

The following are the expected outcomes of the courses taught in Semesters I and II (CBCS). Students are requested to scroll down to their respective departments.

Sr. No	Course Name	Course Outcomes
<b>Bengali</b>		
1	CC1: Bangla Sahityer Itihash (1800 Khrishtabdo porjonto)/The History of Bengali Literature (till 1800 CE)	<p>By the end of this course, students will be able to:</p> <p>CO1: Describe and critically appraise the historical development of Bengali literature. Charyapada - the oldest extant Bengali text and the only available instance of ancient Bengali writing - and Sri Krishna Kirtan - the only available instance of early medieval Bengali writing – are taken as principal texts in order to study the historical development of Bengali literature.</p> <p>CO2: Compare and appraise critically the works of Bidyapati-Chandidas and Gyandas-Gobindadas.</p> <p>CO3: Recognize and recall the representation of Bengali society in the writing of Brindabandas, the first biographer of Sri Chaitanya, and critically appraise the poetic art of Krishnadas Kabiraj.</p> <p>CO4: Recognize the folk connotations of Mangal debata, and critically appraise the literary value and the social relevance of Manasa-Dharma-Chandi-Annadamangal.</p> <p>CO5: Develop a thorough understanding of the poetry of humanity produced in the Arakan court under the influence of Sufi philosophy, especially the works of Shah Muhammad Sagir, Daulat Kazi, and Syed Alaul.</p>
2	CC2: Barnanamulok Bhashabigyan o Banglabhasha/Descriptive Linguistics and the Bengali	<p>By the end of this course, students will be able to:</p> <p>CO1: Develop an understanding of the basics of descriptive and structural linguistics and critically appraise the same with respect to historical/comparative linguistics in order to study phonetics, semantics, and morphology.</p> <p>CO2: Recognize the pronunciation of swar and byanjan with respect to the place of pronunciation and nature of the sound.</p> <p>CO3: Develop a clear understanding of vowels and [swanim].</p>

CO4: Demonstrate an understanding of the evolution of words, the meaning of words, and Bengali vocabulary.

CO5: Discuss the influence of Bengal's geographic landmass and people on the development of Bengali dialects.

3 CC3: Bangla Sahityer Itihash (Unish Satak)/The History of Bengali Literature (19th century)

By the end of this course, students will be able to:

CO1: Recognize the influence and the transformation of Bengali poetry-theatre-novel in the light of colonial modernity.

CO2: Develop a thorough understanding of the poetry of Madhusudan Dutt and Girindramohini Dasi, the theatre of Dinabandhu Mitra, and the short stories of Rabindranath Tagore as example of the modern evolution of the genres.

CO3: Demonstrate and recall an understanding of the evolution and significance of newspapers and periodicals such as Sangbad Prabhakar, Tattwabodhini Patrika, Banga Darshan, and so on.

CO4: Recognize the contribution of Rammohan Ray, Vidyasagar, Akshay Dutta, Bankimchandra Chatterjee, Mir Mosharraf Hussein, and Vivekananda in the development of the rational, socially-conscious aspect of Bengali prose and essays.

4 CC4: Bangla Sahitya: Prabeshak Path/Bengali Literature: An Introductory Reading

By the end of this course, students will be able to:

CO1: Develop an aesthetic understanding of Bengali literature after an initial grounding in the history of the same.

CO2: Undertake a thorough reading of representative poets of Bengali literature, from Luipāda's Charyapada to the poetry of Joy Goswami, and recognize the diversity of Bengali poetry ranging from 'Sab loke koy Lalon ki jaat' to 'Babar-er prarthana'.

CO3: Juxtapose diverse texts such as Bankimchandra Chatterjee's Kapalakundala and Samaresh Basu's Adaab.

CO4: Recognize the significance of texts such as Dinabandhu Mitra's Neel Darpan, the first play in Bengali reflecting harsh socio-economic realities, and Sofia Khatun's Unobingsho Shatabdir Naribiplab.

