
Antigens	Characteristics, Haptens, Epitopes, Adjuvants, T dependent & independent	2
Antibodies	Structure, type, function, properties	2
	Antigenic determinants	
	VDJ rearrangement	1
	Monoclonal & Chimeric	1
Major Histocompatibility Complex	Organization, Structure, Function	1
	Antigen processing & presentasion	1
Generation of Immune Response	Humoral Immune Response	1
	Cell Mediated Immune Response	1
	Killing Mechanisms by CTL, NK; Tolerance	1
Immunological Disorders & Tumour Immunity	Autoimmunity	2
	Hypersensitivity	2
	Immunodeficiencies	2
	Tumour types, antigens	1
	Cancer Therapy	1
Immunological Techniques	Precipitation, agglutination	1
	Immunodiffusion, immunoelectrophoresis	1
	ELISA, ELISPOT	1
	Western Blotting	1
	Immunofluorescence, Flow Cytometry, Immunoelctron Microscopy	2
Practical	Human Blood Group	1
	TLC	1
	Serum separation from blood	1
	Ouchterlony	1
	DOT ELISA	1
	Immunoelectrophoresis	1

Lesson Plan

Semester- 5th

Subject: Microbiology **Paper: 12 & 12.1**

Title: Immunology (Theory & Practical) **Teacher: Liza Sarkar**

CHAPTERS	Lecture Topics	Required No. Of Lectures
Immune Cells & Organs	Immune Cells	2
	Immune Organs	2
Antigens	Characteristics, Haptens, Epitopes, Adjuvants, T dependent & independent	2
Antibodies	Structure, type, function, properties	2
	Antigenic determinants	
	VDJ rearrangement	1
	Monoclonal & Chimeric	1
Major Histocompatibility Complex	Organization, Structure, Function	1
	Antigen processing & presentasion	1
Generation of Immune Response	Humoral Immune Response	1
	Cell Mediated Immune Response	1
	Killing Mechanisms by CTL, NK; Tolerance	1
Immunological Disorders & Tumour Immunity	Autoimmunity	2
	Hypersensitivity	2
	Immunodeficiencies	2
	Tumour types, antigens	1
	Cancer Therapy	1
Immunological Techniques	Precipitation, agglutination	1
	Immunodiffusion, immunoelectrophoresis	1
	ELISA, ELISPOT	1
	Western Blotting	1
	Immunofluorescence, Flow Cytometry, Immunoelctron Microscopy	2
Practical	Human Blood Group	1
	TLC	1
	Serum separation from blood	1
	Ouchterlony	1
	DOT ELISA	1
	Immunoelectrophoresis	1

Lesson Plan

Semester – **3RD**

Subject – Physical Education
Paper – **DSC**
Title – **Anatomy, physiology and Exercise Physiology**
Teacher – Sopidulla Hoque

Chapter	Lecture Topics	Required Number of Lectures
1	Meaning, definition and importance of Anatomy.	2
	Importance of Physiology and Exercise physiology.	2
	Human Cell- Structure	3
	Tissue - types	3

Lesson Plan

Semester – **3RD**

Subject – Physical Education
Paper – **SEC**
Title – **Gymnastics**
Teacher – Sopidulla Hoque

Chapter	Lecture Topics	Required Number of Lectures
5	History of Gymnastics.	3
	Function of International Gymnastics Federation.	2
	Types of Gymnastics.	5

Lesson Plan

Semester – **5RD**

Subject – Physical Education
Paper – **DSE**

Title – **Test, Measurements and Evacuation Physical Education**

Teacher – Sopidulla Hoque

Chapter	Lecture Topics	Required Number of Lectures
1	Concept of Test, Measurement and Evaluation.	2
	Criteria of good test.	2
	Importance of test, measurement in physical education and sports.	3
	Importance of Evaluation in physical education and sports.	3

Lesson Plan

Semester – **GE-1**

Subject – Physical Education Paper – **DSC**
Title – **Modern Trends and Practices in Physical Education and Exercise Sciences.**
Teacher – Sopidulla Hoque

Chapter	Lecture Topics	Required Number of Lectures
1	Meaning, definition and importance of physical education and sports.	2
	Aims and objectives of physical education.	2
	Meaning, definition and importance of physical fitness.	4
	Meaning, definition and importance of motor fitness.	2

Lesson Plan

Semester – **5th**

Subject – Physical Education Paper – **SEC**
Title – **Archery**
Teacher – Sopidulla Hoque

Chapter	Lecture Topics	Required Number of Lectures
1	Stance	2
	Nocking the Arrow	2
	Set and set-up	3
	Draw and load and Anchor.	3

Lesson Plan

Semester – 3rd

Subject – history Paper –9th

Title – History of India

Teacher – partha protim bhadra

Chapter	Lecture Topics	Required Number of Lectures
Source and Historiography	A	4
	B	2
	C	2 all are finish
Establishment of Mughal rule	A	4
	B	4 on going
	C	4 next topic

Lesson Plan

Semester –3

Subject – Chemistry — Paper – CC-VI (Honours)

Title – Organic Chemistry — Teacher – Mr. Passang

Tshering Lepcha

Chapter	Lecture Topics	Required Number of L
Chemistry of Halogenated Hydrocarbons	Alkyl halides: Methods of preparation, nucleophilic substitution reactions – SN1, SN2 and SNi mechanisms with stereochemical aspects and effect of solvent etc.; nucleophilic substitution vs. elimination.	6
	Aryl halides: Preparation, including preparation from diazonium salts. Nucleophilic Aromatic substitution; SNAr, Benzyne mechanism. Relative reactivity of alkyl, allyl/benzyl, vinyl and aryl halides towards nucleophilic substitution reactions.	4
	Organometallic compounds of Mg and Li – Use in synthesis of organic compounds.	3
Carboxylic Acids and their Derivatives	Preparation, physical properties and reactions of monocarboxylic acids: Typical reactions of dicarboxylic acids, hydroxy acids and unsaturated acids: succinic/phthalic, lactic, malic, tartaric, citric, maleic and fumaric acids	3
	Preparation and reactions of acid chlorides, anhydrides, esters and amides; Comparative study of nucleophilic substitution at acyl group - Mechanism of acidic and alkaline hydrolysis of esters, Claisen condensation, Dieckmann and Reformatsky reactions, Hofmann-bromamide degradation and Curtius rearrangement	6

Lesson Plan

Semester – 3

Subject – Chemistry
Paper – GE-3 Title – ORGANIC CHEMISTRY-II
Teacher – Mr. Passang Tshering Lepcha

Chapter	Lecture Topics
Amino Acids, Peptides and Proteins	Preparation of Amino Acids: Strecker synthesis, Gabriel's phthalimide synthesis. Reac acetylation of –NH2 group, complexation with Cu2+ ions, ninhydrin test.
	Overview of Primary, Secondary, Tertiary and Quaternary Structure of proteins.
	Determination of Primary structure of Peptides by degradation: Edmann degradation with carboxypeptidase enzyme)
Carbohydrates	Classification, and General Properties, Glucose and Fructose (open chain and cyclic st
	Determination of absolute configuration of Glucose. Structure of disaccharides (sucro excluding their structure elucidation.

Lesson Plan

Semester – 3

Subject – Chemistry
Paper – SEC-1 [Honours] Title – Pharmaceutical Chemistry
Teacher – Mr. Passang Tshering Lepcha

Chapter	Lecture Topics
Drugs & Pharmaceuticals	Classification, Structure and drug discovery, design and development and therapeutic
	Synthesis of the representative drugs of the following classes: analgesics agents, anti paracetamol, ibuprofen); Antimalarials: Chloroquine (with synthesis). antibiotics (det antifungal agents (Sulphonamides; Sulphanethoxazol, Sulphacetamide, Trimethoprim System agents (Phenobarbital, Diazepam),Cardiovascular (Glyceryl trinitrate), antilap Zidovudine).Medicinal values of curcumin (haldi), azadirachtin (neem), vitamin C and
Fermentation	Aerobic and anaerobic fermentation. Production of (i) Ethyl alcohol and citric acid, (ii Chloromycetin and Streptomycin, (iii) Lysine, Glutamic acid, Vitamin B2, Vitamin B12

Lesson Plan

Semester – 3

Subject – Chemistry
Paper – SEC-1 [Program] Title – Pharmaceutical Chemistry
Teacher – Mr. Passang Tshering Lepcha

Chapter	Lecture Topics
Drugs & Pharmaceuticals	Classification, Structure and drug discovery, design and development and therapeutic
	Synthesis of the representative drugs of the following classes: analgesics agents, anti paracetamol, ibuprofen); Antimalarials: Chloroquine (with synthesis). antibiotics (det antifungal agents (Sulphonamides; Sulphanethoxazol, Sulphacetamide, Trimethoprim System agents (Phenobarbital, Diazepam),Cardiovascular (Glyceryl trinitrate), antilap Zidovudine).Medicinal values of curcumin (haldi), azadirachtin (neem), vitamin C and
Fermentation	Aerobic and anaerobic fermentation. Production of (i) Ethyl alcohol and citric acid, (ii Chloromycetin and Streptomycin, (iii) Lysine, Glutamic acid, Vitamin B2, Vitamin B12

Lesson plan

Subject-Microbiology Semester-iii paper-5&5.1

Title-Microbial physiology and metabolism Teacher- Arpita sarkar

CHAPTER	LECTURE TOPIC	REQUIRED NUMBER OF Lectures
theory Unit 1- (Microbial growth and effect of environment on microbial growth)	Definition of growth, Batch culture, diauxic growth curve. Synchronous growth	1
	Measurement of microbial growth, continuous culture	1
	Generation time ,specific growth rate	1
	Microbial growth in response to environment	2
	Microbial growth in response to nutrition and energy	2
Unit -2 (nutrient uptake and transport)	Passive and facilitated diffusion	1
	Primary and secondary active transport ,concept of uniport ,symport, and antiport	2
	Group translocation iron uptake	1
Unit -3 (Aerobic respiration)	Aerobic respiration concept, EMP,ED PATHWAYS	3
	PENTOSE PHOSPHATE PATHWAY	1
	TCA CYCLE	3
UNIT-4 (Anaerobic respiration and fermentation)	Dissimilatory nitrate reduction	1
	Alcohol fermentation	1
	Lactate fermentation	2
Unit -5 (chemolithotrophic and phototrophic metabolism)	Aerobic and anaerobic chemolithotrophy with an example	1
	Hydrogen oxidation and methanogenesis	1
	Anoxygenic vs. oxygenic photosynthesis	3
Unit -6 (nitrogen metabolism)	Biological nitrogen fixation	1
	Ammonia assimilation, assimilatory nitrate reduction , Dissimilatory nitrate reduction,	2
	denitrification	1
Practical	1. study &plot the growth curve of *E.coli* by turbidometric and spc methods.	1
	2. calculation of generation time and specific growth rate of bac. from the graph plotted with the given data	1
	3.effect of temp on growth of *E.coli*	1
	4. effect of pH on growth of *E.coli*	1
	5. effect of carbon and nitrogen sources on growth of *E.coli*	1
	6. effect of salt on growth of *E.coli*	1
	8.Demonstration of the thermal death time and decimal reduction time of *E.coli.*	1

Lesson Plan

Semester –5

Subject – Chemistry

Paper – CC-XI (Honours) Title – Organic Chemistry

Teacher – Mr. Passang Tshering Lepcha

Chapter	Lecture Topics
Nucleic Acids	Components of nucleic acids, Nucleosides and nu
	Structure, synthesis and reactions of: Adenine, Guanine, Cytosine, U of polynucleotides.
Enzymes	Introduction, classification and characteristics of enzymes. Salien enzymes
	Mechanism of enzyme action (taking trypsin as
	Factors affecting enzyme action, coenzymes and cofactors and their role in biological reactions, sp (including stereospecificity), enzyme inhibitors and th
Lipids	Introduction to oils and fats; common fatty acids preser
	Hydrogenation of fats and oils, Saponification value, acid value, iodine number. Reve
Concept of Energy in Biosystems	ATP: The universal currency of cellular energy, ATP hydrolysis and f for transfer of electrons in biological redox systems:

Lesson Plan

Semester – III

Subject – MICROBIOLOGY Paper – Paper -7:

Title – MOLECULAR BIOLOGY (THEORY)

Teacher – MRS.NANDITA BANERJEE

UNITS	Lecture Topics	Required Number of Lectures
UNIT 1(Structures of DNA and RNA / Genetic Material)	DNA Structure: Miescher to Watson and Crick-historic perspective	2
	DNA structure, Salient features of double helix, Types of DNA,	1
	Types of genetic material, denaturation and renaturation,	2
	cot curves.	1
	DNA topology – linking number, topoisomerases;	1
	Organization of DNA Prokaryotes,Viruses, Eukaryotes.RNA Structure, Organelle DNA -- mitochondria and chloroplast DNA	4
UNIT 2(Replication of DNA (Prokaryotes and Eukaryotes)	Bidirectional and unidirectional replication, semi-conservative, semi- discontinuous replication Mechanism of DNA replication:.	5
	Enzymes and proteins involved in DNA replication –DNApolymerases, DNA ligase, primase, telomerase – for replication of linear ends	2
	Various models of DNA replication including rolling circle, D- loop (mitochondrial), Θ (theta) mode of replication and other accessory protein	5
UNIT 3(Transcription in Prokaryotes and Eukaryotes)	Transcription: Definition, difference from replication,	1
	promoter - concept and strength of promoter	2
	RNA Polymerase and the transcription unitTranscription in Eukaryotes:	5
UNIT 4(Post-Transcriptional Processing)	Split genes, concept of introns and exons,	2
	RNA splicing,	1
	spliceosome machinery, concept of alternative splicing,	2
	Polyadenylation and capping,	1

	Processing of rRNA	1
Unit 5 Translation (Prokaryotes and Eukaryotes)	Translational machinery,	1
	Charging of tRNA, aminoacyl tRNA synthetases,	2
	Mechanisms of initiation,elongation and termination of polypeptides in both prokaryotes and eukaryotes,	4
	Fidelity of translation,Inhibitors of protein synthesis in prokaryotes and eukaryote	4
UNIT 6(Regulation of gene Expression in Prokaryotes and Eukaryotes)	Principles of transcriptional regulation, regulation at initiation with examples from lac operon,	4
	Sporulation in Bacillus,Changes in Chromatin	2
	Structure -DNA methylation and Histone Acetylation mechanisms	3

Lesson Plan

Semester – III

Subject: ***Zoology (Hons)***
Paper: ***Core T6***
Title: ***Animal Physiology: Controlling & Coordinating Systems***
Teacher: ***Dr. Tanmay Datta***

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Tissues	Epithelial Tissue	01
	Connective Tissue	01
	Muscular Tissue	01
	Nervous Tissue	01
Unit 2: Bone & Cartilage	Structure & Types of Bone & Cartilages	01
	Bone Ossification	01
Unit 3: Nervous System	Structure & Types of Neurons	01
	Resting Membrane & Action Potential	01
	Propagation of Action Potential	01
	Types of Synapse & Synaptic Transmission	01
	Neuromuscular Junction	01
	Reflex Action and its Types	01
Unit 4: Muscular System	Histology of Different Types of Muscles	02
	Ultra-Structure of Skeletal Muscle	02
	Molecular & Chemical Basis of Skeletal Muscle Contraction	02
	Characteristics of Muscle Fiber	01
	Muscle Twitch, Tetanus	01
Unit 5: Reproductive System	Histology of Testis	01
	Histology of Ovary	01
	Roles of Hormones in Reproduction including Placental Hormones	02
Unit 6: Endocrine System	Histology & Function of Pituitary, Thyroid, Pancreas and Adrenal	04
	Classification of Hormones	01
	Mechanism of Hormone Function	03
	Hypothalamus	03
Total Number of Lectures Required:		**35**

Semester – V

Subject: ***Zoology (Hons)***
Paper: ***DSE T1***
Title: ***Endocrinology***
Teacher: ***Dr. Tanmay Datta***

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Introduction to Endocrinology	General Idea of Endocrine System & Classification	01
	Characteristic and Transport of Hormones	01
	Neurosecretions	01
	Neurohormones	01
Unit 2: Epiphysis, Hypothalamo-Hypophysial Axis	Structure of Pineal Gland	01
	Secretions & Functions of Pineal Gland	01
	Structure & Functions of Hypothalamus	02
	Regulation of Neuroendocrine Glands	01
	Feedback Mechanism	01
	Structure of Pituitary Gland	01
	Pituitary Hormones & their Functions	02
	Hypothalamo-Hypophysial Portal System	01
	Disorders of Pituitary Gland	02
Unit 3: Peripheral Endocrine Glands	Thyroid Gland	02
	Parathyroid	01
	Adrenal	02
	Pancreas	01
	Ovary	02
	Testis	02
	Hormones in Calcium & Glucose Homeostasis	02
Unit 4: Regulation of Hormone Action	Mechanism of Action of Hormones	03
	Bioassays of Hormones using RIA & ELISA	02
	Estrous Cycle in Rat	01
	Menstrual Cycle in Human	01
	Roles of Vasopressin & Oxytocin	02
	Hormonal Regulation of Parturition	01
Total Number of Lectures Required:		**38**

Lesson Plan

Semester – I

Subject: ***Zoology (Hons)***
Paper: ***Core T2***
Title: ***Ecology***
Teacher: ***Dr. Tanmay Datta***

Chapter	**Lecture Topics**	**Required Number of Lectures**
Unit 1: Introduction to Ecology	History of Ecology, Autecology & Synecology, Levels of Organization, Biosphere	01
	Laws of Limiting Factors	01
	Physical Factors: Light	01
	Physical Factors: Temperature	01
Unit 2: Population	Unitary & Modular Populations	01
	Demographic Factors	01
	Life Table	02
	Fecundity Tables	01
	Survivorship Curves	01
	Dispersal & Dispersion	01
	Exponential Growth	01
	Logistic Growth	01
	r and k Strategies	01
	Population Regulation- Factors	01
	Population Interactions	01
	Gause's Principle with Example	01
	Lotka-Volterra Equation for Competition	02
Total Number of Lectures Required:		19

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Semester – III

Subject: ***Zoology (Hons)***
Paper: ***Core T6***
Title: ***Animal Physiology: Controlling & Coordinating Systems***
Teacher: ***Dr. Tanmay Datta***

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Tissues	Epithelial Tissue	01
	Connective Tissue	01
	Muscular Tissue	01
	Nervous Tissue	01
Unit 2: Bone & Cartilage	Structure & Types of Bone & Cartilages	01
	Bone Ossification	01
Unit 3: Nervous System	Structure & Types of Neurons	01
	Resting Membrane & Action Potential	01
	Propagation of Action Potential	01
	Types of Synapse & Synaptic Transmission	01
	Neuromuscular Junction	01
	Reflex Action and its Types	01
Unit 4: Muscular System	Histology of Different Types of Muscles	02
	Ultra-Structure of Skeletal Muscle	02
	Molecular & Chemical Basis of Skeletal Muscle Contraction	02
	Characteristics of Muscle Fiber	01
	Muscle Twitch, Tetanus	01
Unit 5: Reproductive System	Histology of Testis	01
	Histology of Ovary	01
	Roles of Hormones in Reproduction including Placental Hormones	02
Unit 6: Endocrine System	Histology & Function of Pituitary, Thyroid, Pancreas and Adrenal	04
	Classification of Hormones	01
	Mechanism of Hormone Function	03
	Hypothalamus	03
Total Number of Lectures Required:		**35**

Semester – V

Subject: ***Zoology (Hons)***
Paper: ***DSE T1***
Title: ***Endocrinology***
Teacher: ***Dr. Tanmay Datta***

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Introduction to Endocrinology	General Idea of Endocrine System & Classification	01
	Characteristic and Transport of Hormones	01
	Neurosecretions	01
	Neurohormones	01
Unit 2: Epiphysis, Hypothalamo-Hypophysial Axis	Structure of Pineal Gland	01
	Secretions & Functions of Pineal Gland	01
	Structure & Functions of Hypothalamus	02
	Regulation of Neuroendocrine Glands	01
	Feedback Mechanism	01
	Structure of Pituitary Gland	01
	Pituitary Hormones & their Functions	02
	Hypothalamo-Hypophysial Portal System	01
	Disorders of Pituitary Gland	02
Unit 3: Peripheral Endocrine Glands	Thyroid Gland	02
	Parathyroid	01
	Adrenal	02
	Pancreas	01
	Ovary	02
	Testis	02
	Hormones in Calcium & Glucose Homeostasis	02
Unit 4: Regulation of Hormone Action	Mechanism of Action of Hormones	03
	Bioassays of Hormones using RIA & ELISA	02
	Estrous Cycle in Rat	01
	Menstrual Cycle in Human	01
	Roles of Vasopressin & Oxytocin	02
	Hormonal Regulation of Parturition	01
Total Number of Lectures Required:		**38**

ODD SEMESTAR LESSON PLAN
Academic Session: 2021

Name of the teacher : Uma Nag
Department : Mathematics

Year	Paper	No. of classes allotted in a week	Topic	No. of classes required
1st Sem (Hons)	CC-2 (Unit-3 and 4)	2	**ALGEBRA:** **1)Unit-3:** i) Row Reduced and echelon forms ii) System of linear equation (vector form, the matrix form) iii) Solution Set of linear equation iv) Applications of linear system v) Linear independence **2)Unit-4:** i) Introduction of linear transformation ii) Matrix of linear transformation iii) Inverse matrix iv) Characterizations of invertible matrices v) Subspaces of R^n and Dimension of subspaces of R^n vi) Rank of a matrix vii) Eigen Value and characteristic equation of a matrix viii) Eigen Vectors ix) Cayley-Hamilton theorem x) Finding the inverse of a matrix using Cayley-Hamilton theorem	 2 1 4 1 1 3 2 1 1 2 1 1 3 1 1
3rd Sem (Program)	MATP31 -DSC (Paper-3) (Unit-1)	2	**REAL ANALYSIS:** **Unit-1:** i) Algebric Property ii) Ordered Property iii) Bounded above, Bounded below, Supremum, infimum iv) Completeness Property v) The Archimedean Property	 4 4 1 4 2

			vi) Density Property vii) Intervals, limit point, isolated point viii) Open Set ix) Closed Set, Derived Set x) Bolzano-Weiestrass Theorem for Set xi) Compact set in R xii) Heine-Boreal Theorem xiii) Countable and uncountable set, uncountability of R.	1 1 3 3 1 2 1 3
5th Sem (Program)	MATP52 -DSE- (Paper-1) (Unit-4 and 5)	2	**Linear Algebra:** **1) Unit-4:** i) Vector spaces ii) Subspaces iii) Algebra of subspaces iv) Quotient spaces v) Linear combination of vectors and linear span vi) Linear independence vii) Basis and dimension viii) Dimension of subspaces **2) Unit-5:** i) Linear transformation ii) Null spaces iii) Range iv) Rank and nullity of a linear transformation v) Matrix representation of a linear transformations vi) Algebra of linear transformations vii) Isomorphism	 2 1 2 2 1 2 2 1 2 2 2 3 2 1 2

LESSON PLAN

SEMESTER- III (B.A PROGRAMME)

Subject: Development Economics (DSC III)

Teacher: Amrita Banerjee

Chapter	Lecture Topics	Required number of Lectures
Chapter-I: Economic Growth and Economic Development	Concepts of Economic Growth, Economic Development and Gross National Happiness, Distinction between Economic Growth and Economic Development, Indicators of Economic Growth and Economic Development, Net National Income and Per Capita Income as Growth Indicators, Concepts of Human Development Index (HDI), GDI, GEM and HPI as Development Indicators.	3
Chapter-II: Development Planning and its Necessity	Balanced vs. Unbalanced growth, Complementary Roles of Agriculture and Industry, Role of Technology in Agriculture and Industry.	3
Chapter-III: Population	Relationship between Population and Economic Development, Features of India's Population Problem, National Population Policy, 2000, Occupational Distribution of Population.	3
Chapter-IV: Capital Formation	Capital-output Ratio, Role of Capital Formation in LDCs and its Problems, Trends of Savings and Capital Formation in India.	3
Chapter-V: Foreign Investment	Foreign Capital/Foreign Direct Investment (FDI), Government Policy, Foreign Aid	3
Chapter-VI: Role of IMF and World Bank	Role of IMF and World Bank in Economic Development of the LDCs.	2

LESSON PLAN

SEMESTER- V (B.A PROGRAMME)

Subject: Indian Economy-I (DSE I)