Sr No	Course Name	Course Outcomes
	Biochemistry	
1	CC1- Molecules of Life	<p>By the end of this course students will be able to:</p> <p>CO1: Develop an understanding of the unique properties of water and aqueous environment</p> <p>CO2: Develop a thorough knowledge of different biomolecules e.g. Carbohydrates, lipids, proteins and nucleic acids</p> <p>CO4: Demonstrate in-depth knowledge on structure and functions of proteins e.g. hemoglobin etc, and related disorders</p> <p>CO5: Perform the separation of amino acids by TLC</p> <p>CO6: Identify biomolecules</p> <p>CO7: Estimate protein by Lowry method</p> <p>CO8: Analyze proteins by SDS-PAGE</p>
2	CC2- General Organic Chemistry	<p>By the end of this course, students will be able to:</p> <p>CO1: Demonstrate a thorough knowledge on atomic structure</p> <p>CO2: Describe different intermolecular forces e.g. ionic bonding, covalent bonding, weak chemical forces and coordination compounds</p> <p>CO3: Identify different aspects of stereochemistry of carbon compounds and their biochemical relevance</p> <p>CO4: Conceptualize reaction mechanisms e.g. nucleophilic substitution reaction, elimination reaction, electrophilic reactions</p> <p>CO5: Identify the structural aspects of heterocycles</p> <p>CO6: Evaluate the property of radioactivity along with atomic nucleus and application of radioactive isotopes in biochemistry</p> <p>CO7: Detect special elements by Lassaigne's tests and functional groups by systematic chemical tests</p> <p>By the end of the course students will be able to:</p> <p>CO1: Demonstrate different biophysical properties of chemical compounds e.g. surface tension, chemical equilibrium, ionic equilibrium</p> <p>CO2: Discuss the basic concepts of electrochemistry along with electrochemical cells and cell reactions</p> <p>CO3: Study the principles of thermodynamics, specially first and second laws of thermodynamics, concepts of Gibbs free energy and their applications in living systems</p>

- 3      CC3- General Physical Chemistry
- CO4: Analyze and discuss about homogenous and heterogenous equilibriums and colloidal states and micelle formation
- CO5: Differentiate between ideal and non-ideal solutions by Raoult's Law, Delye- Huckel limiting law and study thermodynamic derivation of EMF of cells
- CO6: Study safety measure in laboratories
- CO7: Prepare normal, molar and percent solutions
- CO8: Prepare buffers with conception of pH
- CO9: Determine specific rotation of optically active biomolecule and % composition using polarimeter
- CO10: Titrate amino acid Glycine by formol titration
- By the end of this course, students will be able to:
- CO1: Discuss the preliminary idea about enzymes, features of enzyme catalysis
- CO2: Demonstrate enzyme kinetics along with chemical kinetics
- CO3: Differentiate between different types of enzyme inhibitions
- CO4: Demonstrate a thorough understanding of mechanism of action of different enzymes
- CO5: Understand the detailed idea on regulation of enzyme activity as well as role of coenzymes
- 4      CC4- Enzymes
- CO6: Evaluate the extraction, separation and characterization of techniques for proteins/ enzymes
- CO8: Estimate enzyme activity and specific activity of alkaline phosphatases
- CO9: Identify the effect of pH on the enzyme activity
- CO10: Determine  $K_M$  and  $V_{max}$  using Lineweaver- Burk plot
- CO11: Determine  $K_I$  for competitive inhibition
- CO12: Separate serum proteins by ammonium sulphate fractionation method (demonstration)

Sr No	Course Name	Course Outcomes
Botany		
1	BOTA-CC-1-1 Th – Phycology – 1. Algae Microbiology 2. Bacteria Virus	<p>By the end of this course, students will be able to:</p> <p>CO1: Recognize the significant contributions of important Phycologists.</p> <p>CO2: Demonstrate a comprehensive idea about the structure of algal thallus structure, cell structure, life cycle patterns etc.</p> <p>CO3: Recall the criteria and the basis of classification by Fritsch and Lee</p> <p>CO4: Recall the salient features of various divisions of alga and life histories of Chlamydomonas, Oedogonium, Chara, Ectocarpus, and Polysiphonia .</p> <p>CO5: Understand the world of microorganism starting with bacteria.</p> <p>CO6: Demonstrate a broad understanding of basics of bacterial structure, its growth pattern, mode and the process of reproduction.</p> <p>CO7: Recognize and appraise the different types of plant viruses, their translocation and transmission strategies.</p> <p>CO8: Demonstrate a grasp of the growth and life cycle of viruses, and sub-viral particles like viroids, prions.</p>
2	BOTA-CC-1-1 P – Algae , Microbiology, Field Work	<p>By the end of this course, students will be able to:</p> <p>CO1: Demonstrate the handling of compound microscopes .</p> <p>CO2: Display the preparation of algal slides.</p> <p>CO3: Demonstrate the drawing of specimens using drawing prism and find out their magnifications.</p> <p>CO4: Display a better understanding of the morphology, reproductive structures and actual sizes of various algal specimens.</p> <p>CO5: Corroborate their theoretical knowledge after working out the algal specimens and studying the permanent slides.</p>

CO6: Develop knowledge of using different instruments to measure the tiny organism.

CO7: Identify different organisms and prepare slides.

CO8: Analyze different bacterial strain using staining techniques.

CO9: Develop a broader knowledge on handling lab based microbial instruments. Identify different algal species from natural habitat

CO10: Engulf and explore the surrounding to analyze the diversity of plants in a particular environment.

CO11: Explore botanical garden to get more lucid knowledge on plants.

CO12: Prepare report on their study.

BOT-G-CC-1-1-TH –  
Phytopathology, Phycology,  
Bryophytes, Mycology, Anatomy

By the end of this course, students will be able to:

CO1: Differentiate between necrotic, hypoplastic and hyperplastic symptoms and Pathotoxins and phytoalexins.

CO2: Understand disease cycle, causal organisms, symptoms and control measures of plant diseases viz. Late blight of potato, Brown spot of Rice, Stem rot of jute.

CO3: Know Koch's postulates, define disease triangle, demonstrate an understanding of the different divisions of algae and the life history of different algae.

CO4: Develop an understanding regarding the role of Algae in the environment, agriculture, biotechnology and industry.

CO5: Study and identify bryophytes, the unifying features of archaegoniates and transition to land habit, the amphibian nature of bryophytes.

CO6: Recognize the diagnostic characters and examples of Hepaticopsida, Anthocerotopsida and Bryopsida (Proskauer 1957).

CO7: Recall the life histories of Marchantia and Funaria, and analyze the ecological and economic importance the same.

CO8: Develop an understanding of the anatomy of different types of stomata, roots, stems and leaf of dicot and monocot plants, and recognize the principles of the secondary growth of some normal dicot stem and anomalous stem of Tecoma and Dracaena.

BOT-G-CC-1-1-P – PRACTICAL-  
PLANT DIVERSITY I  
(PHYCOLOGY, MYCOLOGY,  
PHYTOPATHOLOGY,  
BRYOPHYTES AND ANATOMY),  
Field Work

By the end of this course, students will be able to:

4

CO1: Work out the Microscopic preparation, drawing and labeling of Chlamydomonas, Chara, Ectocarpus, Rhizopus and Ascobolus

CO2: Follow the double staining method of and prepare permanent slides of Stem- Cucurbita, sunflower and maize. Root- Colocassia, gram and orchid. Leaf- Nerium

CO3: Identify Cryptogamic specimens (macroscopic/microscopic) as prescribed in the theoretical syllabus.

CO4: Identify Pathological specimens of Late blight of potato, Brown spot of rice and stem rot of jute.

CO5: Have an idea of plant diversity, habitat of algae and fungi during local excursions. Study different microbes in detail

CO6: Develop knowledge on staining anatomical specimen

CO7: Get an idea of plant diversity, habitat of algae and fungi.

BOT-A-CC-1-2-TH MYCOLOGY  
AND PHYTO-PATHOLOGY  
1. Terms and Definitions  
3. Plant Diseases Management

By the end of this course, students will be able to:

5

CO1: Understand the basics of plant pathology

CO2: Analyze the technique of handling disease caused in a plant.

CO3: Demonstrate a grasp of the host –parasite interaction, the symptoms, causal organism, disease cycle and control measure of different plant diseases.



BOT-A-CC-1-2-P

1. Mycology
2. Phyto-pathology
3. Field work

6

By the end of this course, students will be able to:

CO1: Work out techniques of different Fungi and their permanent slide preparation.

CO2: Recognize different identifying characters of micro and macro fungi.

CO3: Demonstrate a grasp of the sterilisation process, isolation and inoculation techniques of fungal pathogen

CO4: Develop an understanding of the different phases of life cycle of fungal pathogens.

CO5: Recognize the diversity of different macrofungi and their collection.

CO6: Prepare a field report regarding their observation during excursion.