Teacher: Amrita Banerjee

Chapter	Lecture Topics	Required number of Lectures
Chapter-I: India's Economic Structure	India's Transition from Planned Economy to the Market Economy, Three Worlds and Third World, Main Features of Less Develop Countries (LDCs), Causes of Underdevelopment of the Indian Economy	2
Chapter-II: India's National Income	Trends and Feature, Estimation and Distribution, Causes of Low Growth of National Income, Sectoral Composition of India's National Income, Difficulties in Measuring National Income in India.	2
Chapter-III: India's Population Problem	Features, Theory of Demographic Transition, Problem of India's Overpopulation, Factors behind India's Population Growth, Recent Population Policy of the Government.	2
Chapter-IV: Agriculture	Features of Indian Agriculture, Causes of Low Productivity and its Remedies, Role of Agricultural Development in India's Economic Development, New Technology and Green Revolution and its Effects, Agricultural Finance and Marketing.	2
Chapter-V: Land Reforms in India	Agrarian Structure, Relationship between Man and Land, Programme of Land Reform in India and its Evaluation, Land Reforms in West Bengal, Operation Barga in West Bengal.	3

LESSON PLAN

SEMESTER- V (B.A PROGRAMME)

Subject: Business Project Formulation & Entrepreneurship Development (SEC I)

Teacher: Amrita Banerjee

Chapter	Lecture Topics	Required number of Lectures
Chapter-I: Business Project Formulation	Procedure for setting up a business project, Meaning of project, project identification and selection, project report, its significance and contents, formulation of a project report. Project evaluation and selection: The payback period, Net Present Value (NPV), Internal Rate of Return (IRR).	3
Chapter-II: Entrepreneurship	The concept of Entrepreneurship, Classification and Types of Entrepreneurs, Women Entrepreneurs, Development of Entrepreneurs in India, Role of entrepreneurship in Economic Development.	3
Chapter-III: Small Scale Industries	The Concept of Small Scale Industry, Role of Small Scale Industries, Policies Governing Small Scale Industries, Rural Industries and Rural Artisans.	2
Chapter-IV: Entrepreneurial Environment	Social and Political Environment, Technological Environment, Legal Environment, Cultural Environment.	2
Chapter-V: Entrepreneurial Development	Various Approaches to Entrepreneurship Development, Human Resource Development, Various Programmes on Entrepreneurship Development.	2
Chapter-VI: Project Work	Questionnaire Development and Data collection for case study on Entrepreneurship development. Micro, Small or Medium Scale Industries in local areas.	2

LESSON PLAN

SEMESTER- I (B.A PROGRAMME)

Subject: Microeconomics (DSC I)

Teacher: Amrita Banerjee

Chapter	Lecture Topics	Required number of Lectures
Chapter-I: Demand Analysis	Definition, Determinants of Demand, Demand Curve and Demand Function, Law of Demand, Measurement of Own price elasticity of Demand, Cross price elasticity of Demand and Income elasticity of Demand, Factors Determining Elasticity of Demand.	3
Chapter-II: Consumption and Utility	Definition of Total Utility (TU) and Marginal Utility (MU), Relationship between TU and MU, Law of Diminishing Marginal Utility, Condition of Equilibrium of the Consumer, Indifference Curve Analysis: Definition and Characteristics of Indifference Curve (IC), Marginal Rate of Substitution (MRS), Budget Line, Consumer's Equilibrium, Price Effect, Income Effect, Substitution Effect, Consumer Surplus	3
Chapter-III: Theory of Production and Cost	Definition of Production Function, Definition of Total Product (TP), Average Product (AP) and Marginal Product (MP), Derivation of AP and MP from TP Curve, Law of Variable Proportions, Producer's equilibrium, Expansion Path, Laws of Returns to Scale. Cost and Revenue: Fixed Cost and Variable Cost, Average Cost and Marginal Cost, Shape of Cost Curves, Relation between Average Cost and Marginal Cost.	3

	Definitions of Total Revenue (TR), Average Revenue (AR) and Marginal Revenue (MR) and relationship among AR, MR and Price Elasticity of Demand.	
Chapter-IV: Perfect and Imperfect Competition	Classifications of Markets, Characteristics of Perfect Competition, Short-run and Long-run Equilibrium of the Firm, Short-run Supply Curve of the Firm, Price Determination in a Perfectly Competitive Market. Monopoly: Characteristics, Price and Output Determination in Monopoly, Basic Concepts of Price Discrimination. Characteristics of Monopolistic Competition, Oligopoly and Duopoly markets.	7
Chapter-V: Input Market	Theory of Distribution: Marginal Productivity Theory of Distribution. Definitions of MPP, VMP and MRP. Rent: Ricardian Theory of Rent, Concept of Economic Rent, Scarcity Rent, Differential Rent and Quasi-rent. Wage: Money Wage and Real Wage, Marginal Productivity Theory of Wages, Role of Collective Bargaining	3

LESSON PLAN

SEMESTER- V (B.A PROGRAMME)

Subject: Indian Economy I (GE I)

Teacher: Amrita Banerjee

Chapter	Lecture Topics	Required number of Lectures
Chapter-I: India's Economic Structure	India's Transition from Planned Economy to the Market Economy, Three Worlds and Third World, Main Features of Less Develop Countries (LDCs), Causes of Underdevelopment of the Indian Economy.	3
Chapter-II: India's National Income	Trends and Feature, Estimation and Distribution, Causes of Low Growth of National Income, Sectoral Composition of India's National Income, Difficulties in Measuring National Income in India.	3
Chapter-III: India's Population Problem	Features, Theory of Demographic Transition, Problem of India's Overpopulation, Factors behind India's Population Growth, Recent Population Policy of the Government.	3
Chapter-IV: Agriculture	Features of Indian Agriculture, Causes of Low Productivity and its Remedies, Role of Agricultural Development in India's Economic Development, New Technology and Green Revolution and its Effects, Agricultural Finance and Marketing.	3
Chapter-V: Land Reforms in India	Agrarian Structure, Relationship between Man and Land, Programme of Land Reform in India and its Evaluation, Land Reforms in West Bengal, Operation Barga in West Bengal.	3

SEMESTER- 3
SUBJECT:- PHYSICS
PAPER - CC-6
TITLE:- THERMAL PHYSICS
TEACHER:- PROSENJIT CHAKRABORTI

CHAPTER	LECTURE TOPICS	Required No. of Lectures
Distribution of Velocities	M-B distribution law and its verification	3
	Doppler broadening & Stern's experiment	2
	Mean, RMS and most profable speed	1
	DOF & equipartition law	2
	Specific heat of gases	2
Molecular Collision	Mean free path & collision probability	3
	Expression of mean free path	2
	Transport Phenomena	2
	Browmain motion and its signicance	1
Real Gases	Behaviour & Deviations from ideal gas equation	2
	Virial Equation & Critical constants	2
	Continuity of States & Boyle Temperature	2
	Van Del Waal's Equation & P-V diagrams	2
	J-T experiment, J-T Effect & J-T COOLING	3

SEMESTER- 3
SUBJECT:- PHYSICS
PAPER - DSC- 3
TITLE:- THERMAL PHYSICS & Statistical Mechanics
TEACHER:- PROSENJIT CHAKRABORTI

CHAPTER	LECTURE TOPICS	Required No. of Lectures
Kinectic Thoery of Gases	Maxwell's Law Of Velocity	3
	Mean Free Path	2
	Transport phenomena	3
	Equipartition law of Energy & it's application	2
Theory of Radiation	Blackbody Radiation	2
	Planck's Law	2
	Wien's Law	1
	Rayleigh Jeans Law	1
Statistical mechanics	Phase space macro and micro states	3
	Entropy and thermodynamic probability	2
	Maxwell Boltzmann law	3
	Quantum Statistics: F-D and B-E distribution law	4

SEMESTER- 3		
SUBJECT:- PHYSICS		
PAPER - GE- 3		
TITLE:- MECHANICS		
TEACHER:- PROSENJIT CHAKRABORTI		
CHAPTER	**LECTURE TOPICS**	**Required No. of Lectures**
Vectors	Vector Alzebra	1
	Scalar & Vector Products	2
	Derivatives of a Vector	2
Ordinary Differentials Equations	1st order homogeneous euations	2
	2nd order homogeneous equations	2
Laws Of Motion	Reference Frame	1
	Newton's Laws of Motion	2
	Dynamics of a System of particulars	1
Momentum & Energy	Work & Energy	1
	Conservation of momentum	1
	Conservation of Energy	1
	Rocket Motion	2
Rotational Motion	Angular Velocity & Momentum	2
	Torque & Conservation of Angular Momentum	2
Gravitation	Newton's Laws of Gravitation	1
	Motion in a central Force	2
	Kepler's Laws, Satellite & Orbits	2
	GPS, Weightlessness & Psychological effects	1

SEMESTER- 5		
SUBJECT:- PHYSICS		
PAPER - DSE		
TITLE:- Nuclear & Particle Physics		
TEACHER:- PROSENJIT CHAKRABORTI		
CHAPTER	**LECTURE TOPICS**	**Required No. of Lectures**
Genaeral Properties of Nuclei	Constituents of nucleus & their properties	2
	Different properties of nucleus	4
	Binding Energy & it's Variation	3
Nuclear Models	Liquid Drop Model	2
	Fermi gas Model	2
	Shell Structure & Shell Model	2
Redioactive decay	Alpha decay and Geiger Nuttal law	3
	Beta decay and its theories	4
	Gamma decay, its Kinematics and internal conversion	3
Nuclear reactions	Types and kinematics, Q value	2
	Compound, direct and resonance reactions	2
	Rate and crosssection of reactions	2
	Conlomb Scattering	2
Interaction of radition with matter and radition detectiors	Energy loss, Cerenvok Radiation	3
	GAMMA RAY & neutron interactions with matter	3
	Photoelectric effect, Compton scattering & pair production	3
	Gas detector, ionization chamber, GM counter	3
	Scintillation detector, PMT, Semicondutor detctors	4

SEMESTER- 5
SUBJECT:- PHYSICS
PAPER - DSE
TITLE:- Nuclear & Particle Physics
TEACHER:- PROSENJIT CHAKRABORTI

CHAPTER	LECTURE TOPICS	Required No. of Lectures
Particle accelerators & particle physics	Van de graff generators, LINACC, cyclotron, synchrotron	5
	Types of particles, Symmetries and conservation lows	4
	Different types of quantum numbers of particles	4
	Quark Models, color & gluons	4

LESSON PLAN 1ST SEM

SUB- POLITICAL SCIENCE PAPER- DSC101

TITLE- UNDERSTANDING POLITICAL SCIENCE TEACHER- PARAMITA DEB

CHAPTER	LECTURE TOPICS	REQURIED NUMBER OF CLASS
1 POLITICS&POLITICAL SC.	MEANING OF POLITICS	2
	NATURE AND SCOPE OF POL SC.	4
POLITICALSC.	SC OR ARTS	2
	BEHAVIOURALISM AND POST BEHAVIOURALISM	4
RELATIONSHIP OF POL SC WITH HISTORY, ECONOMICS AND SOCIOLOGY		3
RELATIONSHIP BETWEEN POLITICAL THEORY AND POLITICALPHILOSOPHY		2
2 STATE	ELEMENTS OF STATE	2
	DIFFERENCE BETWEEN STATE & GOV.	1
	STATE AND SOCIETY	1
	STATE AND ASSOCIATION	1
THEORIES	SOCIAL CONTRACT	2
	IDEALIST	2

		LIBERAL	1
		NEO LIBERAL	1
		ANARCHIEST	1
SOVEREIGNTY		FEATURES, KINDS	1
		MONISTIC AND PLURALISTIC	2
3	THEORIES OF ORIGIN OF STATE	SOCIAL CONTRACT	1
		HISTORICAL	1
		MARXIST	1
4	FUNCTION OF STATE	LIBERAL	2
		WELFARE	1
		MARXIST	2
5	THEORIES	RIGHTS	2
		LIBERTY	1
		EQUALITY	1
		JUSTICE	2
REVISION			10

Lesson Plan

Semester: 3rd (Honours)

Subject: Geography Teacher: Mousona Maitra

Paper: CC-3-06-TH

Title: Statistical Methods in Geography

Chapter	Lecture Topics	Required number of classes
1.Statistical Data	Definition & role of statistics in geography.	1
	Definition of Data, Source of Data	1
	Significance of Data in geography.	1
2. Scale measurement	Scale of measurement: Nominal, Ordinal, Ratio, Interval Scale.	2
3.Sampling	Sampling: purposive, Random, Systematic, Stratified	3
	Probability distribution	1
	Normal Distribution	1

Lesson Plan

Semester: 5th (Honours)

Subject: Geography Teacher: Mousona Maitra

Paper: CC11

Title: Environmental Geography

Chapter	Lecture Topics	Required number of classes
Project Report	Landslide and Flood in North Bengal	10

Lesson Plan

Semester: 3rd (Programme)

Subject: Geography Teacher: Mousona Maitra

Paper: DSC-3

Title: Regional Development (Practical)

Chapter	Lecture Topics	Required number of classes
Topographical map	Definition & Identification of topographical map	3
Topographical map	Drawing Physiographic division,Drainage,Vegetation,Settlement	8

Lesson Plan

Semester: 5th (Programme)

Subject: Geography Teacher: Mousona Maitra

Paper: DSE-5-01-TH

Title: Disaster Management

Chapter	Lecture Topics	Required Number of Classes

1.Disaster	Definition & Concepts of Disaster, Hazard;	2
	Risk & Vulnerability; Classification	2
2.Response & mitigation of Disaster	Mitigation & Preparedness, NDMA & NIDM	2
	Indigenous Knowledge & Community-Based Disaster Management	3

LESSON PLAN (ASIMA SARKER)		
Subject - English (Hons.)	**Semester** - I	
Paper - CC 1	**Title** - English Language & Literary types	
Text/Unit	**Topics**	**No. of lectures**
Literary types	Understanding Literature	2
	Literary genre	2
	Tragedy	5
	Comedy	4
	Lyrics	4
	Literary types and terms	8

LESSON PLAN (ASIMA SARKER)		
Subject - English (Hons.)	**Semester** - III	
Paper - CC 5	**Title** - American Literature	
Text	**Topics**	**No. of lectures**
Bradstreet's 'Prologue'	Social History	3
	Literary History	3
	Bradstreet the poet and the poem	2
	Analysis of the poem	6
	Women's Writing - models and features	5
	Thematic study	4
Faulkner's 'Dry September'	Social History	6
	Literary History	5
	Faulkner	1
	The Text - in depth discussion	8
	Southern Literary Tradition	2
	Thematic Study	6
	Character analysis	3
The Glass Menagerie	Social History	4
	Literary History	3
	Tennessee Williams	1
	Plastic Theatre	2
	The Text - in depth discussion	8
	Thematic Study	6
	Character analysis	3

LESSON PLAN (ASIMA SARKER)		
Subject - English (Hons.)		**Semester** - V
Paper - CC 11		**Title** - Women's Writing
Text	**Topics**	**No. of lectures**
Rassundari Devi	Women's Writing	6
	Social History	2
	Literary History	1
	Rassundari Devi	1
	The text - in depth analysis	5
	Thematic analysis	6
Subject - English (Hons.)		**Semester** - V
Paper - CC 12		**Title** - British Literature:The Early 20th century
Text	**Topics**	**No. of lectures**
Heart of Darkness	Social History	4
	Literary History	4
	Conrad	1
	The text- in depth analysis	5
	Thematic analysis	8
Subject - English (Hons.)		**Semester** - V
Paper -DSE 1 (B)		**Title** - Literary Theory and Criticism
Text	**Topics**	**No. of lectures**
Modernism	Social History	3
	Philosophical & Literary History	4
	Modernism	5

Walter Benjamin		8
Spender		4
Postmodernism	Social History	3
	Philosophical & Literary History	4
	Postmodernism	5
Lyotard		5
Jameson		6
Postcolonialism	Historical Background	4
	Postcolonialism	4
Edward Said		6
Aijaz Ahmad		6

LESSON PLAN (ASIMA SARKER)		
Subject - Optional for Honours		**Semester** - I
Paper - GE 1		**Title** - Selections from Indian Literature
Text	**Topics**	**No. of lectures**
Kamala Das	Indian English Poetry	3
	Kamala Das and Indian Women's Poetry	3
	An Introduction' - discussion	3
	Thematic analysis	4
	Smoke in Colombo' - discussion	2
	Thematic analysis	3

Lesson Plan

Semester – ***1st sem. B.A. Honours***
Subject – Geography
Paper- ***GEO-H-CC-1-02-TH***
Title- Geomorphology
Teacher – subrata kundu paul

Chapters	Lecture Topics	Required Number of Lectures
Geomorphology	Nature and scope	1
	Fundamental concepts	3
Geomorphic processes	Weathering	2
	Mass wasting	2
	Cycle of erosion(Davis and penck)	4

Lesson Plan

Semester – ***1st sem. B.A. GE***
Subject – Geography
Paper- ***GEO-GE-01-PR***
Title- Physical Geography
Teacher – subrata kundu paul

Chapters	Lecture Topics	Required Number of Lectures
Map projection	Definition and classification	2
	Graphical construction of zenithal gnomonic projection (polar case)	3
	Graphical construction of cylindrical Equal area projection	2
	Graphical construction of simple conical projection with one standard parallel	2

Lesson Plan

Semester – ***1st sem. B.A. programme***
Subject – Geography
Paper- ***GEO-P-CC-1-01-TH***
Title- Physical Geography
Teacher – subrata kundu paul

Chapters	Lecture Topics	Required Number of Lectures
Earth's interior	Earth's interior with special reference to seismology.	2
Plate tectonic	Plate tectonic theory.	2
	Plate tectonics as a unified theory of global tectonics.	2
	Formation of major relief features of the ocean floor and continents according to plate tectonics.	4
Folds And Faults	Folds: classification and surface expression	3
	Faults: classification and surface expression	3
Principal geomorphic agents	Classification and evolution of fluvial landforms	2
	Classification and evolution of coastal landforms	2
	Classification and evolution of aeolian landforms	2
	Classification and evolution of glacial landforms	2

Lesson Plan

Semester- ***3rd(B.A. Honours)***
Subject **–** Geography
Paper **–** ***GEO-H-CC-3-06-PR***
Title- Statistical Methods In Geography
Teacher – subrata kundu paul

Chapters	Lecture Topics	Required Number of Lectures
Tabulation of data	Frequency distribution table, class group, and class interval	2
Descriptive statistics	Quartiles ,Deciles, And Percentiles	3
	Measures of Central Tendency: Mean, Median, and Mode	3
	Measures of Dispersion: Quartile Deviation, Mean Deviation, Standard Deviation, Variance, and Coefficient of Variation	3

LESSON PLAN

Semester – **5th(B.A. HONOURS)**
Subject – Geography
Paper – ***GEO-H-DSE-5-01-TH***
Title – Population Geography
Teacher – subrata kundu paul

Chapters	Lecture Topics	Required Number of Lectures
Defining the field of population	Nature and scope of population geography	1
	Sources of data with special reference to India(census, vital statistics, and NSSO)	3
Population and its theories	Population size, distribution, and growth	3
	Determinants and patterns of population changes	2
	Malthusian theory	1
	Optimum population theory	1
	Important demographic terms related to population dynamics.	1

	Fertility and its measures, determinants, and implications.	4
	Mortality and its measures, determinants, and implications.	4
	Migration: Definition, Classification, Geographic importance, and theories related to migration	5
Population composition and characteristics	Age- sex composition	2
	Rural and urban composition	1
	Literacy status	2
	Contemporary issues	2
	Ageing of the population; declining sex ratio, and HIV/AIDS	1

LESSON PLAN

Semester – **5th(B.A. HONOURS)**
Subject – Geography
Paper – GEO-H-DSE-5-01-PR
Title – Population Geography
Teacher – subrata kundu paul

Chapters	Lecture Topics	Required Number of Lectures
Practical	Population projection by an arithmetic method	2
	Population density mapping for India	2

Lesson Plan

Semester – ***5th-semester B.A. PROG. GE***
Subject – Geography
Paper- ***GEO-GE-01-PR***
Title- Physical Geography
Teacher – subrata kundu paul

Chapters	Lecture Topics	Required Number of Lectures
Map projection	Definition and classification	2
	Graphical construction of zenithal gnomonic projection (polar case)	3
	Graphical construction of cylindrical Equal area projection	2
	Graphical construction of simple conical projection with one standard parallel	2

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LESSON PLAN 3rd SEM

SUB- POLITICAL SCIENCE PAPER- SEC

TITLE- PUBLIC OPINION AND SURVEY RESEARCH TEACHER- PARAMITA DEB

CHAPTER	LECTURE TOPICS	REQURIED NUMBER OF CLASS
1 INTRODUCTION	CHARACTERISTICS,DEBATES, OPINION POLL	7
2 REPRESENTING AND SAMPLING		3
3 SAMPLING, SAMPLE DESIGN		4
4 SAMPLING ERROR AND NON RESPONSE		3
5 QUOTA, PURPOSIVE, SNOWBALL		6
6 INTERVIEW,PITFALLS,FORMS		3
7QUESTION WORDING		3
8 QUANTATIVE DATA		3
9 CORRECTIONAL,CAUSATION,DESCRIPTIVE		5
10 POLITICS OF INTERPRETING POLLING		6

LESSON PLAN 5TH SEM

SUB- POLITICAL SCIENCE PAPER- SEC 301

TITLE- PUBLIC OPINION AND SURVEY RESEARCH TEACHER- PARAMITA DEB

CHAPTER	LECTURE TOPICS	REQURIED NUMBER OF CLASS
1 INTRODUCTION	CHARACTERISTICS,DEBATES, OPINION POLL	7
2 REPRESENTING AND SAMPLING		3
3 SAMPLING, SAMPLE DESIGN		4
4 SAMPLING ERROR AND NON RESPONSE		3
5 QUOTA, PURPOSIVE, SNOWBALL		6
6 INTERVIEW,PITFALLS,FORMS		3
7QUESTION WORDING		3
8 QUANTATIVE DATA		3
9 CORRECTIONAL,CAUSATION,DESCRIPTIVE		5
10 POLITICS OF INTERPRETING POLLING		6

Lesson Plan

Semester–II (Hons)

Subject-Chemistry Paper-CC II

Title-Physical Chemistry Teacher- Dr. Sonali Sarkar

Chapter	Lecture Topics	Required Number of Lectures
Gaseous state	Kinetic molecular model of a gas: postulates and derivation of the kinetic gas equation, average kinetic energy.	2
	Collision frequency, collision diameter, mean free path.	1
	Viscosity and viscosity co-efficient, dependence of viscosity with temperature and pressure.	1
	Relation between mean free path and co efficient of viscosity.	1
	Maxwell distribution and its use in evaluating molecular velocities (average, root mean square and most probable).	2
	Law of equipartition of energy	1
	Degrees of freedom and molecular basis of heat capacities	1
	Behavior of real gases: Deviations from ideal gas behavior, compressibility factor and its variation with pressure for different gases	1
	Causes of deviations from ideal behaviors, Vandarwaals equation of state, its derivation	1
	Other equations of state (Berthelot, Dietirici); Virial equation of state, Vanderwaal equation expressed in Virial form and calculation of Boyle's temperature.	2
	Critical state, continuity of states, relation between critical constants and Vanderwaals constants, Law of corresponding states.	2

Liquid state	Qualitative treatment of the structure of the liquid state, vapour pressure, surface tension and coefficient of viscosity and their determination	2
	Effect of addition of various solutes on surface tension and viscosity. Explanation of cleansing action of detergents. Temperature variation of viscosity of liquids and comparison with that of gases	2
	Strong, moderate and weak electrolytes, Degree of ionization, factors controlling the degree of ionization.	1
	Ionic product of water, ionization of weak acids and bases	1
	Dissociation constants of mono, di, tri protic acid	2
	PH scale and common ion effect	1
	Salt hydrolysis, Calculation of hydrolysis constant, degree of hydrolysis	1
Ionic equilibria	PH for different salts, Buffer solutions	1
	Derivation of Handerson equation and its application	1
	Buffer capacity, buffer range and buffer action	1
	Solubility and solubility product of sparingly soluble salts- applications of solubility product principle	2
	Qualitative treatment of acid –base titration curves (calculation of PH at various stages). Theory of acid base indicators; selection of indicators and their limitations	2

Lesson Plan

Semester–III (Hons)

Subject-Chemistry Paper-VII

Title-Physical Chemistry Teacher- Dr. Sonali Sarkar

Chapter	Lecture Topics	Required Number of Lectures
Chemical Kinetics	Introduction, Rate of reaction, Average rate, Instantaneous rate, Order and molecularity of reaction.	1
	Rate of reaction, Average rate, instantaneous rate, freezing of reaction.	1
	Differential and integrated form of rate expressions of zero order, first order and second order reactions.	2
	Kinetics of complex reactions- Opposing reactions, Parallel reactions, Consecutive reactions and their differential rate equations, Chain reactions.	3
	Temperature dependence of reaction rates; Arhenius equation, activation energy.	2
	Collision theory of reaction rates, Lindemann mechanism, qualitative treatment of the theory of absolute reaction rates	3
Catalysis	Definition, Types of catalysis, Characteristics of catalytic reactions, Promoters, Catalytic poisoning	1
	Auto catalysis, Theories of catalysis	1
	Active centres of catalyst surface, Enzyme catalysis, Mechanism of enzyme catalysis, Characteristics of enzyme catalysis, Acid base catalysis	2
Adsorption	Introduction, Mechanism of adsorption, Types of adsorption, Characteristic of adsorption, Differences between physical adsorption and chemical adsorption	2
	Adsorption isotherm, Freundlich adsorption isotherm, Langmuir adsorption isotherm	1