BOT-G-CC-2-2-TH PLANT  
DIVERSITY II (PTERIDOPHYTES,  
GYMNOSPERMS,  
PALAEOBOTANY,  
MORPHOLOGY AND  
TAXONOMY)  
2. Gymnosperms

7

By the end of this course, students will be able to:

CO1: Develop an understanding of the characteristics of Gymnosperm, life history of various types of them along with some fossil Gymnosperm

CO2: Recognize the diagnostic features and examples of different divisions of Pteridophytes.

CO3: Recall the life history of different Pteridophytes and the economic importance of Pteridophytes.

BOT-G-CC-2-2-P PRACTICAL-  
PLANT DIVERSITY II  
(PTERIDOPHYTES,  
GYMNOSPERMS,  
PALAEOBOTANY,  
MORPHOLOGY AND  
TAXONOMY), Field Work  
Practical: 1. Identification with  
reasons-Pteridophytes,  
Gymnosperms, anatomy,  
morphology of Angiosperms

By the end of this course, students will be able to:

CO1: Develop knowledge to identify plants till their family

CO2: Develop knowledge on different inflorescence, different common medicinal plants

CO3: Prepare herbarium sheet and understand its requirement

CO4: Collect plants from different family for herbarium preparation

CO5: Explore botanical garden to understand plant diversity

CO6: Recognize the diagnostic characters of reproductive part of pteridophytes, gymnosperms.

CO7: Recognize the different types of stele and inflorescence.

CO8: Develop an understanding of the preparation of laboratory note book, field note book, herbarium sheets etc.

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CO9: Dissection, drawing and labelling, description of angiospermic plants and floral parts, floral formula and floral diagram, identification (family) from the following families: Leguminosae (Fabaceae), Malvaceae, Solanaceae, Labiatea (Lamiaceae), Acanthaceae.

CO10: Identification with reasons:

Macroscopic specimens of Selaginella and Pteris, male and female strobilus of Cycas and Pinus,

Anatomical slides (stellar types, transfusion tissue, sieve tube, sunken stomata, lenticels), inflorescence types.

CO11: Spot identification of the following Angiospermic plants (scientific names and families): Sida rhombifolia (Malvaceae), Abutilon indicum (Malvaceae), Cassia sophera (Fabaceae), Tephrosia halimtonii (Fabaceae), Croton palidus (Fabaceae), Coccinia grandis (Cucurbitaceae), Solanum indicum (Solanaceae), Nicotiana glauca (Solanaceae), Leucas aspera (Lamiaceae),

Leonurus sibiricus (Lamiaceae), Parthenium hysterophorus (Asteraceae), Tridax procumbens

(Asteraceae), Eclipta prostrata (Asteraceae), Eragrostis tenella (Poaceae), Chrysopogon aciculatus (Poaceae), Eleusine indica (Poaceae), Vanda taesellata (Orchidaceae).

CO12: Laboratory records: Laboratory note books (regularly signed) and slides (prepared in class) are to be submitted at the time of Practical Examination.

BOT-A-CC-2-3-TH  
PLANT ANATOMY

1. Cell Wall
2. Stomata
3. Stele
4. Primary structure of stem & root
5. Secondary growth
6. Mechanical tissues and the Principles governing their distribution in plants.
7. Developmental Anatomy.
8. Ecological Anatomy
9. Scope of plant anatomy

By the end of this course, students will be able to:

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CO1: Develop knowledge of different types of plant tissue and their function.

CO2: Analyze different adaptations acquired by plants in different condition.

CO3: Develop knowledge to explore the field of anatomy.

CO4: Develop a grasp on the Plant Cell wall; Ultrastructure & Chemical constituents; Plasmodesmata ultrastructure; Concept of Apoplast and Symplast; Growth and Thickening of cell wall.

CO4: Learn anatomical structure and functions of various types of Stomata according to a) Metcalfe and Chalk, b) Stebbins and Khush.

CO5: Differentiate between different types of Stele along with their evolutionary significance with the help of Leaf-trace and leaf-gap concept.

CO6: Develop a broad understanding of, a) Primary structure of Monocot and Dicot stem and root-. b) Facts and information acquired through learning the Dorsiventral and isobilateral leaf structure.

BOT-A-CC-2-3-P PRACTICAL-  
PLANT ANATOMY

By the end of this course, students will be able to:

10

CO1: Explore different staining techniques to differentiate the tissues present in plants

CO2: Identify different types of plant tissues

CO3: Develop lucid information about secondary anomalous growth in different plants, differentiate dicot and monocot root, stem and leaf.