Lesson Plan

Semester–V (Hons)

Subject-Chemistry Paper-XII

Title-Physical Chemistry Teacher- Dr. Sonali Sarkar

Chapter	Lecture Topics	Required Number of Lectures
Quantum Mechanics	Classical Mechanics, Maxwell's Electromagnetic wave theory, De Broglie's theory.	1
	Distinction between matter waves and electromagnetic waves, Significance of De Broglie's equation, Heisenberg's uncertainty principle	1
	Black body radiation and photo electric effect	2
	Compton effect, Postulates of Quantum mechanics	2
	Quantum mechanical operators	2
	Schrodinger equation and its application to free particle and particle in a box	2
	Particle in one dimensional box, zero point energy and wave functions, probability distribution functions, nodal properties	2
	Extension to three dimensional boxes, separation of variables, degeneracy	2
	Qualitative treatment of simple harmonic oscillator, model of vibrational motion, setting up of Schrodinger equation and discussion solution and wave function	2
	Angular momentum in Quantum mechanics	2
	Rigid rotator model of rotation of diatomic molecule	2
	Schrodinger equation, transformation of spherical polar coordinates. Separation of variables, spherical harmonics, discussion of solution	2

Colloid	Classification, preparation, purification of colloid Properties of colloids, Schulze Hardy rule, Gold number	1 1
	Colloidal electrolytes and their properties. Isoelectric point, Electrical double layer and Zeta potential, Micelles	1
Statistical Thermodynamics	Concepts of permutation, combination, factorials and probability. Thermodynamic probability and entropy	1
	Boltzmann distribution, partition function (translational, rotational, vibrational and electronic) Thermodynamic functions and equilibrium constant in terms of partition function	2 1
Photochemistry	Thermal or dark reaction and photochemical reactions, differences between them, light absorption, Lambert-Beer law, Optical density, Limitation of Lambert Beer law	1
	Transmittance, determination of absorbed intensity, Laws of photochemistry, primary and secondary reactions, Quantum yield Causes of high quantum yield, causes of low quantum yield, Photosensitization Energy transfer in photochemical reactions, Photosensitization and Quenching, Luminescence- Chemiluminescence, Fluorescence and Phosphorescence Quenching of Fluorescence, Stern volmer Equation.	1 1 1 1

Lesson Plan

Semester – III

Subject – Microbiology
Paper – CC7.1
Title – MOLECULAR BIOLOGY (PRACTICAL)
Teacher – Moushree Pal Roy

Lecture Topics	Required Number of Lectures
Study of different types of DNA and RNA using micrographs and model / schematic representations	06
Study of semi-conservative replication of DNA through micrographs / schematic representations	02
Isolation of genomic DNA from *E. coli*	04
Estimation of salmon sperm / calf thymus DNA using colorimeter (diphenylamine reagent) or UV spectrophotometer (A260 measurement)	02
Estimation of RNA using colorimeter (orcinol reagent) or UV spectrophotometer (A260 measurement)	02
Resolution and visualization of DNA by Agarose Gel Electrophoresis.	04
Resolution and visualization of proteins by Polyacrylamide Gel Electrophoresis (SDS-PAGE).	04

Lesson Plan

Semester: V

Subject – Microbiology
Paper– DSE Paper 1
Title – INSTRUMENTATION AND BIOTECHNIQUES (THEORY)
Teacher – Moushree Pal Roy

Chapter	Lecture Topics	Required Number of Lectures
Unit 1 Microscopy	Brightfield microscopy	2
	Darkfield microscopy	1
	Fluorescence Microscopy	1
	Phase contrast Microscopy	1
	Confocal Microscopy	1
	Electron Microscopy	2
	Micrometry	2
Unit 2 Chromatography	Principles and applications of chromatography	6
	Paper chromatography	1
	Thin layer chromatography	2
	Column packing and fraction collection	2
	Gel filtration chromatography	2
	Ion exchange chromatography	2
	Affinity chromatography	2
	GLC	1
	HPLC	1
Unit 3 Electrophoresis	Principle and applications of native polyacrylamide gel electrophoresis	3
	SDS- polyacrylamide gel electrophoresis	1
	2D gel electrophoresis	1
	Isoelectric focusing	2
	Zymogram preparation	2
	Agarose gel electrophoresis	2
Unit 4 Spectrophotometry	Principle of study of absorption spectra of biomolecules	2
	Use of study of absorption spectra of biomolecules	2
	Analysis of biomolecules using UV	1
	Analysis of biomolecules using visible range	1

	Colorimetry	2
	Turbidometry	2
Unit 5 Centrifugation	Preparative and analytical centrifugation	2
	Fixed angle and swinging bucket rotors	2
	RCF and sedimentation coefficient	2
	Differential centrifugation	2
	Density gradient centrifugation	2
	Ultracentrifugation	2

Lesson Plan
Semester: V

Subject – Microbiology
Paper– DSE Paper 1.1
Title – INSTRUMENTATION AND BIOTECHNIQUES (PRACTICAL)
Teacher – Moushree Pal Roy

Lecture Topics	Required Number of Lectures
Study of fluorescent micrographs to visualize bacterial cells	1
Ray diagrams of phase contrast microscopy and Electron microscopy	2
Separation of mixtures by paper / thin layer chromatography	2
Demonstration of column packing in any form of column chromatography	2
Separation of protein mixtures by any form of chromatography	2
Separation of protein mixtures by Polyacrylamide Gel Electrophoresis (PAGE)	2
Determination of λmax for an unknown sample and calculation of extinction coefficient	2
Separation of components of a given mixture using a laboratory scale centrifuge	1
Understanding density gradient centrifugation with the help of pictures	1

Lesson Plan
Semester: I

Subject – Microbiology
Paper– CC Paper 1
Title – INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY (Theory)
Teacher – Moushree Pal Roy

Chapter	Lecture Topics	Required Number of Lectures
Unit 2B Diversity of Microbial World: Fungi	General characteristics of fungi including habitat, distribution, nutritional requirements	4
	fungal cell ultra- structure,	2
	thallus organization and aggregation	2
	fungal wall structure and synthesis	2
	Asexual reproduction	2
	sexual reproduction	2
	heterokaryosis, heterothallism and parasexual mechanism	2
Unit 2B Diversity of Microbial World: Protozoa	General characteristics	4
	Amoeba	1
	Plasmodium	1

Lesson Plan
Semester: I

Subject – Microbiology
Paper– CC Paper 1.1
Title – INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY (Practical)
Teacher – Moushree Pal Roy

Lecture Topics	Required Number of Lectures
Study of the following protozoans using permanent mounts/photographs: *Amoeba*, *Plasmodium*	2
Study of *Rhizopus*, *Aspergillus* using temporary mounts	2

Lesson Plan

Semester – III (Hons)

Subject – Computer Science | Paper – CC7

Title – Computer Networks | Teacher – Debangshu Chakraborty

Chapter	Lecture Topics	Required Number of Lectures
Introduction to Computer Networks	Network definition	1
	Network topologies	1
	Network classifications	
	Network protocol	1
	Layered network architecture	
	Overview of OSI reference model	1
	Overview of TCP/IP protocol suite	
Data Communication Fundamentals and Techniques	Analog and digital signal	1
	Data-rate limits	
	Digital to digital line encoding schemes	1
	Pulse code modulation	1
	Parallel and serial transmission	1
	Digital to analog modulation	1
	Multiplexing techniques- FDM, TDM	1
	Transmission media	1
Networks Switching Techniques and Access mechanisms	Circuit switching	1
	Packet switching- connectionless datagram switching, connection-oriented virtual circuit switching	1
	Dial-up modems	2
	Digital subscriber line	
	Cable TV for data transfer	
Data Link Layer Functions and Protocol	Error detection and error correction techniques	2
	Data-link control- framing and flow control	1
	Error recovery protocols stop and wait ARQ, go-back-n ARQ	1
	Point to Point Protocol on Internet	1
Multiple Access Protocol and Networks	CSMA/CD protocols	1
	Ethernet LANS	1
	Connecting LAN and back-bone networks- repeaters, hubs, switches, bridges, router and gateways;	1

Networks Layer Functions and Protocols	Routing	3
	Routing algorithms	
	Network layer protocol of Internet- IP protocol, Internet control protocols	2
Transport Layer Functions and Protocols	Transport services- error and flow control, Connection establishment and release- three way handshaking	1
Overview of Application layer protocol	Overview of DNS protocol	1
	Overview of WWW & HTTP protocol	1
PRACTICAL	Computer Networks Practical	8

Semester – V (Hons)

Subject – Computer Science
Paper – CC9
Title – Internet Technologies
Teacher – Debangshu Chakraborty

Chapter	Lecture Topics	Required Number of Lectures
Java	Use of Objects, Array and ArrayList class	2
JavaScript	Data types, operators, functions, control structures, events and event handling.	5
JDBC	JDBC Fundamentals, Establishing Connectivity and working with connection interface, working with statements, Creating and Executing SQL Statements, Working with Result Set Objects	8
JSP	Introduction to Java Server Pages, HTTP and Servlet Basics, The Problem with Servlets, The Anatomy of a JSP Page, JSP Processing, JSP Application Design with MVC, Setting Up the JSP Environment, Implicit JSP Objects, Conditional Processing, Displaying Values, Using an expression to Set an Attribute, Declaring Variables and Methods, Error Handling and Debugging, Sharing Data Between JSP Pages, Requests, and Users, Database Access.	14
Java Beans	Java Beans Fundamentals, JAR files, Introspection, Developing a simple Bean, Connecting to DB	10

Semester – III (Program)

Subject – Computer Science Paper – CC3

Title – Computer Networks Teacher – Debangshu Chakraborty

Chapter	Lecture Topics	Required Number of Lectures
Introduction to Computer Networks	Network definition	1
	Network topologies	1
	Network classifications	1
	Network protocol	1
	Layered network architecture	1
	Overview of OSI reference model	1
	Overview of TCP/IP protocol suite	1
Data Communication Fundamentals and Techniques	Analog and digital signal	2
	Data-rate limits	
	Digital to digital line encoding schemes	1
	Pulse code modulation	1
	Parallel and serial transmission	1
	Digital to analog modulation	1
	Multiplexing techniques- FDM, TDM	1
	Transmission media	1
Networks Switching Techniques and Access mechanisms	Circuit switching	1
	Packet switching- connectionless datagram switching, connection-oriented virtual circuit switching	1
	Dial-up modems	2
	Digital subscriber line	
	Cable TV for data transfer	
Data Link Layer Functions and Protocol	Error detection and error correction techniques	2
	Data-link control- framing and flow control	1
	Error recovery protocolsstop and wait ARQ, go-back-n ARQ	1
	Point to Point Protocol on Internet	1
Multiple Access Protocol and Networks	CSMA/CD protocols	1
	Ethernet LANS	1
	Connecting LAN and back-bone networks- repeaters, hubs, switches, bridges, router and gateways;	1

Networks Layer Functions and Protocols	Routing	3
	Routing algorithms	
	Network layer protocol of Internet- IP protocol, Internet control protocols	2
Tutorial	Tutorial on Computer Networks	8

Lesson Plan

Semester – V

Subject – MICROBIOLOGY Paper – DSE Paper -4

Title – MICROBIAL BIOTECHNOLOGY (THEORY)

Teacher – MRS. NANDITA BANERJEE

UNITS	Lecture Topics	Required Number of Lectures
Unit 1 Microbial Biotechnology and its Applications	Microbial biotechnology: Scope and its applications in human therapeutics,	2
	agriculture (Biofertilizers, PGPR, Mycorrhizae),	1
	environmental, and food technology	1
	Use of prokaryotic and eukaryotic microorganisms in biotechnological applications	2
	Genetically engineered microbes for industrial application: Bacteria and yeast	2
Unit 2 Therapeutic and Industrial Biotechnology	Recombinant microbial production processes in pharmaceutical industries - Streptokinase, recombinant vaccines (Hepatitis B vaccine)	2
	Microbial polysaccharides and polyesters,	1
	Microbial production of bio-pesticides,	1
	bioplastics	1
	Microbial biosensors	1
Unit 3 Applications of Microbes in Biotransformations	Microbial based transformation of steroids and sterols	3
	Bio-catalytic processes and their industrial applications: Production of high fructose syrup and production of cocoa butter substitute	4
Unit 4 Microbial Products and their Recovery	Microbial product purification: filtration, ion exchange & affinity chromatography techniques	4
	Immobilization methods and their application: Whole cell immobilization	3
Unit 5 Microbes for Bio-energy and Environment	Bio-ethanol and bio-diesel production: commercial production from lignocellulosic waste and algal biomass,	2
	Biogas production: Methane and hydrogen production using microbial culture.	2
	Microorganisms in bioremediation: Degradation of xenobiotics, mineral recovery, removal of	4

heavy metals from aqueous effluents	

Unit 6 RNAi	RNAi and its applications in silencing genes,	2
	drug resistance,	1
	therapeutics and host pathogen interaction	3
Unit 7 Intellectual Property Rights	IPR	1
	Patents,	1
	Copyrights,	1
	Trademarks	1
	APPLICATIONS AND EXAMPLE	1
	OTHERS	1

Lesson Plan

Semester – 3rd PROGRAM

Subject – EDUCATION (paper -3) of Education

Paper – EDU-P-DSC-1

Title – Sociological foundation

Teacher – Swagata Choudhury

Chapter	Lecture Topics	Required Number of Lectures
UNIT-3 Social Group and Education	Primary, secondry, tertiary group	1
	Meaning, process and fectors of socialization ,role of family and school in socialization	3

Lesson Plan

Semester –3rd Honours

Subject – EDUCATION Paper – EDU-H-DSC-T- 6

Title – EDUCATIONAL EVALUATION AND STATISTICS

Teacher – Swagata Choudhury

Chapter	Lecture Topics	Required Number of Lectures
Unit-2 Educational Staticstics	Concept , need, scope of stastistics	2
	Concept of raw,data, frequency distribution, range,variable	2
	Organization and tabulation of data	1
Unit-3 Tools and techniques of evaluation	Tools- essay type test, objetive type test, oral, short answer type test, pesonality test, interest test	3
	Techniques- observation, interviews,	1

Lesson Plan

Semester – 5th Honours

Subject – EDUCATION Paper – EDU-H- DSC-T-12

Title – EDUCATIONAL TECHNOLOGY Teacher – Swagata Choudhury

Chapter	Lecture Topics	Required Number of Lectures
Unit-1 ET	Meaning ,nature, need, scope of ET	2
	Technology in education, technology of education	1
	Approaches of ET	1
Unit-2 CLASS ROOM COMMUNICATION AND ET	Meaning, nature, type, component of communication	2
	Barriers of communication	1
	Media use in education	1

Lesson Plan

Semester – 3rd

Subject – Microbiology | Paper – SEC Paper -2

Title – Biofertilizers And Biopesticides | Teacher – Avisek Pal

Chapter	**Lecture Topics**	**Required Number of Lectures**
Unit 1	Biofertilizers	2+ 2 (video making)
Unit 2	Non - Symbiotic Nitrogen Fixers	2+ 2 (video making)
Unit 3	Phosphate Solubilizers	2+ 2 (video making)
Unit 4	Mycorrhizal Biofertilizers	2+ 2 (video making)
Unit 5	Bioinsecticides	2+ 2 (video making)

Semester – 5th

Subject – Microbiology Paper – Paper -11

Title – Industrial Microbiology Teacher – Avisek Pal

Chapter	**Lecture Topics**	**Required Number of Lectures**
Unit 1	Introduction to industrial microbiology	4+ 2 (video making)
Unit 2	Isolation of industrially important microbial strains and fermentation media	3+ 2 (video making)
Unit 3	Types of fermentation processes, bio-reactors and measurement of fermentation parameters	3+ 2 (video making)
Unit 4	Down-stream processing	2+ 2 (video making)
Unit 5	Microbial production of industrial products (micro-organisms involved, media, fermentation conditions, downstream processing and uses)	4+ 2 (video making)
Unit 6	Enzyme immobilization	5+ 2 (video making)

Semester – 5th

Subject – Microbiology Paper – Paper -11.1

Title – Industrial Microbiology (Practical) Teacher – Avisek Pal

Chapter	**Lecture Topics**	**Required Number of Lectures**
Unit 1	*Study different parts of fermenter*	1+ 3 (video making)
Unit 2	*Microbial fermentations for the production and estimation (qualitative and quantitative) of: Enzymes: Amylase*	1+4 (video making)

Lesson Plan

Semester – V

Subject – Discipline Specific Elective Course
Paper – DSE - 2 [Honours] & DSE - 1 (DSC) [Program]
Title – INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE Teacher – Dr. Golam Moula

Chapter	**Lecture Topics**	**Required Number of Lectures**
Silicate Industries	***Glass:*** Glassy state and its properties, classification (silicate and non-silicate glasses). Manufacture and processing of glass. Composition and properties of the following types of glasses: Soda lime glass, lead glass, armoured glass, safety glass, borosilicate glass, fluorosilicate, coloured glass, photosensitive glass.	6
	Ceramics: Important clays and feldspar, ceramic, their types and manufacture. High technology ceramics and their applications, superconducting and semiconducting oxides, fullerenes carbon nanotubes and carbon fibre	3
	Cements: Classification of cement, ingredients and their role, Manufacture of cement and the setting process, quick setting cements	3
Fertilizers	Different types of fertilizers. Manufacture of the following fertilizers: Urea, ammonium nitrate, calcium ammonium nitrate, ammonium phosphates; polyphosphate, superphosphate, compound and mixed fertilizers, potassium chloride, potassium sulphate.	6
Surface Coatings	Objectives of coatings surfaces, preliminary treatment of surface, classification of surface coatings. Paints and pigments-formulation, composition and related properties. Oil paint, Vehicle, modified oils, Pigments, toners and lakes pigments, Fillers, Thinners, Enamels, emulsifying agents. Special paints (Heat retardant, Fire retardant, Eco-friendly paint, Plastic paint), Dyes, Wax polishing, Water and Oil paints, additives, Metallic coatings (electrolytic and electroless), metal spraying an anodizing.	12
Batteries	Primary and secondary batteries, battery components and their role, Characteristics of Battery. Working of following batteries: Pb acid, Li-Battery, Solid state electrolyte battery. Fuel cells, Solar cell and polymer cell.	6
Alloys	Classification of alloys, ferrous and non-ferrous alloys, Specific properties of elements in alloys. Manufacture of Steel (removal of silicon decarbonization, demanganization, desulphurization dephosphorisation) and surface treatment (argon treatment, heat treatment, nitriding, carburizing). Composition and properties of different types of steels.	10
Catalysis	General principles and properties of catalysts, homogenous catalysis (catalytic steps and examples) and heterogenous catalysis (catalytic steps and examples) and their industrial applications, Deactivation or regeneration of catalysts. Phase transfer catalysts, application of zeolites as catalysts.	6

Lesson Plan

Semester – 5

Subject – Chemistry Paper – CC11
Title – Organic Teacher – Dr Manika Saha

Chapter	Lecture Topics	Required Number of Lectures
Amino acids, Peptides and Protiens	Amino Acids	1
	Peptides	2
	Protiens	2
Pericyclic Reactions	Electrocyclic reactions	2
	Cycloaddition Reactions	2
	Sigmatropic Rearrangement	2
	Problem Discussion	1
Concepts of Energy in the biosystem	Half portion	2
Practical Discussions		2

Semester – 3

Subject – Chemistry Paper – CC-6
Title – Organic Chemistry Teacher – Dr Manika Saha

Chapter	Lecture Topics	Required Number of Lectures
Alcohols, Phenols, Ethers and Epoxides	Alcohols	3
	Phenols	2
	Ethers	1
	Epoxides	1
Carbonyl Compounds	Structure, Reactivity and Preparations	2
	Name Reactions	7
	Oxidations and Reductions	2
	Alpha Substitution Reactions	1
	Active methylene Compounds and applications	1
Preparation and reaction of thiols, thioethers and sulfonic acids.		1

	Practical Discussions	3

Semester – 3
Subject – Chemistry Paper – DSC-3
Title – Teacher – Dr Manika Saha

Chapter	Lecture Topics	Required Number of Lectures
Carboxylic Acids and their derivatives	Carboxylic acids	2
	Derivatives and Problem Discussion	3
Amines and Diazonium Salts	Amines	2
	Diazonium Salts and Problem Discussion	2
Electro Chemistry	Reversible and Irreversible cells, Concept of Emf and Nernst equation	1
	Types of Electrode and Electrode Potential, Electrochemical Series	2
	Calculation of Thermodynamic Properties	1
	Potentiometric Titrations	1
Amino Acids, Peptides and Protiens	Amino acids Synthesis, Reactions,Properties	2
	Determination of Primary structuture of Peptides by degradation	1
	Overview of Protein Structure	1
Practical Discussions		2

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Lesson Plan

Semester – 1

Subject – Chemistry Paper – GE1/DSC1

Title – Teacher – Dr Manika Saha

Chapter	Lecture Topics	Required Number of Lectures
Fundamentals of Organic Chemistry	Physical Effects, Electronic Displacements, Bond Cleavage	2
	Types of reagents and Reactive Intermediates	1
	Strength of Organic acids and bases and factors affecting that	1
	Aromaticity	1
Alkenes, Alkynes	Reactions of Alkenes	2
	Alkynes: Preparation and Reactions	1
Practical Discussions		2

Lesson Plan

Semester – 3rd GE

Subject – EDUCATION Paper – GE PAPER 1

Title – LIFE LONG LEARNING Teacher – Swagata Choudhury

Chapter	Lecture Topics	Required Number of Lectures
Unit-1 Concept of life long learning	Meaning, definetion of LLL, Adult Education	1
	Charactaristics,Need, aim,of LLL,	2
Unit-2 Approaches of LLL	Dimention of LLL	1
	Teaching Method of LLL	1

Lesson Plan

Semester – III

Subject – Computer Sc. (Hons.) Paper – SEC-E3

Title – Python Programming Teacher – Arpita Das

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Planning the Computer Program	Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation	02
Unit 2: Techniques of Problem Solving	Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.	02
Unit 3: Overview of Programming	Structure of a Python Program, Elements of Python.	03
Unit 4: Introduction to Python	Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator)	04
Unit 5: Creating Python Programs	Input and Output Statements, Control statements(Branching, Looping, Conditional Statement, Exit function, Difference between break, continue and pass.), Defining Functions, default arguments.	06
Practical	Python programming **Section: A (Simple programs)** **Section: B (OOPs using Python):**	30

Lesson Plan
Semester – 3rd (program)

Subject – Botany **Paper – DSC - III**
Title – Plant anatomy & embryology **Teacher – Dipak Barman**

Chapter	Lecture Topics	Required Number of Lectures
Structural organisation of flower	Structure of anther and pollen	2
	Structure and types of ovules	2
	Types of embryo sacs	2
	organization and ultrastructure of mature embryo sac	1

Lesson Plan

Semester – 5th

Subject – Botany **Paper – CC-XII**

Title – Plant Physiology **Teacher – Dipak Barman**

Chapter	**Lecture Topics**	**Required Number of Lectures**
Physiology of flowering	Photoperiodism	2
	Flowering stimulus	1
	Florigen concept	2
	Vernalization	1
	Seed dormancy	2

Lesson Plan

Semester – 5th SEC

Subject – Botany **Paper – sec**

Title – Biofertilizer **Teacher – Dipak Barman**

Chapter	Lecture Topics	Required Number of Lectures
UNIT 1	General account about the microbes used as biofertilizer	1
	Rhizobium – isolation, identification	2
	mass multiplication, carrier based inoculants	1
	Actinorrhizal symbiosis.	1

Lesson Plan

Semester – I

Subject – English Paper – DSC

Title – Individual and Society Teacher – Jaitra Bharati

Chapter	Lecture Topics	Required Number of Lectures
Individual and Society	Still I Rise	4
	The Brand Expands	4

Lesson Plan

Semester – III

Subject – English Paper – SEC

Title – Text Comprehension and Editing Teacher – Jaitra Bharati

Chapter	Lecture Topics	Required Number of Lectures
	Comprehension (Prose)	2
	Comprehension (Poetry)	2
	Summary writing	3
	Copy editing	5
	Proof reading	5

Lesson Plan

Semester – III

Subject – English Paper – DSC

Title – British Literature Teacher – Jaitra Bharati

Chapter	Lecture Topics	Required Number of Lectures
The Renaissance	Whoso List to Hunt	3
	One Day I Wrote Her Name	4
	Sonnet 65	4
	Sonnet 130	3
	The Sonne Rising	4
	On His Blindness	4

Lesson Plan

Semester – V

Subject – English Paper – DSE

Title – Literary Theory and Criticism Teacher – Jaitra Bharati

Chapter	Lecture Topics	Required Number of Lectures
Modernism	The Work of Art in the Age of Mechanical Reproduction	7
	Modern and Contemporaries	7
Postmodernism	Answering the Question: What is Postmodernism	7
	Postmodernism and Consumer Society	7

Lesson Plan

Semester – 3rd

Subject – History (Program)
Paper – DSC Paper 3
Title – History of India from 1206 to 1707
Teacher – Adrija Sengupta

Chapter	Lecture Topics	Required Number of Lectures
1	Foundation, expansion and consolidation of the Delhi Sultanate.	6
	Nobility and Iqta system	2
2	Military, administrative and economic reforms under the Khiljis and Tughlaqs	10
3	Bhakti and Sufi movement	5
4	Mewar, Bengal, Vijaynagar and Bahamanis	6
5	Second Afgan state	3
6	Emergence and consolidation of Mughal state	4
7	Akbar to Aurangzeb administrative structure—Mansab and Jagirs, state and religion, socio-religious movements.	10
8	Economy, society and culture under the Mughals	6
9	Emergence of Maratha power	6

Lesson Plan

Semester – 5th

Subject – Computer Science(Hons.) Paper – DSE54(E3)

Title – Numerical Methods Teacher – Suranjoy Goswami

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Introduction	Floating point representation and computer arithmetic, Significant digits, Errors: Round-off error, Local truncation error, Global truncation error,Absolute error, Relative error, Percentage Error, Rules of rounding off, Convergence and terminal conditions,	**Completed (5 Lectures)**
	Efficient computations: Bisection method, Regula−Falsi method , Newton−Raphson method,	**Completed (8 Lectures)**
	Gauss elimination method and Gauss−Jordan method, Matrix inversion.	**Completed (7 Lectures)**
Unit 2: Iterative methods	Jacobi and Gauss-Seidel iterative methods	**8 Lectures**
Unit 3: Interpolation	Lagrange's Interpolation, Newton forward and backward Interpolation	**8 Lectures**
Unit 4: Numerical integration	Trapezoid rule, Simpson's rule (only method)	**10 Lectures**
Unit 5: Extrapolation methods	Gaussian quadrature, Ordinary differential equation: Euler's method ,Taylor Series Expansion, Runge-Kutta second method , Classical 4th order Runge-Kutta method	**7 Lectures**
Unit 6: Eigen-values & Eigen-vectors	Definitions and properties	**3 Lectures**
Unit 7: Fitting	Fitting of a straight line, Least square method of curve fitting.	**4 Lectures**
E3L: Numerical Methods Lab	Students are advised to do laboratory/practical practice not limited to, but including the following types of problems recommended to be done in any one of Computer Algebra Systems: MATLAB / MATHEMATICA / MAPLE: 1. Find the roots of the equation by bisection method. 2. Find the roots of the equation by secant/Regula−Falsi method. 3. Find the roots of the equation by Newton,,s method. 4. Find the solution of a system of nonlinear equation using Newton,,s method. 5. Find the solution of tridiagonal system using Gauss Thomas method. 6. Find the solution of system of equations using Jacobi/Gauss-Seidel method. 7. Find the cubic spline interpolating function. 8. Evaluate the approximate value of finite integrals using Gaussian/Romberg integration. 9. Solve the boundary value problem using finite	**2 Credits, 60 Lectures as per syllabus**

	difference method.	

Lesson Plan

Semester – 3rd

Subject – Computer Science | Paper – DSE-1A

Title – Operating System | Teacher – Suranjoy Goswami

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Introduction	Basic OS functions, resource abstraction, types of operating systems–multiprogramming systems, batch systems , time sharing systems; operating systems for personal computers & workstations, process control & real time systems.	**Completed (5 Lectures)**
Unit 2: Operating System Organization	Processor and user modes, kernels, system calls and system programs.	**Completed (5 Lectures)**
Unit 3: Process Management	System view of the process and resources, process abstraction, process hierarchy, threads, threading issues, thread libraries; Process Scheduling, non-pre-emptive and pre-emptive scheduling algorithms; concurrent and processes, critical section, semaphores, methods for inter-process communication; deadlocks	**Completed (10 Lectures)**
Unit 4: Memory Management	Physical and virtual address space; memory allocation strategies –fixed and variable partitions, paging, segmentation, virtual memory	**10 Lectures**
Unit 5: File and I/O Management	Directory structure, file operations, file allocation methods, device management	**10 Lectures**
Unit 6: Protection and Security	Policy mechanism, Authentication, Internal access Authorization	**4 Lectures**

Lesson Plan
Semester – 3rd SEM Honours

Subject – Physics Paper – CC6
Title – Thermal Physics Teacher – Mihir Sarkar
Total class: 30 (approximate)

Chapter	Lecture Topics	Required Number of Lectures
Zeroth and First Law of Thermodynamics:	Extensive and intensive Thermodynamic Variables, Thermodynamic Equilibrium, Zeroth Law of thermodynamics & Concept of Temperature	2
	Concept of Work & Heat, State Functions	1
	First Law of Thermodynamics and its differential form, Internal Energy, First Law & various processes,	2
	Applications of First Law: General Relation between CP and CV, Work Done during Isothermal and Adiabatic Processes, Compressibility and Expansion Co-efficient.	3
Second Law of Thermodynamics	Reversible and Irreversible process with examples. Conversion of Work into Heat and Heat into Work.	1
	Heat Engines. Carnot's Cycle, Carnot engine & efficiency. Refrigerator & coefficient of performance	1
	Carnot's Theorem. Applications of Second Law of Thermodynamics: Thermodynamic Scale of Temperature and its Equivalence to Perfect Gas Scale.	2
Entropy	Concept of Entropy, Clausius Theorem. Clausius Inequality, Second Law of Thermodynamics in terms of Entropy.	1
	Entropy of a perfect gas. Principle of Increase of Entropy. Entropy Changes in Reversible and Irreversible processes with examples. Entropy of the Universe. Entropy Changes in Reversible and Irreversible Processes. .	2
	Temperature–Entropy diagrams for Cycle. Third Law of Thermodynamics. Unattainability of Absolute Zero	1
Thermodynamic Potentials	Internal Energy, Enthalpy, Helmholtz Free Energy, Gibb's Free Energy. Their Definitions, Properties	1
	Surface Films and Variation of Surface Tension	2

	with Temperature. Magnetic Work, Cooling due to adiabatic demagnetization	
	First and second order Phase Transitions with examples, Clausius Clapeyron Equation and Ehrenfest equations	2
Maxwell's Thermodynamic Relations	Derivation of Maxwell's Relations, Applications of Maxwell's Relations:(1) Clausius Clapeyron equation 2) Values of Cp-Cv, (3) TdS Equations,	2
	Joule-Kelvin coefficient for Ideal and Van der Waal Gases, Energy equations, Change of Temperature during Adiabatic Process.	2
Practical	To determine the Coefficient of Thermal Conductivity of Cu by Searle's Apparatus.	2
	To determine the Temperature Coefficient of Resistance by Platinum Resistance Thermometer (PRT).	2
	To study the variation of Thermo-Emf of a Thermocouple with Difference of Temperature of its Two Junctions.	2

Lesson Plan
Semester – 5th SEM Honours

Subject – Physics Paper – CC12
Title – Solid State Physics Teacher – Mihir Sarkar
Total class: 35 (approximate)

Chapter	Lecture Topics	Required Number of Lectures
Crystal Structure	Amorphous and Crystalline Materials. Lattice Translation Vectors. Lattice with a Basis – Central and Non-Central Elements	2
	Unit Cell, Types of Lattices.	1
	Miller Indices. Reciprocal lattice, Brillouin Zones.	1
	Lattice Diffraction of X-rays by Crystals. Bragg's Law. Atomic and Geometrical Factor.	2
Elementary Lattice Dynamics	Lattice Vibrations and Phonons: Linear Monoatomic and Diatomic Chains.	2
	Acoustical and Optical Phonons. Qualitative Description of the Phonon Spectrum in Solids.	1

	Dulong and Petit's Law, Einstein and Debye theories of specific heat of solids, T3 law	2
Magnetic Properties of Matter	Elementary magnets, Dia-, Para-, Ferri- and Ferromagnetic Materials.	2
	Classical Langevin Theory of dia– and Paramagnetism	1
	Quantum Mechanical Treatment of Paramagnetism. Curie's law, Weiss's Theory of Ferromagnetism and Ferromagnetic Domains	2
	Discussion of B-H Curve. Hysteresis and Energy Loss	1
Ferroelectric Properties of Materials	Structural phase transition, Classification of crystals	1
	Piezoelectric effect, Pyroelectric effect, Ferroelectric effect	2
	Electrostrictive effect, Curie-Weiss Law, Ferroelectric domains, PE hysteresis loop.	2
Elementary band theory	Kronig Penny model. Band Gap	1
	Conductor, Semiconductor (P and N type) and insulator.	1
	Conductivity of Semiconductor, mobility, Hall Effect	1
	Hall Effect. Measurement of conductivity (04 probe method) & Hall coefficient	1
Superconductivity	Experimental Results. Critical Temperature. Critical magnetic field. Meissner effect.	1
	Type I and type II Superconductors, London's Equation and Penetration Depth.	1
	Isotope effect. Idea of BCS theory (No derivation)	1
Practical	To measure the Magnetic susceptibility of Solids.	2
	To measure the resistivity of a semiconductor (Ge) with temperature by four-probe method (room temperature to 1500 C) and to determine its band gap.	2
	To determine the Hall coefficient of a semiconductor sample.	2

Lesson Plan
Semester – 3rd SEM GE

Subject – Physics Paper – PHYGE-3
Title – Mechanics Teacher – Mihir Sarkar

Total class: 18 (approximate)

Chapter	Lecture Topics	Required Number of Lectures
Oscillations	Simple harmonic motion. Differential equation of SHM and its solutions	2
	Kinetic and Potential Energy, Total Energy and their time averages	1
	Damped oscillations	2
Elasticity	Hooke's law - Stress-strain diagram - Elastic moduli-Relation between elastic constants - Poisson's Ratio- Expression for Poisson's ratio in terms of elastic constants	2
	Work done in stretching and work done in twisting a wire - Twisting couple on a cylinder - Determination of Rigidity modulus by static torsion	2
	Torsional pendulum-Determination of Rigidity modulus and moment of inertia by Searles method.	2
Special Theory of Relativity	Constancy of speed of light. Postulates of Special Theory of Relativity.	1
	Length contraction. Time dilation	1
	Relativistic addition of velocities	1
Practical	To determine the Moment of Inertia of a Fly-wheel.	1
	To determine the Modulus of Rigidity of a Wire by Maxwell's needle.	1
	To study the Motion of a Spring and calculate (a) Spring Constant, (b) g.	1
	To determine g by Kater's Pendulum	1

Lesson Plan

Semester – 1st Sem Honours

Subject – Geography
Paper – **CC1**
Title – Geotectonic
Teacher – Milanmoy Roy

Chapter	Lecture Topics	Required Number of Lectures
Scales (Practical)	Concept and application of Scale	1
	Brief discussion about the various types of scale	1
	Graphical construction of plain scale	2
	Graphical construction of comparative scale	2
	Graphical construction of diagonal scale	2
	Graphical construction of vernier scale	2

Lesson Plan

Semester – **1st Sem Generic Elective**

Subject – Geography
Paper – **GE 1**
Title – Physical Geography
Teacher – Milanmoy Roy

Chapter	Lecture Topics	Required Number of Lectures
Scale (practical)	Definition and concept of scale	1
	Classification of scale	1
	Construction of Linear scale	2

Lesson Plan

Semester – 3rd Sem Honours

Subject – Geography
Paper – **CC 6**
Title – Statistical Methods in Geography
Teacher – Milanmoy Roy

Chapter	Lecture Topics	Required Number of Lectures
Association & Correlation (Practical)	Introduction	2
	Rank Correlation	2
	Product Moment Correlation	2
	Simple Linear Regression	4

Lesson Plan

Semester – 3rd Sem Programme

Subject – Geography Paper – **DSC 3**

Title – Regional Development Teacher – Milanmoy Roy

Chapter	Lecture Topics	Required Number of Lectures
Definition and Types of Regions	Definition and Basic Concepts of Region	1
	Formal Region	1
	Functional Region and Planning region	1
Regional Imbalances and problems of functional regions	Concept of Regional Imbalances	1
	Problems of Functional Region	1
Strategies for Regional Development	Models for Regional Planning: Growth Pole Model of Perroux	2
Problem Regions and Regional Planning	Concept of Backward Regions	2
	Special Area Development Plans in India	3

Lesson Plan

Semester – 3rd Sem Programme

Subject – Geography Paper – **SEC 1**

Title – Rural Development Teacher – Milanmoy Roy

Chapter	Lecture Topics	Required Number of Lectures
Rural Development	Concept of Rural Development	1
	Basic Elements and Measures of level of Rural Development	1
Paradigms of Rural Development	Gandhian approach to rural development	2
	Lewis model of rural development	2
Area Based Approach to Rural Development	DPAP	1
	PMSGSY	1
Target Group Approach to Rural Development	SJSY	1
	MGNREGA	1
	Yan Dhan Yojana	1
	Rural Connectivity	1
Rural Governance	Panchayati Raj System	1
	Rural Development policies and Programmes in India	2

Lesson Plan

Semester – 5th Sem Honours

Subject – Geography Paper – **DSE 1**

Title – Population Geography Teacher – Milanmoy Roy

Chapter	Lecture Topics	Required Number of Lectures
Population Geography (Practical)	Analysis of work participation rate: Total and gender-wise for India	3
	Analysis of occupation structure by dominant and distinctive functions for West Bengal.	3

Lesson Plan

Semester – 5th Sem Programme

Subject – Geography Paper – **DSE 1**

Title – Disaster Management Teacher – Milanmoy Roy

Chapter	Lecture Topics	Required Number of Lectures
Project Report (Practical)	Project report based on any one field-based case study among the following disasters: a) Flood b) Landslide c) Human induced disaster: fire, chemical and industrial accidents	8

Lesson Plan

Semester – 5th Sem Programme

Subject – Geography Paper – **SEC 1**

Title – Rural Development Teacher – Milanmoy Roy

Chapter	Lecture Topics	Required Number of Lectures
Rural Development	Concept of Rural Development	1
	Basic Elements and Measures of level of Rural Development	1
Paradigms of Rural Development	Gandhian approach to rural development	2
	Lewis model of rural development	2
Area Based Approach to Rural Development	DPAP	1
	PMSGSY	1
Target Group Approach to Rural Development	SJSY	1
	MGNREGA	1
	Yan Dhan Yojana	1
	Rural Connectivity	1
Rural Governance	Panchayati Raj System	1
	Rural Development policies and Programmes in India	2

Lesson Plan

Semester – III

Subject – Computer Sc. (Hons. & GE) Paper – CC-6 & GE3A

Title – Operating System Teacher – Dr. Indrajit Ghosh

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Introduction	Basic OS functions, resource abstraction, types of operating systems–multiprogramming systems, batch systems , time sharing systems; operating systems for personal computers & workstations, process control & real time systems.	02
Unit 2: Operating System Organization	Processor and user modes, kernels, system calls and system programs.	02
Unit 3: Process Management	System view of the process and resources, process abstraction, process hierarchy, threads, threading issues, thread libraries; Process Scheduling, non-pre-emptive and pre-emptive scheduling algorithms; concurrent and processes, critical section, semaphores, methods for inter-process communication; deadlocks.	04
Unit 4: Memory Management	Physical and virtual address space; memory allocation strategies -fixed and variable partitions, paging, segmentation, virtual memory.	04
Unit 5: File and I/O Management	Directory structure, file operations, file allocation methods, device management.	02
Unit 6: Protection and Security	Policy mechanism, Authentication, Internal access Authorization.	01
Practical	Shell programming	10

Lesson Plan

Semester – V

Subject – Computer Sc. (Hons.) Paper – DSE-1

Title – Microprocessor Teacher – Dr. Indrajit Ghosh

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Microprocessor architecture	Internal architecture, system bus architecture, memory and I/O interfaces	05
Unit 2: Microprocessor programming	Register Organization, instruction formats, assembly language programming	07
Unit 3: Interfacing	Memory address decoding, cache memory and cache controllers, I/O interface, keyboard, display, timer, interrupt controller, DMA controller, video controllers, communication interfaces.	10
Practical	Programs related to 8085 Microprocessor	10

Lesson Plan

Semester – **I**

Subject – **COMPUTER SCIENCE (HONS)** Paper – **CC 2**

Title – **Computer System Architecture** Teacher – **Gouravmoy Banerjee**

Chapter	Lecture Topics	Required Number of Lectures
Unit 2: Data Representation and Basic Computer Arithmetic	Number systems, complements, fixed and floating point representation, character representation, addition, subtraction, magnitude comparison, multiplication and division algorithms for integers	07
Unit 1: Introduction	Logic gates, boolean algebra, combinational circuits, circuit simplification, flip-flops and sequential circuits, decoders, multiplexers, registers, counters and memory units.	10
Unit 3: Basic Computer Organization and Design	Computer registers, bus system, instruction set, timing and control, instruction cycle, memory reference, input-output and interrupt, Interconnection Structures, Bus Interconnection design of basic computer.	05
Unit 4: Central Processing Unit	Register organization, arithmetic and logical micro-operations, stack organization, micro programmed control. Instruction formats, addressing modes, instruction codes, machine language, assembly language, input output programming, RISC, CISC architectures, pipelining and parallel architecture.	05
Unit 5: Memory Organization	Cache memory, Associative memory, mapping.	02
Unit 6: Input-Output Organization	Input / Output: External Devices, I/O Modules, Programmed I/O, Interrupt-Driven I/O, Direct Memory Access, I/O Channels.	03

Lesson Plan

Semester – **V**

Subject – **COMPUTER SCIENCE (HONS)** Paper – **CC 12**

Title – **Theory of Computation** Teacher – **Gouravmoy Banerjee**

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Languages	Alphabets, string, language, Basic Operations on language, Concatenation, Kleene Star	02
Unit 2: Finite Automata and Regular Languages	Transition Graphs, Deterministic and non-deterministic finite automata	01
	NFA to DFA Conversion	01
	Regular Expressions, Regular languages and their relationship with finite automata	02
	Pumping lemma and closure properties of regular languages	02
Unit 3: Context free languages	Context free grammars, parse trees, ambiguities in grammars and languages,	01
	Pushdown automata (Deterministic and Non-deterministic),	02
	Pumping Lemma, Properties of context free languages, normal forms	02
Unit 4: Turing Machines and Models of Computations	RAM, Turing Machine as a model of computation, Universal Turing Machine, Language acceptability, decidability, halting problem	01
	Recursively enumerable and recursive languages, unsolvability problems	01
Doubt Clearing Session		03

Lesson Plan

Semester-3

Physics Honours

PHYSCC1 – Mathematical Physics I

Dr. Supriyo Paul

Allotted Partial Syllabus

Chapter 1: Calculus

Section	Lecture Topics	Estimated Number of Lectures
Recapitulations	Limits, continuity, average & instantaneous functions	1
	Differentiation	1
	Plotting functions and intuitive ideas about continuous and differentiable functions	1
	Taylor and binomial series	1
	Applications	1
1st and 2nd order Ordinary Differential Equations	1st order ODEs & integrating factor	2
	Homogeneous Equations with constant coefficient	2
	Wronskian and general solution	1
	Uniqueness theorem	1
	Particular Integral	1
	Applications	1
Calculus of functions of more than one variable	Partial derivatives	2
	Exact and inexact differentials	1
	Integrating Factor	1
	Lagrange Multipliers	2
	Applications	1
	Total Number of Required Classes	**20**

Chapter 2: Orthogonal Curvilinear Coordinates

Section	Lecture Topics	Estimated Number of Lectures
Orthogonal Curvilinear Coordinates	General coordinate system	1
	Derivation of Gradient, Divergence, Curl and Laplacian in orthogonal coordinate systems	2
	Cartesian, Spherical and Cylindrical Coordinate Systems	3
	Applications	1
	Total Number of Required Classes	**7**

Total estimated number of lectures = 27

Lesson Plan

Semester-3

Physics Honours

PHYSCC5 – Mathematical Physics II

Dr. Supriyo Paul

Chapter 1: Fourier Series

Section	Lecture Topics	Estimated Number of Lectures
Fourier's Theorem	Periodic functions. Orthogonality of sine and cosine functions, Dirichlet conditions.	1
	Expansion of periodic functions in a series of sine and cosine functions and determination of Fourier coefficients	2
	Complex representation of Fourier series	1
	Expansion of functions with arbitrary period	1
Nonperiodic Functions	Even and odd functions and their Fourier expansions	1
	Expansion of non-periodic functions over an interval	1
Properties	Summing of Infinite Series	1
	Term-by-Term differentiation and integration	1
	Parseval Identity	1
	Total Number of Required Classes	**10**

Chapter 2: Frobenius Method and Special Functions

Section	Lecture Topics	Estimated Number of Lectures
Frobenius Method	Singular points of 2nd order ODE	1
	Frobenius Method and its applications to differential equations	3
	Legendre, Bessel, Hermite and Laguerre differential equations	4
Legendre Polynomials	Properties of Legendre Polynomials	1
	Rodrigue's formula & generating function	1
	Orthogonality	1
	Recurrence relation	1
	Expansion of functions in a series of Legendre Polynomials	1
	Applications	1
Bessel Functions	Bessel Functions of 1st Kind	1
	Generating function	1
	Recurrence relation	1
	Zeros of Bessel functions	1
	Orthogonality	1
	Applications	1
	Total Number of Required Classes	**20**

Chapter 3: Special Integrals

Section	Lecture Topics	Estimated Number of Lectures
Gamma Function	Definition of Gamma function and factorial function	1
Beta Function	Definition of Beta function and relationship with Gamma function	1
Error function	Probability integral	1
	Applications	1
	Total Number of Required Classes	**04**

Chapter 4: Variational Calculus

Section	Lecture Topics	Estimated Number of Lectures
Basic Ideas of Variational Calculus	Functionals	1
	Extremization of action	2
	Formulation of Lagrange's equations of motion	1
Lagrangian Mechanics	Applications of Lagrange's equations of motion for simple systems	2
	Cyclic coordinates and conjugate momenta	1
	Symmetries and conservation laws	2
Hamiltonian Mechanics	Legendre transformations and the Hamiltonian Formulation	2
	Canonical Equations	2
	Applications	1
	Total Number of Required Classes	**14**

Chapter 5: Partial Differential Equations

Section	Lecture Topics	Estimated Number of Lectures
Solutions to partial differential equations	Separation of variables	1
	Laplace's Equation with various symmetry	3
	Wave equation and vibrational modes of a stretched string, rectangular and circular membrane	4
	Diffusion Equation	2
	Total Number of Required Classes	**10**

Total estimated number of lectures = 58

Lesson Plan

Semester-5

Physics Honours

PHYSDSE2 –Classical Dynamics

Dr. Supriyo Paul

Chapter 1: Classical Mechanics of Point Particles

Section	Lecture Topics	Estimated Number of Lectures
Recap of Lagrangian and Hamiltonian mechanics	Constraints & Degrees of Freedom	1
	Generalized Coordinates, Principle of Virtual Work	2
	D'Alembert's Principle, Lagrange's Equation of Motion	2
	Variational Principle, Hamilton's Principle	2
	Conservation Theorems,	2
	Hamiltonian Dynamics	2
	Poisson Brackets	1
	Applications	1
Review of Newtonian Mechanics	Application to the motion of a charge particle in external electric and magnetic fields – motion in uniform electric field	2
	Motion in magnetic field – gyroradius and gyrofrequency,	1
	Motion in crossed electric and magnetic fields	1
	Applications	1
Particle in a Central Force Field	Conservation of angular momentum and energy.	1
	Effective potential.	1
	The Laplace-Runge-Lenz vector	1
	Applications	1
	Total Number of Required Classes	**22**

Chapter 2: Small Amplitude Oscillations

Section	Lecture Topics	Estimated Number of Lectures
Equilibrium	Minima of potential energy and points of stable equilibrium	1
	Expansion of the potential energy around a minimum	1
Small amplitude oscillations	Small oscillations about the minimum	2
	Normal modes of oscillations	2
	Example of N identical masses connected linearly to $(N-1)$ identical springs	1
	Applications	1
	Total Number of Required Classes	**08**

Chapter 3: Special Theory of Relativity

Section	Lecture Topics	Estimated Number of Lectures
Basic Ideas	Postulates of Special Theory of Relativity	1
	Lorentz Transformations	1
	Minkowski space, The invariant interval	2
	Light cone and world lines. Space-time diagrams.	2
	Time-dilation, length contraction and twin paradox	2
	Applications	1
Concept of Four Vectors	Four-velocity and acceleration	2
	Metric and alternating tensors	2
	Four-momentum and energy-momentum relation	1
	Doppler Effect from four vector perspective	2
	Concept of four force and conservation of four momentum	1
	Relativistic kinematics. Application to two-body decay of an unstable particle	2
	Applications	1
	Total Number of Required Classes	**20**