BOT-A-CC-2-4-TH  
ARCHAEGONIATE  
Bryophytes

By the end of this course, students will be able to:

CO1: Develop detailed knowledge on different bryophytes

CO2: Analyze the importance of bryophytes

2. Life History	CO3: Explore and identify different archaegoniate in their natural habitat and prepare report on it.
4. Importance	CO4: Recognize the colonisation of early land vascular plants.
11 Pteridophytes	the classification of Pteridophytes; the life history of different Pteridophytes; telome concept and evolution of land plants; Heterospory and seed habit; the economic importance of Pteridophytes.
	CO5: Learn systematic of gymnosperm along with different classes with salient features.
	CO6: Know life histories of some of the gymnosperms viz. Pinus, Cycas and Gnetum.
	CO7: Understand the fossil history of gymnosperm.
	CO8: Know the economic importance of different groups of gymnosperm.

**BOT-A-CC-2-4-P**

1. Bryophyte
2. Pteridophytes
3. Gymnosperms
4. Field Study

By the end of this course, students will be able to:

- CO1: Recognize the morphological nature of Pteridophytes.
- CO2: Recognize the work out technique of different genus of this group.
- CO3: Identify the characteristic features of different parts of Pteridophytes from permanent slides.
- CO4: Prepare permanent slides, field reports related to field visit, and comprehend the individuals belonging to Bryophytes with the help of the Morphological study of Riccia, Porella, Marchantia, Anthoceros and Funaria.
- CO4: Study from permanent slides: Riccia (V.S. of thallus with sporophyte), Marchantia (L.S. through gemma cup, antheridiophore archegoniophore), Anthoceros (L.S. of sporophyte), Funaria (L.S. of capsule).
- CO5: Prepare a hand-written report/ file on Bryophytes.

CO6: Department organizes Botanical excursion to familiarize the students with the natural habitats of Bryophyta. In this process, the students become aware of the ecological importance and its interaction with plant community. During excursion to other Phyto-geographical regions/ Acharya Jagadish Chandra Bose Indian Botanic Garden, the teachers and students of the department interact with the local people and make them aware about the various reasons behind the loss of biological resources in those areas. They also suggest conservation measures for species, which are at high risk and to be conserved on priority basis and no individual collection is allowed.

CO7: Students will have to submit only photographs in their field report/ file report.

CO8: The evaluation will include a Classroom performance: (Lab records, slides), Field report and Viva.

CO9: Study different reproductive structures of some common gymnosperm in details.

CO10: Develop knowledge about the anatomical structures of reproductive parts of some gymnosperms.

Sr No	Course Name	Course Outcomes
	Chemistry	
1	CC1 – 1Th: Inorganic Chemistry - I/Organic Chemistry - 1A	<p>By the end of this course, students will be able to:</p> <p>CO1: Calculate formal charge &amp; bond dissociation energy of an atom in a molecule.</p> <p>CO2: Explain orbital pictures of a bond and reaction mechanism.</p> <p>CO3: Separate components of a binary solid mixture and purify it &amp; determine M.P. of a compound.</p> <p>CO4: Demonstrate an understanding of Quantum Nos. &amp; shapes of s, p, d, f orbitals.</p> <p>CO5: Recognize arrangement and energetic related to electrons in different orbitals.</p> <p>CO6: Recall acid – base theories, thermodynamic parameters, pH, buffer, titration, indicators.</p> <p>CO7: Demonstrate the ability to balance redox reactions, Nernst eqn., Formal potential, Redox potential diagram, Electroanalytical methods, Solubility &amp; Solvent effect.</p>
2	CC1 – 1P: Practicals	<p>By the end of this course, students are able to:</p> <p>CO1: Demonstrate acid – base titration</p> <p>CO2: Conduct redox titration</p>
3	CC1 – 2Th: Physical Chemistry I/Organic Chemistry 1B	<p>By the end of this course, students will be able to:</p> <p>CO1: Recall the principles of kinetic theory and concepts of real gas.</p> <p>CO2: Display an understanding of the basics of Chemical Thermodynamics (first law).</p> <p>CO3: Demonstrate thorough knowledge of mass and charge transport.</p> <p>CO4: Comprehend chemical kinetics and catalysis (slow Reactions)</p> <p>CO5: Conduct hands on experiments on Kinetics, Solubility, pH (buffer)</p> <p>CO6: Undertake data analysis using Microsoft Excel.</p>