Chapter 4: Fluid Dynamics

Section	Lecture Topics	Estimated Number of Lectures
Basic Ideas	Density and pressure in a fluid	1
	Fluid element and its velocity	1
	Equation of continuity & conservation of mass	1
	Stream lined motion	1
	Applications	1
Laminar & Turbulent Flows	Laminar Flow	1
	Poiseuille's equation	1
	Navier Stokes Equation	1
	Qualitative description of Turbulence, Reynolds number	1
	Applications	1
	Total Number of Required Classes	**10**

Total estimated number of lectures = 60

Ananda Chandra College Estd. 1942 Jalpaiguri

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Lesson plan

Teacher's name: Juhita Roy Subject: Mathematics

Semester	Paper	No of classes in week	Topic	No of classes required	Remark
3rd sem GE	GE-1	2	Unit1 higher order derivative, leibnitz rule & application, concavity,pt ofinflection,envelop,asymptote, curve tracing, lhospital rule Unit 2 Reduction formula & derivation Parametric eq,arc length,volume&area of revolution	10	Completed unit 1
3rd sem prog	DSC3	2	Unit2 Sequence, bounded sqn,convergent sqn,limit thm, lim sup,lim inf,monotone sqn, subsquence,Bolzano weierstrass thm ,cauchy sqn and thm, limit thm of cauchy Unit3 Infinite series, convergence& divergence,cauchy criterion,comparison test ,ratio test,cauchy root test,integral test,alternating seris,leibnitz test,absolute&conditional cong	10	Completed unit2
5th sem prog	DSE	2	Unit2: subgroup, example of subgroup, centralizer,normalizer,center of group,product Unit3 : cyclic group,classification, permutation with properties, coset,lagrange thm ,alternating group	12	Within 2 days unit 2 will be completed

SEMESTER V	DATE	TOPICS TAUGHT	NUMBER OF STUDENTS PRESENT (TOTAL 22)	TOTAL NUMBER OF CLASSES ALLOTED	TOTAL NUMBER OF CLASSES TAKEN	REMARKS
AUGUST' 2021	11/08	INTRODUCTION TO MICROBIAL BIOTECHNOLOGY	20	8	8	SAJIMUL MIAH DID NOT JOIN GOOGLE CLASSROOM (THE TEACHER HAS CONTACTED THE STUDENT SEVERAL TIMES.
	13/08	IPR(PATENTS)	17			
	16/08	IPR(COPY RIGHT,TRADE SEC ETC)	18			
	18/08	IPR	21			
	23/08	IPR	17			
	25/08	AGRICULTURE (UNIT 1)	19			
	27/08	ENVIRONMENT	18			
	30/08	FOOD	18			
SEPTEMBER' 2021	1/09	THERAPEUTICS	21	07	06	COULD NOT TAKE CLASS ON 13TH DUE TO ILLNESS)
	3/09	STREPTOKINASE	19			
	3/09	HEP B	19			
	06/09	POLYESTERS	19			
	08/09	BIOPESTICIDES	18			
	10/09	ION EXCHANGE CHROMATOGRAPHY	18			
	13/09	-	-			

Ananda Chandra College

Academic Report (From 11th May to 12th June, 2021)

Name of the Teacher: Passang Tshering Lepcha Department: Chemistry

Course & Semester	*Allotted Papers*	*No. of Allotted Class*	*Classes Taken*	*Dates*	*Topics covered in brief*	*No. of students enrolled in the course*	*Number of students present in each class*	*Reasons for class not taken*
II	*CC-3*	*04*	*04*	*15/05/2021*	*Reactive Intermediates: Radicals and Carbanions*	*15*	*09*	
				22/05/2021	*Electrophiles & Nucleophiles*		*07*	
				29/05/2021	*Aromaticity*		*08*	
				11/06/2021	*Electrophilic Aromatic Substitution(Introduction)*		*09*	
IV (Honours)	*CC-9*	*04*	*03*	*12/05/2021*	*Mannich Reaction & Hoffmann Rearrangement*	*15*	*15*	*Due to internal assessment no classes were taken from 01/06/2021 to 07/06/2021*
	SEC-2	*04*	*03*	*13/05/2021*	*Introduction of 12 principles of green chemistry.*		*15*	
				19/05/2021	*Polynuclear hydrocarbons: Napthalene*		*15*	
				27/05/2021	*Discussion of 12 basic principles with examples.*		*15*	
				09/06/2021	*Polynuclear Hydrocarbons: Anthracene and Phenanthrene*		*15*	
				10/06/2021	*Green Solvents*		*15*	
IV (Prog.)	*SEC-2*	*04*	*00*			*00*		*Notes were provided*
VI	*CC-14*	*04*	*02**	*15/05/2021*	*Fischers Proof and Disaccharides: Introduction*	*19*	*13*	**Syllabus Completed*
				21/05/2021	*Disaccharides: Sucrose & Maltose*		*14*	

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Lesson Plan

Semester – 5th

Subject – Physical education Paper – DSE-PE-1

Title – Sports Training Teacher – Pankaj Kumar Sarkar

Chapter	Lecture Topics	Required Number of Lectures
Unit-1	Meaning, Definition of sports training.	2
	Aim & characteristics of sports training.	2
	Principles and importance of sports training.	2
Unit-1	Warning up	1

Lesson Plan

Semester – 3rd

Subject – Physical education Paper – DSC-PE-3

Title – Anatomy, Physiology and Exercise physiology

Teacher – Pankaj Kumar Sarkar

Chapter	Lecture Topics	Required Number of Lectures
Unit-1	Meaning, Definition, And importance of anatomy, physiology and exercise physiology.	2
	Human CellCell- Structure and function	3
	Organ & SystemSystem.	3 and continue..

Lesson Plan

Semester – 1(One)

Subject- BOTANY (Hons.) **Paper- CC1**

Title- Algae and Microbiology **Teacher- DR. PUSHPANJALI RAY**

Sl. No	Unit	Topic	Required number of lectures
THEORY			
1.	**Unit 1: Introduction to microbial world**	Microbial nutrition, growth and metabolism	4
		Economic importance of viruses with reference to vaccine production, role in research, medicine and diagnostics, as causal organisms of plant diseases	2
		Economic importance of bacteria with reference to their role in agriculture and industry (fermentation and medicine)	2
2.	**Unit 2: Viruses**	Discovery, physiochemical and biological characteristics	2
		Classification of virus (Baltimore), general structure with special reference to viroids and prions	2
		Replication (general account)	2
		DNA virus (T-phage), lytic and lysogenic cycle	4
		RNA virus (TMV).	2
3.	**Unit 3: Bacteria**	Discovery, general characteristics; Types- archaebacteria, eubacteria, wall-less forms (mycoplasma and spheroplasts)	6
		Cell structure; Nutritional types	2
		Reproduction-vegetative, asexual and recombination (conjugation, transformation and transduction)	8
PRACTICAL			
1.	Electron micrographs/Models of viruses – T-Phage and TMV, Line drawings/ Photographs of Lytic and Lysogenic Cycle		2
2.	Types of Bacteria to be observed from temporary/permanent slides/photographs. Electron micrographs of bacteria, binary fission, endospore, conjugation, root Nodule		4
3	Gram staining		2
4.	Endospore staining with malachite green using the (endospores taken from soil bacteria)		2

Semester – 3(Three)

Subject- BOTANY(Hons.) **Paper- CC5**

Title- Morphology and Anatomy **Teacher- DR. PUSHPANJALI RAY**

Sl.No	Unit	Topic	Required number of lectures
THEORY			
1.	**Unit 1: Introduction and scope of Plant Morphology and Anatomy**	Applications in systematics, forensics and pharmacognosy	4
		Flower Morphology	6
		Fruit Morphology	2
2.	**Unit 4: Apical meristems**	Evolution of concept of organization of shoot apex (Apical cell theory, Histogen theory, Tunica Corpus theory, continuing meristematic residue, cytohistological zonation)	6
		Organization of root apex (Apical cell theory, Histogen theory, Korper-Kappe theory); Quiescent centre; Root cap	6
		Endodermis, exodermis and origin of lateral root	2
3.	**Unit 5: Adaptive and Protective Systems**	Epidermal tissue system	4
		cuticle, epicuticular waxes, trichomes (uni- and multicellular, glandular and nonglandular	4
		stomata (classification)	4
		Adcrustation and incrustation	2
		Anatomical adaptations of xerophytes and hydrophytes	4
PRACTICAL			
1.	Study of anatomical details through permanent slides/temporary stain mounts/ macerations/ museum specimens with the help of suitable examples.		4
2.	Apical meristem of root, shoot and vascular cambium.		2
3.	Epidermal system: cell types, stomata types; trichomes: non-glandular and glandular.		6
4.	Adaptive Anatomy: xerophytes, hydrophytes.		4
5.	Secretory tissues: cavities, lithocysts and laticifers.		2

Semester – 5(Five)

Subject- BOTANY(Hons.) **Paper- DSE1**

Title- Biostatistics **Teacher- DR. PUSHPANJALI RAY**

Sl.No	Unit	Topic	Required number of lectures
1.	**Unit 1:Biostatistics**	Definition - statistical methods - basic principles	4
		Variables - measurements, functions	6
		Limitations and uses of statistics	2
2.	**Unit 2:Collection of data primary and secondary**	Types and methods of data collection procedures - merits and demerits	4
		Classification - tabulation and presentation of data	8
		sampling methods	4
3.	**Unit 5:Statistical inference**	Hypothesis - simple hypothesis	2
		student 't' test	4
		chi square test	4
Practical			
1.	Calculation of 'F' value and finding out the probability value for the F value		8

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Semester – 5(Five)

Subject- BOTANY (Hons.) **Paper- DSE2**

Title- Industrial and Environmental Microbiology **Teacher- DR. PUSHPANJALI RAY**

Sl.No	Unit	Topic	Required number of lectures
1.	**Unit 1: Scope of microbes in industry and environment**	Scope of industrial microbiology	2
2.	**Unit 2: Bioreactors/Fermenters and fermentation processes**	Solid-state and liquid-state (stationary and submerged) fermentations	2
		Batch and continuous fermentations	4
		Components of a typical bioreactor	2
		Types of bioreactors-laboratory, pilotscale and production fermenters; Constantly stirred tank fermenter, tower fermenter, fixed bed and fluidized bed bioreactors and air-lift fermenter.	4
3.	**Unit 3: Microbial production of industrial products**	Microorganisms involved, media, fermentation conditions, downstream processing and uses	6
		Filtration, centrifugation, cell disruption, solvent extraction, precipitation and ultrafiltration, lyophilization, spray drying	6
		Hands on microbial fermentations for the production and estimation (qualitative and quantitative) of Enzyme: amylase or lipase activity, Organic acid (citric acid or glutamic acid), alcohol (Ethanol) and antibiotic (Penicillin)	6
4.	**Unit 4: Microbial enzymes of industrial interest and enzyme immobilization**	Microorganisms for industrial applications and hands on screening microorganisms for casein hydrolysis; starch hydrolysis; cellulose hydrolysis.	6
		Methods of immobilization, advantages and applications of immobilization, large scale applications of immobilized enzymes (glucose isomerase and penicillin acylase).	6
Practical			
1.	A visit to any educational institute/ industry to see an industrial fermenter, and other downstream processing operations.		
2.	.Hands on sterilization techniques and preparation of culture media		10

Lesson plan

Subject-Microbiology Semester-i paper-1&1.1

Title-Introduction to microbiology and microbial diversity Teacher- Arpita Sarkar

CHAPTER(theory)	LECTURE TOPIC	REQUIRED NUMBER OF Lectures
Unit 1-History of development of microbiology	Spontaneous generation vs. biogenesis, development of various techniques and golden era of microbiology	1
	Contributions of Anton von leeuwenhoek, Louis pasture, Robert Koch, germ theory of disease.	2
	Joseph lister, Alexander Fleming role of m.o in fermentation.	1
	Development of the field of soil microbiology	1
	Establishment of fields of medical microbiology and immunology ….	1
Unit 2-diversity of microbial world A. systems of classification	Binomial nomenclature, difference between prokaryotic and eukaryotic m.o.	1
	Five kingdom, three kingdom classification	2
b. general characteristics	Acellular m.o and cellular m.o	3
	algae	5
Practical	1.microbiology good laboratory practices	1
	2.to study the principal and applications of imp instruments	2
	3.preparation of culture media	1
	4.sterilization of medium using autoclave	1
	5.sterilization of glassware using hot air oven	1
	6.Deonstration of the presence of microflora in the environment by exposing nutrient agar plates to air	1
	7.study of *Rhizopous, Aspergillus,* using temporary mounts	1
	8.Study of the following protozoans using permanent mounts *Amoeba, Plasmodim.*	1

Lesson Plan		
Subject – Philosophy		**Teacher - Soumita Sinha**
Semester - 3rd	**Paper - CC6**	**Title - Western Philosophy**
Chapter	Lecture topics	Required number of lectures
David Hume	Impression and idea	2
	causality	2
	self and personal identity	2
Immanuel Kant	critical philosophy	2
	classification of judgements	1
	A priori A posteriorai	1
	possibility of synthetic a priori	1
	The forms of sensibility	2
Semester - 5th	**Paper - DSE1**	**Title - Gita**
Chapter	Lecture topics	Required number of lectures
Arjunvishadyoga	Arjunvishadyoga	4
Samkhyayoga	Samkhyayoga	7

Lesson Plan

Semester-3

Subject- History (H) Paper-vii

Title- HISTORY OF INDIA IV (1206-1550) Teacher- SOUMYADIPTA SINHA (SACT)

Chapter/Unit	Lecture Topics	Required Number of lectures
Unit-II-C Emergence of provisional Dynasties	Bahamanis ,Vijaynagar, Gujrat, Malwa ,Jaunpur and Bengal	6-7 classes
Unit-II-D: Consolidation of regional identities	Regional art, Architecture and Literature	4-5 classes
Unit-III- Society and Economy	a) Iqta and the Revenue free grants	2-3 Classes
	b) Agriculture Production Technology	2 classes
	c) Changes in rural society; revenue system	2 classes
	d) Monetiezation, market regulatins ,growth of Urban Centres trade ,Commerce	3 Classes
Unit iv- Religion Society and Culture	a) Sufi SIilsilas, Chisti Suhwrabardis doctrines practices social roles	2 Classes
	b) Bhakti Movements and monotheistic traditions in south and North India Women Bhakts; Nath Panths- Kabir, Nanak and the Sant Traditions	4 classes
	C) Sufi literature: Malfuzat, Premkhayanas	2 classes

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Lesson Plan

Semester-5

Subject- History (H) **Paper**-XII

Title- HSTORY OF INDIA VI (1750-1857) **Teacher**- SOUMYADIPTA SINHA (SACT)

Chapter /Units	Lecture Topics	Required Number of Lectures
Unit: I : India in the mid-18th Century	Society Economy And Polity	2-3 Classes
Unit : II : Expansion and consolidation of Colonial Power	a) Mercantilism foreign trade and Early forms exactions from Bengal	2-3 Classes
	b) Dynamics of Expansion with special references to Bengal Mysore Western India Awadh Punjab And Sindh	8-9 Classes
Unit: III: Colonial State and ideology	a) Arms of The Colonial State Army Police ,law	2-3 Classes
	b) Ideologies of the Raj and racial attitudes	2-3 Classes
	c) Education: Indigenous and Modern	3-4 Classes

Lesson Plan for Odd Semesters 2021

Semester – I

Subject – BOTANY
Title – Bio molecules & Cell Biology

Teacher – SUMAN SEN
Paper – **CC2 (Honours)**

Chapter /Unit	**Lecture Topics**	**Required Number of Lectures**
1.	Types & significance of chemical bonds; structure &properties of water; p_H and buffers	03
	Carbohydrates- nomenclature, types, properties and examples	04
	Lipids- types & classes; fatty acids and phosphoglycerides- their types and functions	04
	Proteins- amino acids structure, properties; higher order structure of proteins; protein denaturation; biological roles	04
	Nucleic acids- structure & function of nitrogenous bases, nucleotides; DNA structure; RNA structure; alternative forms of DNA	05
2.	Bioenergetics- laws of thermodynamics; free energy; endergonic. exergonic and coupled reactions; ATP structure &role.	04
3.	Enzymes- structure, classification, properties, active site; mechanism of action; MME; enzyme inhibition and factors regulating enzyme activity.	04
	Practical- Experiments 1, 2, 3, 4, 8, 9.	20

Semester – III

Subject – BOTANY
Title – Economic Botany

Teacher – SUMAN SEN
Paper – **CC6 (Honours)**

Chapter /Unit	**Lecture Topics**	**Required Number of Lectures**
1.	Origin of cultivated plants- centres of origin; Vavilov's work; plant introduction& domestication; loss of genetic diversity; evolution of new varieties; germplasm	06
2.	Cereals: Wheat, Rice- origin, morphology, processing and uses; brief account on Millets	06
3.	Legumes: Chick pea, Pigeon pea- origin, morphology and uses; fodder legumes; importance to man and ecosystem	06
4.	Sugars &Starches-:Sugarcane-morphology, Processing, products and by-products; Potato- morphology, propagation and uses	04
9.	Drug yielding plants: *Cinchona, Papaver, Digitalis, Cannabis*; Tobacco-morphology, processing, uses &health hazards	08
	Practical- Experiments 1,2,3,9	08

Semester – III

Subject – BOTANY
Title – Plant Anatomy & Embryology

Teacher – SUMAN SEN
Paper – **GE-3(Honours)** **DSC-3(Program)** combined

Chapter /Unit	**Lecture Topics**	**Required Number of Lectures**
1.	Meristematic & Permanent tissues: Root and Shoot apical meristem; simple &complex tissues	08
2.	Organs: Dicot and Monocot root, stem and leaf	04
3.	Secondary growth: vascular cambium; secondary growth in root and stem; heartwood and sapwood	08
4.	Adaptive & protective systems: epidermis, cuticle ,stomata; adaptations in Hydrophtes and Xerophytes	08
	Practicals: Experiments 1,2,3,4,5,6	06

Semester – III

Subject – BOTANY
Title – Mushroom Culture Technology

Teacher – SUMAN SEN
Paper – **SEC1** (**Honours** **&Program**)

Chapter /Unit	**Lecture Topics**	**Required Number of Lectures**
1.	Introduction: History; nutritional & medicinal value of edible mushrooms; poisonous mushrooms; types of edible mushrooms	05
2.	Cultivation Technology of *Agaricus bisporus, Volvariella volvaceae, Pleurotus spp;* infrastructure and materials required, media and raising pure cultures, spawn preparation, composting and mushroom bed preparation, casing soil, harvesting and preservation	12

Semester – V

Subject – BOTANY
Title – Plant Physiology

Teacher – SUMAN SEN
Paper – **CC 12 (Honours)**

Chapter /Unit	Lecture Topics	Required Number of Lectures
1.	**Plant-water relations:** Water Potential and its components; water absorption by roots; aquaporins, pathway of water movement- symplast, apoplast, trans membrane pathways, root pressure; guttation; Ascent of sap– cohesion-tension theory. Transpiration and factors affecting transpiration, anti transpirants, mechanism of stomatal movement.	10
3.	**Nutrient Uptake:** Soil as a nutrient reservoir, transport of ions across cell membrane, passive absorption, electrochemical gradient, facilitated diffusion, active absorption, role of ATP, carrier systems, proton ATPase pump and ion flux, uniport, co-transport, symport, antiport.	08
4.	**Translocation in the phloem:** Experimental evidence in support of phloem as the site of sugar translocation. Pressure–Flow Model; Phloem loading and unloading; Source–sink relationship.	08
	Practical: Experiments 1,2,3,4 and Demonstration of Rooting from Cuttings	10

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Lesson Plan

Subject – Philosophy		Teacher - Soumita Sinha
Semester - 1st	**Paper - CC1**	**Title - Indian Philosophy**

Chapter	Lecture topics	Required number of lectures
Nyaya	Theory of pramanas	7
	Individual self	1
	Liberation	1
Visistadvaita of Ramanuja	Nature of Brahman	3
	Refutation of maya	3

Semester - 3rd	Paper - CC6	Title - Western Philosophy
Chapter	**Lecture topics**	**Required number of lectures**
David Hume	Impression and idea	2
	Causality	2
	Self and personal identity	2
Immanuel Kant	Critical philosophy	2
	Classification of judgements	1
	A priori A posteriorai	1
	Possibility of synthetic a priori	1
	The forms of sensibility	2

Semester - 5th	Paper - DSE1	Title - Gita
Chapter	**Lecture topics**	**Required number of lectures**
Arjunvishadyoga	Arjunvishadyoga	4
Samkhyayoga	Samkhyayoga	7

Lesson Plan

Semester – 3rd

Subject –COMPUTER SCIENCE Paper – CC5 and CC5L

Title – Data Structure and LAB Teacher – KANISHKA SARKAR

Chapter	Lecture Topics	Required Number of Lectures
BASIC PRELIMINARY	Introduction to pointer	1
	Introduction to Structure	1
	Introduction to Function	1
	Introduction to data structure	1
	Overview of the course chapters	1
ARRAY	Single dimensional Array	1
	Lab on Single dimensional Array	1
	Multi-dimensional Array	1
	Lab on Multi-dimensional Array	1
	Sparse Matrix	1
	Lab on Sparse Matrix	1
	Linear search	1
	Binary search	1
	Bubble Sort	1
	Selection Sort	1
	Insertion Sort	1
LINKED -LIST	Singly Linked list	2
	Lab on Single Linked List	2
	Double Linked List	2
	Lab on Double Linked List	2
	Circular linked list	2
	Lab on Circular linked list	2
	Self-Organising List	2
	Lab on Self-Organising List	2
	Skip List	2
	Lab on Skip-list	2
STACK	Concepts of Stack	1
	Implementation of stack	2
	Lab of Implementation of stack	2

	Polis Notation and reverse Polis Notation	2
	Lab of Implementation of stack	2
	Application of Stack	2
	Lab of Application of Stack	2
	Conclusion	1
QUEUE	Concepts of Queue	1
	Implementation of Queue	2
	De-queue	1
	Priority queue	1
	Lab on Queue, De-queue and priority queue	3
RECURSION	Concepts	1
	Explanations with simple example	2
	Conclusion	1
	Lab on Recursive problem	1
TREE	Introduction	1
	Binary Tree	2
	Lab on Binary tree	2
	Tree traversal	2
	Lab on Binary tree traversal	2
	Concepts and implementation of BST	3
	Lab on BST	3
	Threaded BST	1
	Lab on Threaded BST	1
	AVL TREE	1
	Lab on AVL tree	1
HASHING	Introduction	1
	Hashing technique	1
	Problem and solution of Hashing	2
	Conclusion	1
	Lab on Hashing	2

Academic Report

5th Semester

Subject: Microbiology **Paper: 12 & 12.1**

Title: Immunology (Theory & Practical) **Teacher: Liza Sarkar**

Course & Semester	Allotted Papaers	No. of allotted class	Classes Taken	Dates	Topics covered in brief	No of students enrolled in course	No. of students present in each class	Reasons for class not taken
CBCS BSc. Hons. 5th Semester	Paper 12 and 12.1	15 (From 10th August to 14th September)	17 (2h extra)	10.08.21 12.08.21 14.08.21 17.08.21 19.08.21 21.08.21 24.08.21 26.08.21 28.08.21 31.08.21 04.09.21 07.09.21 09.09.21 11.09.21 14.09.21	Immune cells, organs, antigen, antibodies, Immune response, MHC, Hypersensitivity, Autoimmunity	22	16 19 16 17 18 16 16 18 16 15 17 15 19 20 20	NA

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Academic Report (From 11th May to 12th June, 2021)

Name of the Teacher: MALAY KANTI DAS

Department: HISTORY MORNING

Course & Semester	Allotted Papers	No. of Allotted Class	Classes Taken	Dates	Topics covered in brief	No. of students enrolled in the course	Number of students present in each class	Reasons for class not taken
5TH	GE	5	3	30.0821	DISCUSS SYLLBUS	30	01	
				04.09.21	NIL		NIL	
				09.09.21	SOURCES OF HISTORY		02	
				10.09.21	DO		01	
				13.09.21	DISCUSS PRE HISTORIC TOPICS		NIL	

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Lesson Plan
Semester – I

Subject – BOTANY (Hons.) Paper – CC1 (THEORY)
Title – **PHYCOLOGY** Teacher – ANKITA BISWAS

Chapter	Lecture Topics	Required Number of Lectures
UNIT:4 **Algae**	General characteristics; Ecology and distribution	02
	Range of thallus organization; Cell structure and components	02
	Cell wall, pigment system, reserve food, flagella, methods of reproduction	02
	Classification- criteria, system of Fritsch, and evolutionary classification of Lee (only upto groups)	02
	Significant contributions of important phycologists (F.E. Fritsch, G.M. Smith, R.N. Singh, T.V. Desikachary, H.D. Kumar, M.O.P. Iyengar)	01
	Role of algae in the environment, agriculture, biotechnology and industry	01
UNIT:5 **Cyanophyta and Xanthophyta**	Ecology and occurrence; Range of thallus organization; Cell structure; Reproduction.	02
	Morphology and life-cycle of *Nostoc*	02
	Morphology and life-cycle of *Vaucheria.*	02
UNIT:6 **Chlorophyta and Charophyta**	General characteristics; Occurrence; Range of thallus organization; Cell structure; Reproduction.	02
	Morphology and life-cycles of *Chlamydomonas*	02
	Morphology and life-cycles of *Volvox*	01
	Morphology and life-cycles of *Oedogonium*	02
	Morphology and life-cycles of *Coleochaete*	02
	Morphology and life-cycles of *Chara.*	02
	Evolutionary significance of *Prochloron*	01
UNIT:7 **Phaeophyta and Rhodophyta**	Characteristics; Occurrence; Range of thallus organization; Cell structure; Reproduction.	02
	Morphology and life-cycles of *Ectocarpus*	02
	Morphology and life-cycles of *Fucus*	02
	Morphology and life-cycles of *Polysiphonia*	02
PRACTICALS	Study of vegetative and reproductive structures of *Nostoc, Chlamydomonas* (electron micrographs), Volvox, *Oedogonium,Coleochaete, Chara, Vaucheria, Ectocarpus, Fucus and Polysiphonia,Procholoron* through electron micrographs, temporary preparations and permanent slides.	10

Lesson Plan

Semester – I

Subject – BOTANY (Program) Paper – DSC1 (THEORY)

Title – **Biodiversity (Microbes, Algae, Fungi and Archegoniate)** Teacher – ANKITA BISWAS

Chapter	Lecture Topics	Required Number of Lectures
UNIT:2 **Algae**	General characteristics; Ecology and distribution; Range of thallus organization and reproduction	02
	Classification of algae	01
	Morphology and life-cycles of the following: *Nostoc*, *Chlamydomonas, Oedogonium*,*Vaucheria, Fucus, Polysiphonia*	06
	Economic importance of algae	01
UNIT:4 **Introduction to Archegoniate**	Unifying features of archegoniates, Transition to land habit, Alternation of generations	01
UNIT:5 **Bryophytes**	General characteristics, adaptations to land habit, Range of thallus organization	01
	Classification (up to family), morphology, anatomy and reproduction of *Marchantia*	01
	Classification (up to family), morphology, anatomy and reproduction of *Funaria*	01
	Ecology and economic importance of bryophytes with special mention of *Sphagnum.*	01
UNIT:7 **Gymnosperms**	General characteristics; Classification (up to family), morphology, anatomy and reproduction of *Cycas*	02
	Classification (up to family), morphology, anatomy and reproduction of *Pinus*	02

PRACTICALS	Experiments- 4,9,10,11,12,16,17	18

Lesson Plan

Semester – I

Subject – BOTANY | Paper – GE1 (THEORY)

Title – **Biodiversity (Microbes, Algae, Fungi and Archegoniate)** | Teacher – ANKITA BISWAS

Chapter	Lecture Topics	Required Number of Lectures
UNIT:2 **Algae**	General characteristics; Ecology and distribution; Range of thallus organization and reproduction	02
	Classification of algae	01
	Morphology and life-cycles of the following: *Nostoc*, *Chlamydomonas, Oedogonium*,*Vaucheria, Fucus, Polysiphonia*	06
	Economic importance of algae	01
UNIT:4 **Introduction to Archegoniate**	Unifying features of archegoniates, Transition to land habit, Alternation of generations	01
UNIT:5 **Bryophytes**	General characteristics, adaptations to land habit, Range of thallus organization	01
	Classification (up to family), morphology, anatomy and reproduction of *Marchantia*	01
	Classification (up to family), morphology, anatomy and reproduction of *Funaria*	01
	Ecology and economic importance of bryophytes with special mention of *Sphagnum.*	01
UNIT:7 **Gymnosperms**	General characteristics; Classification (up to family), morphology, anatomy and reproduction of *Cycas*	02
	Classification (up to family), morphology, anatomy and reproduction of *Pinus*	02

PRACTICALS	Experiments- 4,9,10,11,12,16,17	18

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Lesson Plan

Semester – III

Subject – BOTANY (Hons.) Paper – CC6 (THEORY)

Title – **ECONOMIC BOTANY** Teacher – ANKITA BISWAS

Chapter	Lecture Topics	Required Number of Lectures
UNIT:5 **Spices**	Listing of important spices, their family and part used	01
	Economic importance with special reference to fennel, saffron, clove and black pepper	02
UNIT:6 **Beverages**	Tea (Morphology, uses)	01
	Tea (Processing)	01
	Coffee (Morphology, uses)	01
	Coffee (Processing)	01
UNIT:7 **Sources of oils and fats**	General description, classification	01
	Extraction, their uses and health implications groundnut, coconut, linseed, soybean, mustard and coconut (Botanical name, family & uses)	06
	Essential Oils: General account, extraction methods	01
	Essential Oils: Comparison with fatty oils & their uses.	01
UNIT:8 **Natural Rubber**	Para-rubber: tapping, uses	01
	Para-rubber: Processing	01
UNIT:10 **Timber plants**	General account with special reference to teak	01
	General account with special reference to pine	01
UNIT:11 **Fibers**	Classification based on the origin of fibers; Cotton (morphology, extraction and uses).	02
	Coir and Jute (morphology, extraction and uses).	02

PRACTICALS	Experiments- 4,5,6,7,8,10	12

Lesson Plan

Semester – III

Subject – BOTANY (Hons. + Program) Paper – SEC1 PAPER 1

Title – **MUSHROOM CULTURE TECHNOLOGY** Teacher – ANKITA BISWAS

Chapter	Lecture Topics	Required Number of Lectures
UNIT:3 **Storage and nutrition**	Short-term storage (Refrigeration - upto 24 hours)	02
	Long term Storage (canning, pickels, papads), drying, storage in saltsolutions	02
	Nutrition - Proteins - amino acids, mineral elements nutrition - Carbohydrates, Crude fibre content - Vitamins.	02
UNIT:4 **Food Preparation**	Types of foods prepared from mushroom	01
	Research Centres - National level and Regional level	01
	Cost benefit ratio - Marketing in India and abroad, Export Value	01

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LESSON PLAN *Dept. Of Philosophy (Morning, Programme Course)*		
Name	Syllabus	Class
Sreeparna Modak	1st Sem: Course-DSC1, Paper-1 Fundamentals of Indian Philosophy, Unit I-III	30
	3rd Sem: Course- DSC1, Paper-3 Western Epistemology and Metaphysics, Unit I-IV	40
	5th Sem: Course-DSE1, Paper1 Psychology, Chapter 1-8	60
	5th Sem: Course-GE-1, Paper-1 Fundamentals of Indian Philosophy, Unit I-III	30
Anirban Barman	1st Sem: Course-DSC1, Paper-1 Fundamentals of Indian Philosophy, Unit IV-VII	40
	3rd Sem: Course- SEC 1, Paper-1 Basics of Counselling Chapter 1-7	40
	5th Sem: Course- SEC 2, Paper-1 Basics of Counselling Chapter 1-7	40
	5th Sem: Course-GE-1, Paper-1 Fundamentals of Indian Philosophy, Unit IV-VII	40

LESSON PLAN

SEMESTER: I

SUBJECT: MICROBIOLOGY **PAPER: CC2 &CC2.1**

TITLE: BACTERIOLOGY (THEORY +PRACTICAL) **TEACHER: Ms. ABHISHIKTA BOSE**

THEORY		
CHAPTER	**LECTURE TOPICS**	**REQUIRED NO. OF LECTURES**
UNIT I (cell organization)	cell membrane, gram-staining etc.	6
UNIT III (Microscopy)	Various types of light and electron micropes	6
UNIT IV (growth and nutrition)	Nutritional requirements, categories,microbial control methods	5
UNIT V (reproduction in bacteria)	Logarithmic representation and terminologies	2
UNIT VI (bacterial systematises)	Taxonomy, molecular chronometers etc.	4

PRACTICALS	
TOPICS	**REQUIRED NO. OF LECTURES**
Simple staining	1
Negative staining	1
Gram's staining	1
Acid-fast staining slides study	1
Capsule staining	1
Endospore staining	1

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LESSON PLAN

SEMESTER: III

SUBJECT: MICROBIOLOGY **PAPER: CC6 &CC6.1**

TITLE: CELL BIOLOGY (THEORY +PRACTICAL) **TEACHER: Ms. ABHISHIKTA BOSE**

THEORY		
CHAPTER	**LECTURE TOPICS**	**REQUIRED NO. OF LECTURES**
UNIT I (structure and organization)	Cell wall, cell membrane, mitochondria, chloroplast etc.	9
UNIT II (nucleus)	Envelope, pore complex etc.	3
UNIT III (protein sorting and transport)	Ribosome, ER, golgi, protein modification etc.	8
UNIT IV (cell signalling)	Receptor, signalling molecules, cAMP receptors	5
UNIT V (cell cycle, cell death and cell renewal)	Mitosis, meiosis, development of cancer,apoptosis etc.	6

PRACTICALS	
TOPICS	**REQUIRED NO. OF LECTURES**
Representative plant and animal cell study	1
Study of the structure of the cell organelles	1
Identification of cancer cell by photomicrograph	1
Study of different stages of mitosis	1
Study of different stages of meiosis	1

LESSON PLAN

Semester :1st

Subject : Alternative English. Paper :LCC

Title : Text Comprehension, Editing & Writing Skill. Teacher : Mahadeb Roy

Chapter	Lecture Topic	Required No of Lecture
Comprehension of a Text (Prose)	Text Reading and solving the questions	02
Summary writing of a prose or verse piece	Text Reading and summary writing practice	02
Essay writing	Giving the important topics of Essay and writing practice	02
Formal and informal Letter writing	Giving the important topics of Formal and informal Letter & writing practice	03
Style sheet practice and proofreading	Style sheet practice and proofreading practice	03

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Lesson Plan 2022-23

Semester – III

Subject – Computer Sc. (Hons. & GE) Paper – CC-6 & GE3A

Title – Operating System Teacher – Dr. Indrajit Ghosh

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Introduction	Basic OS functions, resource abstraction, types of operating systems–multiprogramming systems, batch systems , time sharing systems; operating systems for personal computers & workstations, process control & real time systems.	03
Unit 2: Operating System Organization	Processor and user modes, kernels, system calls and system programs.	02
Unit 3: Process Management	System view of the process and resources, process abstraction, process hierarchy, threads, threading issues, thread libraries; Process Scheduling, non-pre-emptive and pre-emptive scheduling algorithms; concurrent and processes, critical section, semaphores, methods for inter-process communication; deadlocks.	05
Unit 4: Memory Management	Physical and virtual address space; memory allocation strategies -fixed and variable partitions, paging, segmentation, virtual memory.	04
Unit 5: File and I/O Management	Directory structure, file operations, file allocation methods, device management.	01
Unit 6: Protection and Security	Policy mechanism, Authentication, Internal access Authorization.	01
Practical	Shell programming	20

Semester – V

Subject – Computer Sc. (Hons.) Paper – DSE-1

Title – Microprocessor Teacher – Dr. Indrajit Ghosh

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Microprocessor architecture	Internal architecture, system bus architecture, memory and I/O interfaces	07
Unit 2: Microprocessor programming	Register Organization, instruction formats, assembly language programming	10
Unit 3: Interfacing	Memory address decoding, cache memory and cache controllers, I/O interface, keyboard, display, timer, interrupt controller, DMA controller, video controllers, communication interfaces.	12
Practical	Programs related to 8085 Microprocessor	20

Lesson Plan 2022-23

Semester – I

Subject – Computer Sc. (Prog.) Paper – DSC1/2/3-P1

Title – **Computer System Architecture** Teacher – Arpita Das

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Introduction	Logic gates, Boolean algebra, combinational circuits, circuit simplification, flip-flops and sequential circuits, decoders, multiplexers, registers, counters and memory units.	10
Unit 2: Data Representation and Basic Computer Arithmetic	Number systems, complements, fixed and floating-point representation, character representation, addition, subtraction, magnitude comparison, multiplication and division algorithms for integers	05
Unit 3: Basic Computer Organization and Design	Computer registers, bus system, instruction set, timing and control, instruction cycle, memory reference, input-output and interrupt, Interconnection Structures, Bus Interconnection design of basic computer.	05
Unit 4: Central Processing Unit	Register organization, arithmetic and logical micro-operations, stack organization, micro programmed control. Instruction formats, addressing modes, instruction codes, machine language, assembly language, input output programming, RISC, CISC architectures, pipelining and parallel architecture.	05
Unit 5: Memory Organization	Cache memory, Associative memory mapping.	02
Unit 6: Input-Output Organization	Input / Output: External Devices, I/O Modules, Programmed I/O, Interrupt-Driven I/O, Direct Memory Access, I/O Channels.	03

Semester – III

Subject – Computer Sc.(H) Paper – SEC35-E3

Title – Python Programming Teacher – Arpita Das

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Planning the Computer Program	Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation	02
Unit 2: Techniques of Problem Solving	Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.	02

Unit 3: Overview of Programming	Structure of a Python Program, Elements of Python	03
Unit 4: Introduction to Python	Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator)	04
Unit 5: Creating Python Programs	Input and Output Statements, Control statements (Branching, Looping, Conditional Statement, Exit function, Difference between break, continue and pass.), Defining Functions, default arguments.	04
Practical	Software Lab based on Python Programming	20

Semester –III

Subject – Computer Sc. (Prog.) Paper – SEC 1

Title – **Office Automation Tools** Teacher – Arpita Das

Chapter	Lecture Topics	Required Number of Lectures
Introduction	open office/MS office/Libre office	02
Word Processing	Formatting Text, Pages, Lists, Tables	05
Spreadsheets	Worksheets, formatting data, creating charts and graphs, using formulas and functions, macros, Pivot Table	06
Presentation Tools	Adding and formatting text, pictures, graphic objects, including charts, objects, formatting slides, notes, hand-outs, slide shows, using transitions, animations	04
Practical	Computer Lab Based on Office Automation	10

Semester – IV

Subject – Computer Sc. (Hons.) Paper – CC8

Title – Design and Analysis of Algorithm Teacher – Arpita Das

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Introduction	Basic Design and Analysis techniques of Algorithms, Correctness of Algorithm	05
Unit 2: Algorithm Design Techniques	Iterative techniques, Divide and Conquer, Dynamic Programming, Greedy Algorithms	08
Unit 3: Sorting and Searching Techniques	Elementary sorting techniques–Bubble Sort, Insertion Sort, Merge Sort, Advanced Sorting techniques - Heap Sort, Quick Sort, Sorting in Linear Time - Bucket Sort, Radix Sort and Count Sort, Searching Techniques, Medians & Order Statistics, complexity analysis;	15

Unit 4: Lower Bounding Techniques	Decision Trees	02
Unit 5: Balanced Trees	Red-Black Trees	04
Unit 6: Advanced Analysis Technique	Amortized analysis	03
Unit 7: Graphs	Graph Algorithms–Breadth First Search, Depth First Search and its Applications, Minimum Spanning Trees.	04
Unit 8: String Processing	String Matching, KMP Technique	04
Practical	Programs related to different sorting algorithm, implementation of RED-BLACK TREE, DFS, BFS, determine minimum spanning tree etc.	20

Semester – IV

Subject – Computer Sc. (Prog.) Paper – SEC 2

Title – HTML Programming Teacher – Arpita Das

Chapter	Lecture Topics	Required Number of Lectures
Unit-I: Introduction	Introduction to Web Design: Introduction to hypertext markup language (html) document type definition, creating web pages, graphical elements, lists, hyperlinks, tables, web forms, inserting images, frames.	08
Unit-II: The Basics	The Head, the Body, Colors, Attributes Lists, ordered and unordered	02
Unit-III: **Links**	Introduction, Relative Links, Absolute Links, Link Attributes Using the ID Attribute to Link Within a Document	04
Unit-IV: **Images**	Putting an Image on a Page o Using Images as Links o Putting an Image in the Background	02
Unit-V: **Tables**	Creating a Table Table Headers o Captions Spanning Multiple Columns o Styling Table	04
Unit VI: Forms	Basic Input and Attributes o Other Kinds of Inputs o Styling forms with CSS Customized Features: Cascading Style Sheets, (CSS) for text formatting and other Manipulations	06
Unit VII: JDBC	JDBC Fundamentals, Establishing Connectivity	04
Practical	Programs related to HTML Programming	16

Semester – VI

Subject – Computer Sc. (Hons.) Paper – CC 14

Title – Computer Graphics Teacher – Arpita Das

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Introduction	Basic elements of Computer graphics, Applications of Computer Graphics.	03
Unit 2: Graphics Hardware	Architecture of Raster and Random scan display devices, input/output devices.	06
Unit 3: Fundamental Techniques in Graphics	Raster scan line, circle and ellipse drawing, thick primitives, Polygon filling, line and polygon clipping algorithms, 2D and 3D Geometric Transformations, 2D and 3D Viewing Transformations (Projections-Parallel and Perspective), Vanishing points.	20
Unit 4: Geometric Modelling	Representing curves & Surfaces.	07
Unit 5: Visible Surface determination	Hidden surface elimination.	03
Unit 6: Surface rendering	Illumination and shading models. Basic color models and Computer Animation.	04
Practical	Programs related to Line drawing, Circle drawing, 2D transformation, Clipping, Curve	20

Semester – VI

Subject – Computer Sc. (Prog.) Paper – SEC 4

Title – My SQL Teacher – Arpita Das

Chapter	Lecture Topics	Required Number of Lectures
Unit 1	SQL Vs. SQL * Plus: SQL Commands and Data types, Operators and Expressions, Introduction to SQL * Plus.	05
Unit 2	Managing Tables and Data: • Creating and Altering Tables (Including constraints) • Data Manipulation Command like Insert, Update, Delete • SELECT statement with WHERE, GROUP BY and HAVING, ORDER BY, DISTINCT, special operator like: IN, ANY, ALL, BETWEEN, EXISTS, LIKE • Join, Built in function(4L) Other Database Objects • View • Synonyms, Index(2L) Transaction Control Statements • Commit, Rollback, Save point	12
Unit 3	.Introduction to PL/SQL, SQL vs PL/SQL	03

Unit 4	PL/SQL Block Structure • Language construct of PL/SQL (Variables, Basic and Composite Data type, Conditions looping etc.) • % TYPE and %ROWTYPE • Usinf Cursor (Implicit, Explicit)	04
Practical	Programs based on MySQL	20

Lesson Plan 2022-23

Semester – III (Hons)

Subject – Computer Science | Paper – CC7

Title – Computer Networks | Teacher – Debangshu Chakraborty

Chapter	Lecture Topics	Required Number of Lectures
Introduction to Computer Networks	Network definition	1
	Network topologies	1
	Network classifications	
	Network protocol	1
	Layered network architecture	
	Overview of OSI reference model	1
	Overview of TCP/IP protocol suite	
Data Communication Fundamentals and Techniques	Analog and digital signal	1
	Data-rate limits	
	Digital to digital line encoding schemes	1
	Pulse code modulation	1
	Parallel and serial transmission	1
	Digital to analog modulation	1
	Multiplexing techniques- FDM, TDM	1
	Transmission media	1
Networks Switching Techniques and Access mechanisms	Circuit switching	1
	Packet switching- connectionless datagram switching, connection-oriented virtual circuit switching	1
	Dial-up modems	2
	Digital subscriber line	
	Cable TV for data transfer	
Data Link Layer Functions and Protocol	Error detection and error correction techniques	2
	Data-link control- framing and flow control	1
	Error recovery protocols stop and wait ARQ, go-back-n ARQ	1
	Point to Point Protocol on Internet	1
Multiple Access Protocol and Networks	CSMA/CD protocols	1
	Ethernet LANS	1
	Connecting LAN and back-bone networks- repeaters, hubs, switches, bridges, router and gateways;	1

Networks Layer Functions and Protocols	Routing	3
	Routing algorithms	
	Network layer protocol of Internet- IP protocol, Internet control protocols	2
Transport Layer Functions and Protocols	Transport services- error and flow control, Connection establishment and release- three way handshaking	1
Overview of Application layer protocol	Overview of DNS protocol	1
	Overview of WWW & HTTP protocol	1
PRACTICAL	Computer Networks Practical	8

Semester – V (Hons)

Subject – Computer Science
Paper – CC9
Title – Internet Technologies
Teacher – Debangshu Chakraborty

Chapter	Lecture Topics	Required Number of Lectures
Java	Use of Objects, Array and ArrayList class	2
JavaScript	Data types, operators, functions, control structures, events and event handling.	5
JDBC	JDBC Fundamentals, Establishing Connectivity and working with connection interface, working with statements, Creating and Executing SQL Statements, Working with Result Set Objects	8
JSP	Introduction to Java Server Pages, HTTP and Servlet Basics, The Problem with Servlets, The Anatomy of a JSP Page, JSP Processing, JSP Application Design with MVC, Setting Up the JSP Environment, Implicit JSP Objects, Conditional Processing, Displaying Values, Using an expression to Set an Attribute, Declaring Variables and Methods, Error Handling and Debugging, Sharing Data Between JSP Pages, Requests, and Users, Database Access.	14
Java Beans	Java Beans Fundamentals, JAR files, Introspection, Developing a simple Bean, Connecting to DB	10

Semester – III (Program)

Subject – Computer Science | Paper – CC3

Title – Computer Networks | Teacher – Debangshu Chakraborty

Chapter	Lecture Topics	Required Number of Lectures
Introduction to Computer Networks	Network definition	1
	Network topologies	1
	Network classifications	1
	Network protocol	1
	Layered network architecture	1
	Overview of OSI reference model	1
	Overview of TCP/IP protocol suite	1
Data Communication Fundamentals and Techniques	Analog and digital signal	2
	Data-rate limits	
	Digital to digital line encoding schemes	1
	Pulse code modulation	1
	Parallel and serial transmission	1
	Digital to analog modulation	1
	Multiplexing techniques- FDM, TDM	1
	Transmission media	1
Networks Switching Techniques and Access mechanisms	Circuit switching	1
	Packet switching- connectionless datagram switching, connection-oriented virtual circuit switching	1
	Dial-up modems	2
	Digital subscriber line	
	Cable TV for data transfer	
Data Link Layer Functions and Protocol	Error detection and error correction techniques	2
	Data-link control- framing and flow control	1
	Error recovery protocolsstop and wait ARQ, go-back-n ARQ	1
	Point to Point Protocol on Internet	1
Multiple Access Protocol and Networks	CSMA/CD protocols	1
	Ethernet LANS	1
	Connecting LAN and back-bone networks- repeaters, hubs, switches, bridges, router and gateways;	1

Networks Layer Functions and Protocols	Routing	3
	Routing algorithms	
	Network layer protocol of Internet- IP protocol, Internet control protocols	2
Tutorial	Tutorial on Computer Networks	8

Lesson Plan 2022-23

Semester – **I**

Subject – **COMPUTER SCIENCE (HONS)** Paper – **CC 2**

Title – **Computer System Architecture** Teacher – **Gouravmoy Banerjee**

Chapter	Lecture Topics	Required Number of Lectures
Unit 2: Data Representation and Basic Computer Arithmetic	Number systems, complements, fixed and floating point representation, character representation, addition, subtraction, magnitude comparison, multiplication and division algorithms for integers	07
Unit 1: Introduction	Logic gates, boolean algebra, combinational circuits, circuit simplification, flip-flops and sequential circuits, decoders, multiplexers, registers, counters and memory units.	10
Unit 3: Basic Computer Organization and Design	Computer registers, bus system, instruction set, timing and control, instruction cycle, memory reference, input-output and interrupt, Interconnection Structures, Bus Interconnection design of basic computer.	05
Unit 4: Central Processing Unit	Register organization, arithmetic and logical micro-operations, stack organization, micro programmed control. Instruction formats, addressing modes, instruction codes, machine language, assembly language, input output programming, RISC, CISC architectures, pipelining and parallel architecture.	05
Unit 5: Memory Organization	Cache memory, Associative memory, mapping.	02
Unit 6: Input-Output Organization	Input / Output: External Devices, I/O Modules, Programmed I/O, Interrupt-Driven I/O, Direct Memory Access, I/O Channels.	03

Semester – **V**

Subject – **COMPUTER SCIENCE (HONS)** Paper – **CC 12**

Title – **Theory of Computation** Teacher – **Gouravmoy Banerjee**

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Languages	Alphabets, string, language, Basic Operations on language, Concatenation, Kleene Star	02
Unit 2: Finite Automata and Regular Languages	Transition Graphs, Deterministic and non-deterministic finite automata	01
	NFA to DFA Conversion	01
	Regular Expressions, Regular languages and their relationship with finite automata	02
	Pumping lemma and closure properties of regular languages	02

Unit 3: Context free languages	Context free grammars, parse trees, ambiguities in grammars and languages,	01
	Pushdown automata (Deterministic and Non-deterministic),	02
	Pumping Lemma, Properties of context free languages, normal forms	02
Unit 4: Turing Machines and Models of Computations	RAM, Turing Machine as a model of computation, Universal Turing Machine, Language acceptability, decidability, halting problem	01
	Recursively enumerable and recursive languages, unsolvability problems	01
Doubt Clearing Session		03

Semester – **IV**

Subject – **COMPUTER SCIENCE (PROG)** Paper – **CC 4**

Title – **Data Structures** Teacher – **Gouravmoy Banerjee**

Chapter	Lecture Topics	Required Number of Lectures
Unit 1: Arrays	Single and Multi-dimensional Arrays, Sparse Matrices (Array and Linked Representation)	04
Unit 2: Stacks	Implementing single / multiple stack/s in an Array; Prefix, Infix and Postfix expressions, Utility and conversion of these expressions from one to another; Applications of stack; Limitations of Array representation of stack	07
Unit 3: Linked Lists	Singly, Doubly and Circular Lists (Array and Linked representation); Normal and Circular representation of Stack in Lists; Self Organizing Lists; Skip Lists	07
Unit 4: Queues	Array and Linked representation of Queue, De-queue, Priority Queues	03
Unit 5: Recursion	Developing Recursive Definition of Simple Problems and their implementation; Advantages and Limitations of Recursion; Understanding what goes behind Recursion (Internal Stack Implementation)	05

Unit 6: Trees	Introduction to Tree as a data structure; Binary Trees (Insertion, Deletion , Recursive and Iterative Traversals on Binary Search Trees); Threaded Binary Trees (Insertion, Deletion, Traversals); Height-Balanced Trees (Various operations on AVL Trees).	12
Unit 7: Searching and Sorting	Linear Search, Binary Search, Comparison of Linear and Binary Search, Selection Sort, Insertion Sort, Shell Sort, Comparison of Sorting Techniques	15
Practical		20
Doubt Clearing Session		05

Semester – **IV**

Subject – **COMPUTER SCIENCE (GE)** Paper – **GE 4**

Title – **Python Programming** Teacher – **Gouravmoy Banerjee**

Unit 3: Overview of Programming	Structure of a Python Program, Elements of Python	05
Unit 4: Introduction to Python	Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator)	15
Unit 5: Creating Python Programs	Input and Output Statements, Control statements (Branching, Looping, Conditional Statement, Exit function, Difference between break, continue and pass.), Defining Functions, default arguments.	15
Practical	Software Lab based on Python Programming	20
Doubt Clearing Session		03

UNIVERSITY OF NORTH BENGAL

Lesson Plan FOR B.A. PROGRAMME COURSE IN

EDUCATION

UNDER CHOICE BASED CREDIT SYSTEM (CBCS)

(WITH EFFECT FROM THE ACADEMIC SESSION2018-19)

University of North Bengal
Raja Rammohunpur, Darjeeling – 734013,
West Bengal, India

INTRODUCTION:

The introduction of Choice Based Credit System is one such attempt towards improvement and bringing in uniformity of system with diversity of courses across all higher education institutes in the country. The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising of core, elective, skill enhancement or ability enhancement courses. The courses shall be evaluated following the grading system, is considered to be better than conventional marks system. This will make it possible for the students to move across institutions within India to begin with and across countries for studying courses of their choice. The uniform grading system shall also prove to be helpful in assessment of the performance of the candidates in the context of employment.