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| 4 | CC1 – 2P: Practicals            | <p>By the end of this course, students will be able to:</p> <p>CO1: Identify tetrahedral nature &amp; absolute configuration of carbon atom in a molecule,</p> <p>CO2: Differentiate between optically active and inactive compound.</p> <p>CO3: Identify reaction intermediate.</p> <p>CO4: Determine boiling point of Organic liquid.</p>   |
| 5 | CC2 – 3Th: Organic Chemistry 2  | <p>By the end of this course, students will be able to:</p> <p>CO1: Explain chirality arising out of stereoaxis and conformation of molecule.</p> <p>CO2: Explain thermodynamics and kinetics of a reaction.</p> <p>CO3: Explain r different substitution and elimination reaction.</p>   |
| 6 | CC2 – 3P: Practicals            | <p>By the end of this practical course, students will be able to:</p> <p>CO1: Prepare various organic compounds.</p> <p>CO2: Calculate % yield based upon isolated yield and theoretical yield.</p>   |
| 7 | CC2-4 Th: Inorganic Chemistry 2 | <p>By the end of this course, students will be able to:</p> <p>CO1: Recall the formation, characteristics &amp; energetics of Ionic compounds.</p> <p>Co2: Demonstrate an understanding of the formation of covalent bond, polarization, theories and rules regarding shapes of molecules.</p> <p>CO3: Recognize molecular orbital concept of bonding, concept of Metallic bonding &amp; Weak chemical forces.</p> <p>CO4: Discuss nuclear structure, reactions, energy evolved &amp; power generation.</p> |
| 8 | CC2-4 P: Practicals             | <p>By the end of this practical course, students will be able to:</p> <p>CO1: Conduct Iodo-/ Iodimetric titration eg. Vit-C, available chlorine in bleaching powder.</p>  |

CO2: Demonstrate the estimation of metal content in some selective samples, viz., Cu in brass, Cr & Mn in steel, Fe in cement.



Sr. No	Course Name	Course Outcomes
Commerce		
1	CC1.1 Chg: Business Laws	<p>CO1: Students learn to recall, interpret and critically appraise the laws of Indian business such as Negotiable Instruments Act, Sale of Goods Act, Consumer Protection Act, and so on.</p> <p>CO2: Students develop the ability to engage with significant laws such as Contract Act and Partnership Act.</p>
2	CC1.2 Principles of Management	<p>CO1: Students learn the basics of management, and the principles of the same.</p> <p>CO2: Students learn the distinction between scientific principles of management and the evolution of the same from traditional principles.</p> <p>CO3: Students learn to engage with the basic tools of management.</p>
3	CC1.1 Ch: Financial Accounting – I	<p>CO1: Students learn the theoretical aspects of financial management and accounting such as final accounts, consignment accounts, insurance claims, and so on.</p> <p>CO2: Students are able to demonstrate their computational skills and the basics of the accounting procedure.</p> <p>CO3: Students are able to demonstrate their ability to maintain journals, ledgers, and making a statement of trial balance, to rectify the errors of accounts. They also prepare</p>
4	CC2.1 Chg Company Law	<p>CO1: Students are able to recall the minutiae of the Companies Act, 1956, and the amended Companies Act, 2013. They are able to demonstrate their knowledge of key</p> <p>CO2: Students are able to undertake key tasks such as conducting meetings, writing resolutions, displaying an understanding of rules and regulations, valid meeting</p>

CO3: Students are appraised of significant matters such as penalties in the cases of fraud.

5 CC2.2 Chg Marketing Management and Human Resource Management

CO1: Students develop a thorough understanding of marketing tools, of modern marketing concepts (internet marketing, B2B, B2C models) versus traditional marketing.

CO2: Students recognize human resource management principles – recruitment procedure; difference between selection and recruitment; training procedure; and so on.

6 CC2.1 Ch Cost and Management Accounting – I

CO1: Students develop a thorough understanding of the theories of material control, store keeping, bean cart, ledgers, etc.

CO2: Students are able to demonstrate the practical applications of the same, such as how to prepare cost sheets, making percentage of profit on it, and so on.

CO3: Students are able to demonstrate the ability to store ledger economic order quantity – maximum, minimum, danger levels; process costing, contrast costing.