Syllabus for B.A. Programme Course in EDUCATION:

In B.A. Programme Course there are **six semesters**. In the first four semesters of the Curriculum, there will be 8 Discipline Specific Core Courses (DSC), 4 from each of the two Discipline Specific Core Course Subjects [DSC 1 (Education) and DSC 2 (any subject other than Education)]; 4 Language Core courses (LCC1 and LCC2), 2 Ability Enhancement Compulsory Courses (AECC-1 and AECC-2); and 2 Skill Enhancement Courses (SEC-1). In the 5th and 6th semesters the students will be offered 4 Discipline Specific Elective Courses (DSE), 2 from each of the two Discipline Specific Elective Course subjects (DSE-1 and DSE2), 2 Skill Enhancement Courses (SEC-2) and 2 courses on Generic Elective (GE).

DSE 1 and SEC 1 Course subject will be the same as DSC1 Course subject and DSE 2 and SEC 2 Course subject will be the same as DSC2 Course subject.

GE Course subject must be different from DSC1 and DSC2 course subject.

The syllabus for Generic Elective (GE) Course in Education offered to students of Other HonoursProgramme Courses (Excluding EducationHonours) in their 1st and 2nd Semesters (or in their 3rd and 4th Semesters) will be same as the syllabus for GE offered to the Programme Course students at their 5th and 6th semesters.

A. TOTAL Number of courses in UG-CBCS (B.A.Programme):

Types of course	Core course (CC)	Elective course		Ability Enhancement Course		TOTAL
		Discipline specific elective course (DSE)	Generic elective course(GE)	Ability Enhancement compulsory course(AECC)	Skill Enhancement course (SEC)	
No. of course	12	4	2	2	4	24
Credit/course	6	6	6	2	2	120

TABLE-1: DETAILS OF COURSES OF B.A. (PROGRAMME) UNDER CBCS

S. No.	**Particulars of Course**	**Credit Point**	
1.	**Core Course: 14 Papers**	**Theory +Practical**	**Theory +Tutorial**
1.A.	Core Course: Theory (12 papers)	12x4 = 48	12x5 = 60
1.B.	Core Course (Practical/Tutorial)*(12 papers)	12x2 = 24	12x1 = 12
2.	**Elective Courses: (6 papers)**		
A.	DSE (6 papers for B.Sc./ 4 papers for B.A. & B.Com.)	6x4 = 24	4x5 = 20
B.	DSE(Pract./ Tutor.)* (6 papers for B.Sc./4 for B.A. &B.Com.)	6x2 = 12	4x1 = 4
C.	GE (Interdisciplinary) (2 papers for B.A. & B.Com.)	**--**	2x5 = 10
D.	GE (Pract./Tutor.)* (4 papers) (2 papers for B.A. &B.Com.)	--	2x1 = 2
3. Ability Enhancement Courses			
A.	AECC(2 papers of 2 credits each) ENVS, English Communication / MIL	2x2 = 4	2x2 = 4
B.	Skill Enhancement Course(SEC) (4 papers of 2 credits each)----------	4x2 = 8	4x2 = 8
	Total Credit:	**120**	**120**

TABLE-2:SEMESTER WISE DISTRIBUTION OF COURSES & CREDITS IN B.A. PROGRAMME

Courses/ (Credits)	**Sem.-I**	**Sem.-II**	**Sem.-III**	**Sem.-IV**	**Sem.-V**	**Sem.-Vi**	**Total No. of Courses**	**Total credit**
CC-1,2 6)	2(1A,2A)	2 1B,2B)	2 (1C,2C)	2 (1D,2D)			8	48
Language CC - 1,2 (6)	1 (L_1-1)	1 (L_2-1)	1 (L_1-2)	1 (L_2-2)			4	24
DSE (6)	-	-	-	-	2(1A,2A)	2 (1B,2B)	4	24
GE (6)					1(GE-1)	1(GE-2)	2	12
AECC (2)	1	1					2	04
SEC (2)			1	1	1	1	4	08
Total No. of Courses/ Sem.	4	4	4	4	4	4	24	--
Total Credit /Semester	**20**	**20**	**20**	**20**	**20**	**20**	**--**	**120**

❖ **COURSE CODE & COURSE TITLE:**

A. Discipline Specific Core courses (DSC)

1. EDU-P- DSCCore-T-1:	Philosophical Foundation of Education
2. EDU-P- DSCCore-T-2	Psychological Foundation of Education
3. EDU-P- DSCCore-T-3:	Sociological Foundation of Education
4. EDU-P- DSCCore-T-4:	Historical foundation of Education

B. Discipline specific elective courses (DSE)

1. EDU-P-DSE-T-1/2(A):	Value Education
2. EDU-P-DSE-T-1/2(B):	Comparative Education
3. EDU-P-DSE-T-1/2(C):	Distance Education
4. EDU-P-DSE-T-3/4(A):	Guidance & Counseling
5. EDU-P-DSE-T-3/4(B):	Measurement and Evaluation in Education
6. EDU-P-DSE-T-3/4(C):	Great Educators

C. Generic elective courses (GE):

1. EDU-P-GE-T-1(A):	Lifelong Learning and Education
2. EDU-P-GE-T-1(B):	Gender & Society in Educational Context
3. EDU-P-GE-T-2(A):	Yoga Education
4. EDU-P-GE-T-2(B):	Human Rights Education

D. Ability enhancement compulsory courses (AECC)

1. AECC-1:	Environmental Education
2. AECC-2:	English/ MIL Communication

E. Skill enhancement courses (SEC)

1. EDU-P-SEC-T-1(A):	Statistical Analysis
2. EDU-P-SEC-T-1(B):	Computer Application
3. EDU-P-SEC-T-2(A):	Community Development
4. EDU-P-SEC-T-2(B):	Lesson Planning

Detailed Course Structure for B.A. Programme Course in Education

Semester-I	Semester - II
Discipline Specific Core-1 (DSC-1) Paper 1: Philosophical foundation of Education	**Discipline Specific Core-1 (DSC-1) Paper 2: Psychological foundation of Education**
Discipline Specific Core -2 (DSC-2) ## Paper 1:	Discipline Specific Core -2 (DSC-2) ## Paper 2:
Language Core Course (LCC-1) Paper-1: Bengali/Sanskrit/Nepali/Hindi	Language Core Course (LCC-2) Paper-1: English
Ability Enhancement Compulsory Course (AECC-1): ENVS	Ability Enhancement Compulsory Course (AECC-2): English/ MIL Communication

Semester-III	Semester-IV
Discipline Specific Core-1 (DSC-1) Paper 3:Sociological foundation of Education	**Discipline Specific Core-1 (DSC-1) Paper 4:Historical foundation of Education**
Discipline Specific Core -2 (DSC-2) ## Paper 3:	Discipline Specific Core -2 (DSC-2) ## Paper 4:
Language Core Course (LCC-1) Paper-2: Bengali/Sanskrit/Nepali/Hindi	Language Core Course (LCC-2) Paper-2: English
Skill Enhancement Course (SEC-1) Paper-1: (A)Statistical Analysis Or (B) Computer Application	Skill Enhancement Course (SEC-1) Paper-2: (A) Community Development Or (B) Lesson Planning

Semester-V	Semester-VI
Discipline Specific Elective (DSE-1) Paper-1: (Select any one) (A) Value Education (B) Comparative Education **(C)** Distance Education	**Discipline Specific Elective (DSE-1) Paper-2: (Select any one)** (A) Measurement and Evaluation in Education (B) Guidance & Counseling (C) Great Educators
Discipline Specific Elective (DSE-2) ## Paper-1	Discipline Specific Elective (DSE-2) ## Paper-2
Generic Elective Course (GE)** Paper-1 (choose from pool of Generic Electives)	Generic Elective Course (GE)** Paper-2 (choose from pool of Generic Electives)
Skill Enhancement Course (SEC-2)## Paper-1:	Skill Enhancement Course (SEC-2)## Paper-2:

DSE 1 and SEC 1 Course subject will be the same as DSC1 Course subject and DSE 2 and SEC 2 Course subject will be the same as DSC2 Course subject.

The Table presents the syllabus of DSC1/DSE1/SEC1 of the Programme course in Education. The same syllabus is applicable if Education is opted as DSC2/DSE2/ SEC2.

****GE Course subject must be different from DSC1 and DSC2 course subject.**

Semester & Course wise credit distribution
Scheme for B.A. Programme Course in Education

SEMESTER	COURSE TYPE	PAPER DESCRIPTION	CREDIT (L-T-P)	MARKS
I	**Discipline Specific Core (DSC-1) Paper-1**	**Philosophical foundation of Education**	**5-1-0**	**75**
	Discipline Specific Core (DSC-2) Paper-1		**5-1-0**	**75**
	Language Core Course (LCC-1) Paper-1	Bengali/Sanskrit/Nepali/Hindi	**5-1-0**	**75**
	Ability Enhancement Compulsory Course (AECC-1)	ENVS	**2-1-0**	**100**
II	**Discipline Specific Core (DSC-1) Paper-2**	**Psychological foundation of Education**	**5-1-0**	**75**
	Discipline Specific Core (DSC-2) Paper-2		**5-1-0**	**75**
	Language Core Course (LCC-2) Paper-1	English	**5-1-0**	**75**
	Ability Enhancement Compulsory Course (AECC-2)	English/MIL Communication	**2-0-0**	**50**
III	**Discipline Specific Core (DSC-1) Paper-3**	**Sociological foundation of Education**	**5-1-0**	**75**
	Discipline Specific Core (DSC-2) Paper-3		**5-1-0**	**75**
	Language Core Course (LCC-1) Paper-2	Bengali/Sanskrit/Nepali/Hindi	**5-1-0**	**75**
	Skill Enhancement Course (SEC-1) Paper-1	**(A)Statistical Analysis Or (B) Computer Application**	**2-0-0**	**75**
IV	**Discipline Specific Core (DSC-1) Paper-4**	**Historical foundation of Education**	**5-1-0**	**75**
	Discipline Specific Core (DSC-2) Paper-4		**5-1-0**	**75**
	Language Core Course (LCC-2) Paper-2	English	**5-1-0**	**75**
	Skill Enhancement Course (SEC-1) Paper-2	**(A) Community Development Or (B) Lesson Planning**	**2-0-0**	**75**
V	**Discipline Specific Elective Course (DSE-1) Paper-1**	**(A) Value Education Or (B) Comparative Education Or** (C) **Distance Education**	**5-1-0**	**75**

	Discipline Specific Elective Course (DSE-2) Paper-1		**5-1-0**	**75**
	Generic Elective Course (GE) Paper-1		**5-1-0**	**75**
	Skill Enhancement Course (SEC-2) Paper-1		**2-0-0**	**75**
VI	**Discipline Specific Elective Course (DSE-1) Paper-2**	**(A) Measurement and Evaluation in Education** **Or** **(B) Guidance & Counseling** **Or** (C) **Great Educators**	**5-1-0**	**75**
	Discipline Specific Elective Course(DSE-2) Paper-2		**5-1-0**	**75**
	Generic Elective Course (GE) Paper-2		**5-1-0**	**75**
	Skill Enhancement Course (SEC-2) Paper-2		**2-0-0**	**75**
Total			**120**	**1800**

DSC: Discipline Specific Core
LCC1: Language Core Course 1
LCC2: Language Core Course 2
AECC: Ability Enhancement Compulsory Course
SEC: Skill Enhancement Course
DSE: Discipline Specific Elective
GE: Generic Elective
L = Lecture, T = Tutorial, P = Practical,

Total Marks 75. Out of 75, 5 for attendance, 10 forIA(Internal Assessment) and 60 forSEE(Semester End Examination).

***Instructions for Internal Assessment: 1. Submission of Term Paper and Viva Voce, 2. Written Test.**

CBCS CURRICULUM OF B.A. IN EDUCATION (PROGRAMME)

B.A. Education (Programme)
SEMESTER-I
EDU-P-DSC-1(PAPER-1): Philosophical Foundation of Education
Core Course; Credit-6.(72 Lectures), Full Marks-75

NAME OF THE TEACHERS	G.S.G	T.D	R.H	A.M
Unit-I:Concept, Scope, Aim of Education & Educational Philosophy: a) Meaning, Nature and scope of Education. b) Individualistic and socialistic aim. c) Delor's commission (UNESCO, 1997) d) Meaning and scope of educational Philosophy; Relation between education and philosophy.			**6** **5** **5** **6**	
Unit-II:Factors of Education: their inter-relationship. a) Child: Meaning and characteristics of child centric education system. b) Teacher: Qualities and duties of a good teacher. Teacher as a motivator, mentor, facilitator and problem solver. c) Curriculum: Meaning and principles of curriculum construction. Co-curricular activities. d) School: vision and functions**.**			**4** **10** **6** **2**	
Unit-III:School of Philosophy and national values a) Western School of Philosophy: Idealism, Naturalism, Pragmatism: special reference to principles, aims of education, curriculum, teaching method, teacher, discipline. b) Inculcation of National Value: Democracy, Equality		**14** **8**		
Unit-IV : Great Educators and their educational philosophy a) Swami Vivekananda, Rabindranath Tagore. b) Rousseau, Dewey.		**12** **8**		

B.A. Education (Programme)
SEMESTER-II
EDU-P-DSC-1(PAPER-2): Psychological Foundation of Education
Core Course; Credit-6.(72 Lectures), Full Marks-75

NAME OF THE TEACHERS	G.S.G	T.D	R.H	A.M
Unit-I:Educational Psychology and Development a) Definition, Nature and Scope; Distinction between Psychology and educational Psychology. b) Growth and Development: Stages and aspects of development in human life; Physical, Social, Emotional, Cognitive and Language development of Infancy, Childhood and Adolescence period and respective	**8** **13**			

educational programmes.				
Unit-II: Learning a) Definition andcharacteristics of Learning; Factors influencing learning b) Theories of learning: Classical and Operant conditioning, Trial and Error and Insightful Learning. c) Attention & Interest: Factors of Attention and Relation between Attention and Interest. d) Memorization: LTM, STM. Principles of economy involved in Memorization; Causes of Forgetting.				**6** **6** **5** **6**
Unit-III: Intelligence a) Intelligence: Definition; Theories of Intelligence- Spearman, Thurstone, Guilford; Measurement of Intelligence.		**15**		
Unit-IV: Personality a) Definition, Theories – Types and Trait; Measurement of Personality; Concept of Individual differences in classroom.			**15**	

COMMON SYLLABUS

B.A. Education (Programme)

SEMESTER-III

EDU-P-DSC-1(PAPER-3): Sociological Foundation of Education

Core Course; Credit-6.(72 Lectures), Full Marks-75

NAME OF THE TEACHERS	G.S.G	T.D	R.H	A.M
Unit-I: Educational Sociology a) Meaning, nature and scope of Educational sociology. b) Relation between education and sociology. c) Concept of Educational sociology and sociology of education.		**7** **3** **5**		
Unit-II: Social factor and Education a) Culture: Concept, role of education in culture, cultural lag. b) Meaning of Human Resource Development and its significance in the present society.			**5** **10**	
Unit-III: Social groups and education a) Social groups (Primary, Secondary and Tertiary) b) Socialization: Meaning, process and factors of socialization, role of the family and school. c) Social Institution and Agencies of Education: (a) Family, (b) School, (c) State, (d) Mass media and (d) Religion				**4** **6** **11**

Unit-IV: Social change and Education a) Social change: Its definition, characteristics, factors, Constraints and education as an instrument of social change. b) Education and Social Mobility. c) Education for Socially and Economically backward classes, disadvantage section of Indian society (SC, ST, OBC, Women, Rural)			**7** **5** **8**	

B.A. Education (Programme)
SEMESTER-IV
EDU-P-DSC-1(PAPER-4): Historical Foundation of Education
Core Course; Credit-6.(72 Lectures), Full Marks-75

NAME OF THE TEACHERS	G.S.G	T.D	R.H	A.M
Unit-I: Education in 19th Century in India a) Charter Act of 1813 and its educational significance b) Macaulay Minuets- (1835)- its educational significance c) Bengal Renaissance- Contribution of Raja Rammohan Roy, Derozio and Vidyasagar. d) Wood's Despatch (1854) and its impact on education. e) Indian Education Commission (1882-83) and its impact of education.			**3** **3** **7** **3** **4**	
Unit-II: Education in 20th Century in India (1901-1944) a) Educational reformer Lord Curzon b) National education movement- Causes, Phases and Importance in Education. c) Basic Education- Concept, characteristics, merits and demerits. d) Sargent Plan Report (1944)- Pre-primary education, Primary education, Secondary education, Vocational & Technical education.				**2** **6** **6** **7**
Unit-III: Education in Post Independence India a) University Education Commission (1948-49) -Aims and Objective, Rural University Examination System, Teacher and Teaching Education, Vocational Education, Women Education. b) Secondary Education Commission (1952-53) -Structure of Education system, Aims and Objective,		**6** **6**		

Curriculum and Evaluation system and Language Policy c) Indian Education Commission (1964-66) - Structure of Education system, Aims and Objective, Curriculum, Language Policy, Exam System and Teacher Education, Equality in Educational Opportunity. d) Ashoke Mitra Commission (1991-92) - Recommendations Regarding Primary and Secondary Education.		**6** **3**		
Unit-IV: National Policy on Education a) National Policy on Education (1986) -National System of Education, Equality in Education, ECCE, Operation Black Board, Navaday Vidyalaya. b) Revised National Policy on Education-1992.			**12** **6**	

B.A. Education (Programme)
SEMESTER-IV
Skill Enhancement Course
Paper- 2
Choose any one

(A)Community Development OR (B) Lesson Planning

(B) Lesson Planning

(B)EDU-P-SEC-T-2(B): Lesson Planning

Skill Enhancement Course; Credit-2. (30 Lectures),
Full Marks-75 [Theory – 40, Practical – 20(Spot evaluation:10, Practical Note book:10)]

NAME OF THE TEACHERS	G.S.G	T.D	R.H	A.M
Unit-I: Concept of Lesson Planning a) Definition & Meaning of Lesson Plan b) Characteristics of Lesson Plan c) Advantages of Lesson Plan		**4** **4** **4**		
Unit-II: Different aspects of Lesson Plan a) Types of Lesson Plan b) Steps involved in Lesson Planning c) Principles of development of Lesson Plan			**5** **4** **6**	

Practical:
Preparation and Execution of Lesson Plan: (10 Lesson Plan to be prepared).

B.A. Education (Programme)

SEMESTER-V
Discipline Specific Elective (DSE-1)
Paper-1: (Select any one)

B.A. Education (Programme)
SEMESTER-V
EDU-P-DSE-T-1(C): Distance Education
Discipline Specific Elective Course; Credit-6 (72 Lectures). Full Marks-75

NAME OF THE TEACHERS	G.S.G	T.D	R.H	A.M
Unit I:Concept of Distance & Open Education a) Meaning and definition of Distance Education. b) Characteristics and objectives of Distance Education. c) Merits and limitations of Distance Education.				**6** **4** **4**
Unit II:Strategies of distance education a) Mode and strategies of Distance Education. b) Relationship among Non-formal, Correspondence, Distance and Open Education.			**6** **10**	
Unit III:Status of open and distance education in India a) Present state of Distance and Open Education in India. b) Role of multi-media in Distance and Open Education. c) Application of technology in Distance education. Communication and educational technology: Components of Communication process, role of communication in effective teaching-learning process, Factors affecting classroom communication.		**4** **4** **8**		
Unit IV:Problems and remedies of distance and open education in India a) Salient features of the Indira Gandhi National Open University (IGNOU) and National Open School. b) Problems of Distance and Open Education in India. c) Measures for strengthening Distance and Open Education in India.		**6** **6** **6**		

B.A. Education (Programme)
SEMESTER-VI
Discipline Specific Elective (DSE-1)
Paper-2: (Select any one)

EDU-P-DSE-T-2(B): Guidance and Counseling
Discipline Specific Elective Course; Credit-6. Full Marks-75

NAME OF THE TEACHERS	G.S.G	T.D	R.H	A.M
Unit-I: Concept of Guidance a) Meaning, Nature, Scope, and Importance of Guidance. b) Different Types of Guidance- i) Educational: Meaning, Characteristics, Purpose& Functions. ii) Vocational: Meaning, Characteristics, Purpose& Functions. iii) Personal: Meaning, Characteristics, Purpose & Functions.				**7** **4** **4** **4**
Unit-II: Concept of Counseling a) Meaning, Nature, Scope, and Importance of Counseling b) Types of Counseling- i) Directive: Meaning, Characteristics, Purpose & Functions. ii) Non-directive: Meaning, Characteristics, Purpose & Functions. iii) Eclectic: Meaning, Characteristics, Purpose & Functions. c) Steps of Counseling; Characteristics of good Counselor.			**7** **4** **4** **4** **3**	
Unit-III: Tools and Techniques of Guidance and Counseling a) Basic data necessary for Educational Guidance- Pupils abilities, Aptitudes, Interests and Attitudes, Educational Attainments and Personality Traits. b) Difference between Guidance, Counseling and Teaching.		12 6		
Unit-IV: Guidance and Counseling for Diverse Learners a) Identification of Gifted, Slow learners, Learner with learning disabilities. b) Need of Guidance for diverse learners c) Need of Counseling for diverse learner		**10** **4** **4**		

B.A. Education (Programme)
SEMESTER-VI
Discipline Specific Elective (DSE-2)

Paper-2
Credit-6 (72 Lectures). Full Marks-75

B.A. Education (Programme)
SEMESTER-VI
Generic Elective Course (GE)**
Paper-2
(Choose from pool of Generic Electives)
Credit-6 (72 Lectures). Full Marks-75

B.A. Education (Programme)
SEMESTER-VI
Skill Enhancement Course (SEC-2)##
Paper-2
Credit-2 Full Marks-75

Syllabus for Generic Elective Course

Course structure of Generic Elective (GE) in Programme Course in Semesters V and VI

And

Generic Elective (GE) for Other HonoursProgramme Courses (Excluding EducationHonours) in Semesters I and II (or Semesters in III and IV)

Generic Elective (GE): Paper -I	Generic Elective (GE): Paper -II
[A] Lifelong Learning and Education **[B]Gender and Society in Educational Context**	**[A] Yoga Education** **[B]Human Rights Education**

Generic Elective Courses (GE)
Paper -1
Choose any one
[A] Lifelong Learning and Educationor [B] Gender and Society in Educational Context

[A]Lifelong Learning and Education:EDU-P-GE-T-1(A)

Full Marks: 75 Credit: 6 (72 Lectures)

NAME OF THE TEACHERS	G.S.G	T.D	R.H	A.M
Unit-I: Concept of Life Long Learning a) Meaning and definition of Life Long Learning and Adult Education b) Characteristics of Life Long Learning c) Aims of Life Long Learning d) Need or Importance of Life Long Learning.			**8** **3** **2** **2**	
Unit-II: Approaches of Life Long Learning a) Dimensions of Life Long Learning b) Different teaching methods for Life Long Learning				**6** **8**
Unit-III: Historical Background of Life Long Learning c) Life Long Learning in Pre-Independence India ✓ Life Long Learning in Ancient India ✓ Life Long Learning in Medieval India ✓ Life Long Learning in British India b) Life Long Learning in Post-Independence India. (Historical description from Independence to last twelve fifth year plan)		**4** **3** **3** **3** **8**		
Unit-IV: Recommendations of different commission on Life Long learning a) National Literacy Mission (NLM) – (1988) b) National Adult Education Program				**5** **5**

c) Problems & Prospects of Life Long Learning.				**6**

Generic Elective Courses (GE)
Paper -1
Choose any one

[A] Yoga Education or [B] Human Rights Education

[A]Yoga EducationEDU-P-GE-T-2(A)

Full Marks: 75 Credit: 6 (72 Lectures)

Unit-I: Concept of Yoga Education				
a) Meaning and definition of Yoga Education			**6**	
b) Nature & Characteristics of Yoga Education			**4**	
c) Aims of Yoga Education			**3**	
d) Role of teachers in implementing Yoga Education			**4**	
Unit-II: Different Approaches of Yoga Education				
a) Types of Yoga Education		**8**		
b) General guidelines for performing Yoga Education		**5**		
c) Significance to Yogic texts in the context of schools of Yoga.		**6**		
Unit-III: Historical Background of Yoga Education				**5**
a) Historical background of Yoga Education				
b) Yoga Philosophy and Yoga Education				**4**
c) Sankhya Philosophy and Yoga Education				**5**
d) Yoga as reflected in Bhagwat Gita				**6**
Unit-IV: Yoga and Health				
a) Concept of health and health related Problems	**5**			
b) Need of Yoga for good health	**4**			
c) Yogic concept of healthy life style	**4**			
d) Yoga for reduction of stress	**6**			

Ananda Chandra College, Jalpaiguri
Department of Zoology
LESSON PLAN

ACADEMIC YEAR: 2021-22 **Teacher: Zareth Rongong**

Semester 1	**CC1: Non Chordates 1**	
Unit/Topic	Sub topic	Number of Classes
Unit 1: Basics of Animal Classification		**4**
	i) Definitions: Classification, Systematics and Taxonomy;	1
	ii) Levels of Taxonomy: Alpha, Beta & Gamma Taxonomy; Taxonomic Hierarchy, Taxonomic types: Primary, Secondary (Definition)	1
	iii)Codes of Zoological Nomenclature; Principle of priority; Synonymy and Homonymy.	1
	iv) Kingdom concept of classification (Whittaker)	1
Unit 2: Protista		**10**
	Protozoa: introduction	1
	General characteristics and Classification up to phylum (according to Levine et. al., 1981),	5
	Locomotion in Amoeba;	1
	Conjugation in Paramoecium.	1
	Life cycle and pathogenicity of Plasmodium vivax	2
	Lab: Preparation of whole mount of Paramoecium	1
	Lab: Identification with reasons: *Amoeba, Euglena, Opalina, Paramecium* (from slides/ photographs)	1
Unit 3: Porifera		**6**
	General characteristics and Classification up to classes;	3
	Cell types, Spicules in sponges, Canal system in Sycon	3
Unit 4: Cnidaria		**10**
	General characteristics and Classification up to classes	3

Commented [S1]:

	Metagenesis	2
	Corals and coral reefs diversity, function & conservation	3
	Lab:Identification with reasons: *Sycon, Obelia, Physalia, Aurelia, Tubipora, Gorgonia, Metridium, Pennatula, Fungia*	2
Unit 5: Ctenophora	**General characteristics**	**2**
Unit 6: Platyhelminthes		**6**
	i)General characteristics and Classification up to classes	1
	ii)Life cycle of *Taenia solium* and *Wuchereria bancrofti*	3
	Lab: Spot identification of adult *Fasciola hepatica, Taenia solium and Ascaris lumbricoides*	2
Unit 7: Nematoda		**7**
	General characteristics	1
	Classification up to classes	1
	Life cycle of Wuchereria bancrofti and Ascaris lumbricoides	2
	Parasitic adaptations in helminthes	1
	Lab: Staining/mounting of any protozoa/helminth from gut of cockroach	2

Semester 2

CC3: Non chordates 2 **Teacher: Zareth Rongong**

Unit	Sub Topic	No of classes
Unit1: Introduction	Evolution of coelom and metamerism	**2**
Unit 2: Annelida		**10**
	General characteristics	1
	Classification up to classes	2
	Excretion in Annelida through nephridia	1
	Locomotion in Nereis	1
	Metamerism in Annelida	1
	Identification with reasons: *Aphrodite, Nereis/ Heteronereis, Sabella, Chaetopterus, Pheretima, Hirudinaria*	2

	Lab: Study of digestive system, septal nephridia, pharyngeal naphridia of earthworm	1
	Identification of T.S. through pharynx, gizzard, and typhlosolar intestine of earthworm	1
Unit 3: Arthropoda		**16**
	General characteristics	2
	Classification up to classes	2
	Vision in Insecta	2
	Respiration in Arthropoda (Gills in prawn and trachea in cockroach)	2
	Metamorphosis in Lepidopteran Insects	1
	Identification of Arthropods - *Limulus, Palamnaeus, Palaemon, Daphnia*	1
	Identification of Arthropods: *Balanus, Sacculina, Cancer,* *Eupagurus,* *Onychophora - Peripatus*	1
	Identification of Arthropods *Scolopendra, Julus, Bombyx, Periplaneta,* termites and honey bees	1
	Mounting of mouth parts of Periplaneta	2
	Dissection of digestive system and nervous system	2
Unit 4: Onychophora	General characteristics and Evolutionary significance; and affinities of Peripatus	**2**
Unit 5: Mollusca		**10**
	General characteristics	2
	Classification up to classes	2
	Nervous system and torsion and detorsion in Gastropoda .	3
	Respiration in *Pila sp;*	1
	Evolutionary significance of trochophore larva	1
		1
Unit 6: Echinodermata		**8**
	General characteristics	1
	Classification up to classes	1
	Water-vascular system in Echinodermata,	1

	Larval forms in Echinodermata,	2
	Affinities with Chordates	1
	Discussion on Project Report on any related topic to larval forms	2
Unit 7: Hemichordata	.	**2**
	General characteristics of phylum Hemichordata	1
	Relationship with non-chordates and chordates	1

Semester 3

CC5 : Chordates **Teacher: Zareth Rongong**

Unit	Topic	Number of Classes
Unit 1: Introduction to Chordates	General characteristics and outline classification of Phylum Chordata	**2**
Unit 2: Protochordata		**6**
	1. General characteristics and classification of sub-phylum Urochordata and Cephalochordate up to Classes. 2. Retrogressive metamorphosis in Ascidia. 3. Chordate Features and Feeding in Branchiostoma .	2 2 2
Unit 3: Origin of Chordata		2

	1. Dipleurula concept and the Echinoderm theory of origin of chordates 2. Advanced features of vertebrates over Protochordata	
Unit 4: Agnatha	**General characteristics and classification of cyclostomes up to order**	**2**
Unit 5: Pisces		**10**
	1. General characteristics and classification of Chondrichthyes and Osteichthyes up to Subclasses 2.Accessory respiratory organ, 3. Migration 4. Parental caring fishes 5.Swim bladder in fishes.	1+2 1 1+1 1
	Lab: Dissection of brain and pituitary of carp	1
	Identification: *Scoliodon, Sphyrna, Torpedo, Heteropneustes, Labeo, Exocoetus, Echeneis, Anguilla, Hippocampus,* *Tetrodon/ Diodon-, Anabas*, Flat fish	2

Unit 6: Amphibia		**8**
	General characteristics	1
	Classification up to living Orders.	2

	Parental care in Amphibia,	1
	Metamorphosis in toad,	1
	Neoteny and paedogenesis	1
	Identification of amphibians	2
Unit 7: Reptilia		**8**
	General characteristics	1
	Classification up to living Orders.	2
	Poison apparatus and Biting mechanism in poisonous Snakes	2
	Identification: *Chelone, Trionyx,- Hemidactylus,- Varanus, Uromastix, Chamaeleon- Draco, Bungarus,- Vipera, Naja, Hydrophis, - Crocodylus.*	2
	Lab: Key for Identification of poisonous and non-poisonous snakes	1
Unit 8: Aves		**10**
	General characteristics	2
	Classification up to Sub-Classes	2
	Exoskeleton	1
	Migration	1
	Double respiration in Birds	1
	Principles and aerodynamics of flight	1
	Lab: Mounting of pecten from Fowl head	2
Unit 9: Mammals		**8**
	General characters	1
	Classification up to living orders	2
	Affinities of Prototheria	1
	Exoskeletal derivatives of mammals	1
	Adaptive radiation in mammals with reference to locomotory appendages	1
	Echolocation in Micro chiropterans and Cetaceans, Identification of Bat (Insectivorous and Frugivorous)	2

Unit 10: Zoogeography	Zoogeographical realms, Plate tectonic and Continental drift theory, distribution of birds and mammals in different realms	**2**

Semester 4

CC8: Comparative Anatomy of Vertebrates **Teacher: Zareth Rongong**

Unit	Topic	Number of Classes
Unit1:Integumentary System		**6**
	Structure, function and derivatives of integument in birds and	3
	Mammals	3
Unit2:Skeletal System		**6**
	Overview of axial and appendicular skeleton;	2
	Jaw suspension; Visceral arches.	2+2
Unit3: Digestive System		**6**
	Comparative anatomy of stomach in mammals and birds	3
	Dentition in mammals	3
Unit4: Respiratory System		**6**
	Respiratory organs in fish, amphibian,	3
	birds and mammals	3
Unit5: CirculatorySystem		**8**
	General plan of circulation	2
	Comparative account of heart	3
	Comparative account aortic arches	3
Unit6:UrinogenitalSystem		**6**

	Succession of kidney,	3
	Evolution of urinogenital ducts	3
Unit 7: Nervous System		**6**
	Comparative account of brain,	
	Cranial nerves in mammals	
Unit 8: Sense Organs	Classification of receptors	**4**

Semester 5

DSE Paper 2 (Group A) -Animal Behaviour and Chronobiology

Unit	Topic	No. of Classes
Unit 1: Introduction to Animal Behaviour		**5**
	Origin and history of Ethology	**1**
	Brief contributions of Karl Von Frish, Ivan Pavlov, Konrad Lorenz, Niko Tinbergen,	2
	Proximate and ultimate causes of behaviour	1
	Methods and recording of a behaviour	1

Unit 2: Patterns of Behaviour		**6**
	Stereotyped Behaviours (Orientation, Reflexes);	1
	Instinct vs. Learnt Behaviour;	1
	Associative learning, classical and operant conditioning,	2
	Habituation, Imprinting.	2
Unit 3: Social and Sexual Behaviour		**15**
	Social Behaviour: Concept of Society	2
	Communication: Chemical communications in insects and the senses	2
	Altruism; Reciprocal altruism and Kin selection Insects' society with Honey bee as example	4

	Foraging in honey bee and advantages of the waggle dance.	2
	Sexual Behaviour: Asymmetry of sex, Sexual dimorphism.	2
	Mate choice, Intra-sexual selection (male rivalry), Inter-sexual selection (female choice)	2
	Sexual conflict in parental care	1
Unit 4: Introduction to Chronobiology		**8**
	Brief historical developments in chronobiology;	2
	Biological oscillation: the concept of Average, amplitude, phase and period	4
	Adaptive significance of biological clocks	2
Unit 5: Biological Rhythm		**14**
	Types and characteristics of biological rhythms: Short- and Long- term rhythms;	3
	Circadian rhythms; Tidal rhythms and Lunar rhythms;	3
	Concept of synchronization and masking;	2
	Photic and non-photic zeitgebers;	2
	Circannual rhythms;	1
	Role of melatonin	1
	Photoperiod and regulation of seasonal reproduction of vertebrates	3

6th semester

CC 14–Evolutionary Biology & Biostatistics **Teacher: Zareth Rongong**

Unit	Topic	No. of Classes
Unit 1	Origin of life, RNA world	**5**
Unit 2	Historical review of Evolutionary concepts, Lamarkism, Darwinism and Neo Darwinism	**5**

Unit 3		**6**
	Geological time scale, Evolution of horse,	2
	Phylogenetic trees and their interpretations, convergent and divergent evolution.	2
	Neutral theory of molecular evolution, Molecular clock	2
Unit 4	Sources of variations: Heritable variations and their role in evolution	5
Unit 5		**12**
	Population genetics: Hardy-Weinberg Law (statement and derivation of equation, application of law to biallelic Population);	3
	Evolutionary forces upsetting H-W equilibrium; Natural selection	3
	Concept of fitness, types of selection, selection coefficient, mode of selection , heterozygote superiority	3
	Genetic Drift mechanism (founder's effect, bottleneck phenomenon)	2
	Role of Migration and Mutation in changing allele frequencies.	1
Unit 6		**6**
	Species concept,	1
	Isolating mechanisms, modes of speciation	2
	Adaptive radiation/macroevolution (exemplified by Galapagos finches)	3
Unit 7	Extinctions, Back ground and mass extinctions (causes and effects), detailed example of K-T extinction	**2**
Unit 8 Biostatistics		**9**
	Central tendencies: Mean ,median , Mode	4

	Measures of dispersion: Variance, Standard daviation, Standard error	3
	T test	2

Lesson Plan (Odd Semester)

2020-21 & 2021-22

B.A 1st Semester

Subject – Bengali Paper – CC2 (Honours) & GE

Teacher – Dr Ranjana Bhattacharjee

Text Book	Paper	Lecture Topics	Required Number of Lectures
CC3	বৈষ্ণব পদাবলী	মধ্যযুগের বাংলা সাহিত্য বিষয়ে সামগ্রিক ধারণা	২
		প্রাচীন ও মধ্যযুগের সাহিত্যে কৃষ্ণ ও রাধার অবস্থান	২
		বৈষ্ণব পদাবলীর তাত্ত্বিক আলোচনা	২
		কবিদের পরিচয়	১
		গৌরাঙ্গ বিষয়ক পদ ও গৌরচন্দ্রিকার সংজ্ঞা ও স্বরূপ আলোচনা	১
		পদের ব্যাখ্যা	২
		পূর্বরাগের সংজ্ঞা আলোচনা	১
		পদের ব্যাখ্যা	১
		রূপানুরাগের পরিচয় ও পদের ব্যাখ্যা	১
		অভিসারের সংজ্ঞা	১
		পদের ব্যাখ্যা	২
		আক্ষেপানুরাগ ও প্রেমবৈচিত্ত্য	১
		পদের ব্যাখ্যা	১
		মাথুর সংজ্ঞা ও পদের ব্যাখ্যা	২
		ভাবোল্লাস সংজ্ঞা ও পদের ব্যাখ্যা	২
		প্রার্থনা সংজ্ঞা ও পদের ব্যাখ্যা	২
		বৈষ্ণব কবিদের সম্পর্কে আলোচনা	৪
GE	কাব্য সাহিত্যের ইতিহাস	আধুনিক কাব্যসাহিত্যের ইতিহাস	২
		ঈশ্বর গুপ্ত	২
		মধুসূদন দত্ত	২
		রঙ্গলাল বন্দ্যোপাধ্যায়	২
		হেমচন্দ্র বন্দ্যোপাধ্যায়	২

		নবীনচন্দ্র সেন	২
		বিহারীলাল চক্রবর্তী	১
		রবীন্দ্রনাথ ঠাকুর	৩

B.A 3rd Semester

Paper	Text Book	Lecture Topics	Required Number of Lectures
CC5	চণ্ডীমণ্ডল– মুকুন্দ চক্রবর্তী	মঙ্গলকাব্য সম্পর্কে সাধারণ আলোচনা	২
		চণ্ডীমঙ্গলের অন্যান্য কবিদের পরিচয়	১
		মঙ্গলকাব্যের গঠন বিষয়ক আলোচনা	১
		দেবী চণ্ডীর স্বরূপ আলোচনা	১
		Text পাঠ	২০
		Topic আলোচনা	৩
CC5	চৈতন্যভাগবত– বৃন্দাবনদাস	বাংলা সমাজ সংস্কৃতিতে চৈতন্যদেবের ভূমিকা	২
		ভারতবর্ষের ধর্ম–আন্দোলনের সাপেক্ষে চৈতন্যদেবের অবস্থান	১
		চৈতন্যজীবনীকাব্য বিষয়ক আলোচনা	১
		Text পাঠ	১২
		Topic আলোচনা	৩

B.A 5th Semester

Paper	Text Books	Lecture Topics	Required no of lectures
CC11	সুভাষ মুখোপাধ্যায়ের কবিতা (২টি)	আধুনিক কবিতার বৈশিষ্ট্য আলোচনা	১
		চল্লিশের দশকের প্রেক্ষাপট আলোচনা	১
		সুভাষের কবিতার কাব্যগ্রন্থগুলির সংক্ষিপ্ত পরিচয় ও বৈশিষ্ট্য আলোচনা	১
		প্রথম কবিতা পাঠ ও আলোচনা	৪
		দ্বিতীয় কবিতা পাঠ ও আলোচনা	৩
DSE1	বঙ্কিমচন্দ্রের	উনিশ শতকের প্রবন্ধ রচনার ইতিহাস আলোচনা	২

	প্রবন্ধ (৩টি)	প্রবন্ধের ইতিহাসে বঙ্কিমের ভূমিকা ও প্রবন্ধগ্রন্থগুলির সংক্ষিপ্ত পরিচয়	২
		পাঠ্য প্রবন্ধগুলি পাঠ ও বিশ্লেষণ	১৪
	গোপাল হালদারের প্রবন্ধ	গোপাল হালদারের সাহিত্যজীবন	১
		পাঠ্য প্রবন্ধ পাঠ ও আলোচনা	৬

M.A 1st Semester

Paper	Text Books	Lecture Topics	Required no of lectures
101	সাহিত্যের ইতিহাস (পঞ্চদশ শতাব্দী পর্যন্ত)	প্রাচীনযুগের বাংলাদেশের রাজনৈতিক ইতিহাস ও সংস্কৃতি	২
		সপ্তম শতাব্দী থেকে বাংলদেশে রচিত সাহিত্য	২
		চর্যাপদ : আবিষ্কারের ইতিহাস, পুথি সংক্রান্ত আলোচনা, সাহিত্যিক গুরুত্ব, সমাজজীবন	৩
		তুর্কি আক্রমণ : সমাজ ও সাহিত্যে প্রভাব	২
		শ্রীকৃষ্ণকীর্তন	২
		পঞ্চদশ শতকের অনুবাদ সাহিত্য রামায়ণ	৩
		মালাধর বসুর ভাগবত	২
		চতুর্দশ ও পঞ্চদশের পদাবলী সাহিত্য : বিদ্যাপতি ও চণ্ডীদাস	৪
106	মানিক দত্তর চণ্ডীমঙ্গল	চণ্ডীমঙ্গল সম্পর্কে সামগ্রিক ধারণা	১
		মানিক দত্তর পরিচয় ও পুথি পরিচয়	২
		Text আলোচনা	১২
		Topic আলোচনা	৫

M.A – 3rd Semester

Paper	Text Books	Topics	Required no of lectures
301	অ্যারিস্টটলের কাব্যতত্ত্ব	১ অ্যারিস্টটলের জীবন ও গ্রিক সাহিত্য	১

		২ প্লেটো ও অ্যারিস্টটলের সম্পর্ক	১
		৩ অনুকরণ তত্ত্ব	২
		৪ ট্র্যাজিডির সংজ্ঞা ও উপাদান	১
		৫ কাহিনির আলোচনা	৫
		৬ চরিত্র	১
		৭ অন্যান্য উপাদান	১
		৮ ইতিহাস ও কাব্য	১
		৯ মহাকাব্য ও ট্র্যাজিডি	২
	ভারতীয় কাব্যতত্ত্ব	১ ধ্বনিবাদ	৪
		২ রসবাদ	৫
		৩ বক্রোক্তিবাদ	২
		৪ ঔচিত্যবাদ	২
		৫ অলংকারবাদ	২
302		১ অবয়ববাদ	২
		২ বাকতিনের তত্ত্ব	২
		৩ পাঠক প্রতিক্রিয়াবাদ	২

Lesson Plan (Even Semester)

2020-21 & 2021-22

Teacher's Name : Dr Ranjana Bhattacharjee

B.A (Honours) 2nd Semester

Paper	Text Books	Topics	Required no of lectures
CC3	Natya Sahityer Itihas	1.Introduction of Bengali Drama in Nineteenth Century Before Madhusudan Datta	01
		2 . Contribution of Madhudusand Datta	02
		3 Contribution of Dinabandhu Mitra	02
		4. Girish Chandra Ghosh	02
		5 Khirodprasad Vidyabinod	01
		6.Amritlal Basu	01
		7. Dwijwndralal Roy	02
		8. Discursion about the Questions regarding these topic.	01
		9. Tutorial	02

B.A (G.E) 2nd semester

Paper	Text Books	Topics	Required no of lectures
G.E (Bengali)	Chanda (Retoric)	1.Introduction of Syllable and practice	01
		2. Practice the sense of Rythm	01
		3. Counting of Syllable through some Poems	01
		3. Introduction of Jati, Kala, Matra,	01
		4. Introduction of Parba, Pada, Charan	01
		5. Discuss about Dalabritto Chanda and do practice.	02
		6. Discursion Kalabriito Chanda	01
		7. Practicing Kalabritto Chanda	01
		8.Discursion about	01

		Matrabritto Chanda	
		9. Do Practice	02

4th Semester

Paper	Text Books	Topics	Required no of lectures
CC10	Aarannyak	Introduction Of Form of Novel	01
		Discursion about the life and work of Bhibhutibhushan Bandhyopadhyaay	01
		Analysis the Text through it chapters	24

6th Semester

Paper	Text Books	Topics	Required no of lectures
CC13	History of English Literature	Introduction of Earlier history of English Literature	01
		Life Of Shakespear and brief history of his Drama	01
		Historical Plays of Shakespear	01
		Tragedy of Shakespear	01
		Comedy of Shakespear	01
		Sonnets of Shakespear	01
		Life and work of Milton	01
		Introduction of Romanticism	01
		Wordsworth	01
		Collridge	01
		Keats	01
		Shelley	01
		Dickens	01
		Yeats	01
		Barnard Shaw	01
		Discussion of Questions	01
CC14	Bharatio Alankar	Introduction	01

	Shastra	of Bharatio Alankar Shaatra and its classification	
		Dhwanibaad	04
		Rasabaad	04
		Alangkarbaad	02
		OIchityabaad	02
		Bakraktibbad	02

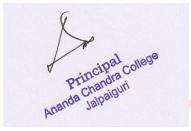
M.A 2nd Semester

Paper	Text Books	Topics	Required no of lectures
204	Chand Baniker Pala	General Information about the Author	01
		Text analysis through every chapter	06
		Discussion Topics	02
205	Titas Ekti Nadir Naam	General Information about the Author	01
		Text analysis through every chapter	08
		Discussion Topics	02

M.A 4th Semester

Paper	Text Books	Topics	Required no of lectures
401	Upanyas Tatwa	Definition of Novel according to different Theorist	02
		History of Novel	01
		Classification of Plot	01
		Discursion of Character	01
		Point of View	01
		Different aspects of Narration	01
		Settings	01
		Language of a Novel	01
404	Putul Nacher Itikatha	Discussion about the Life and work of the Author	01
		An Introduction about the Novel	01
		Analysis the Novel	10

		through all chapters	
		Discussion about all characters and Topics	02



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