Sr. No	Course Name	Course Outcomes
Computer Science		
1	CC1: Digital Electronics	<p>By the end of this course, students will be able to:</p> <p>CO1: Demonstrate knowledge of digital circuits and the way to design them.</p> <p>CO2: Recall sign and unsigned number representation.</p> <p>CO3: Develop a thorough concept of combinational and sequential circuits up to resistor.</p>
2	CC2: C Programming	<p>By the end of this course, students will be able to:</p> <p>CO1: Demonstrate complete knowledge of C language.</p> <p>CO2: Display the ability to write programs.</p> <p>CO3: Demonstrate the usage of pointers, structure, function, file, string handling.</p> <p>CO4: Recognize P processor directives</p>
3	CC3: Data structure	<p>By the end of this course, students will be able to:</p> <p>CO1: Demonstrate the basic concept of data structure and algorithms.</p> <p>CO2: Develop thorough knowledge of linear and non-linear data structure.</p> <p>CO3: Recognize and recall the algorithm of searching and sorting.</p> <p>CO4: Undertake complexity analysis of algorithms.</p>
4	CC4: Concept of Difference between Digital and Analog Electronics	<p>By the end of this course, students will be able to:</p> <p>CO1: Demonstrate the concept of AC and DC circuits and their functionalities.</p> <p>CO2: Display thorough knowledge of PM junction diode, transistor, and to perform mathematical operations by using OPamp (operational amplifier) circuits.</p>

Sr. No	Course Name	Course Outcomes
Economics		
1	CC1: Introductory Microeconomics	<p>By the end of this course, students will be able to:</p> <p>CO1: Demonstrate introductory understanding of the subject matter of economics by discussing the basic principles of decision making and principles of economic interactions.</p> <p>CO2: Develop and display a grasp of the various questions related to market mechanism and government interaction.</p> <p>CO3: Recognise the intuitive explanation and analysis of the utilitarian approach.</p> <p>CO4: Demonstrate the ability to read and work with graphs.</p>
2-3	CC2 & CC4: Mathematical Methods	<p>By the end of these courses, students will be able to:</p> <p>CO1: Develop an idea regarding the basic concepts of mathematics such as Set theory, Functions, Limit, Continuity, Derivatives etc.</p> <p>CO2: Engage with the concepts of optimization, integrations, Matrix algebra, difference equation, differential equation and preliminary understanding of Game Theory.</p> <p>CO3: Develop and display the ability to apply these mathematical tools to analyse the economic problems.</p>
4	CC3: Introductory Macroeconomics:	<p>By the end of this course, students will be able to:</p> <p>CO1: Develop basic understanding of macroeconomics.</p> <p>CO2: Analyse the national income accounting.</p> <p>CO3: Recognise and engage with two major schools of thoughts, Keynesian Economics and Classical Economics.</p> <p>CO4: Develop an understanding of the macroeconomic foundations.</p> <p>CO5: Understand, observe and analyse the questions of income determination, inflation and employment.</p>

Sr. No.	Course Name	Course Outcomes
1	Education CC-1/GE-1: Introduction to Education	By the end of this course, students will be able to:  CO1: Recognize and recall the meaning, nature, scope and aims of education.  CO2: Analyze the factors of education and their interrelationship.  CO3: Recognize the different agencies of education that influence education.  CO4: Develop a grasp of the concept of child-centricism and play-way in education.
2	CC2/GE2: Psychological Foundation of Education	By the end of this course, students will be able to:  CO1: Demonstrate an understanding of the meaning of psychology and acquaintance with its different aspects.  CO2: Recognize the patterns of different aspects of human development and relate this knowledge with education.  CO3: Develop an introductory acquaintance with the cognitive approach of development and thus, the process and factors of cognition.

Sr. No	Course Name	Course Outcomes
English		
1	CC1 - History of Literature and Philology	<p>By the end of this course, students will be able to:</p> <p>CO1: demonstrate a broad understanding of the evolution of literary traditions in Britain, beginning with Old English and ending with the 20th Century</p> <p>CO2: identify aspects of the history of the English language, and its evolution over the ages through interaction with other languages</p> <p>CO3: develop a broad sense of history and recognize the significance of literary histories in the study of literature</p>
2	CC2 - European Classical Literature	<p>By the end of this course, students will be able to:</p> <p>CO1: demonstrate a thorough understanding of Greek and Latin literature in classical Greece and Augustan Rome</p> <p>CO2: discuss the works of major writers from the literary canon</p> <p>CO3: describe literary genres such as tragedy, comedy, satire, epic and their evolution</p> <p>CO4: evaluate the weight and impact of Greek and Latin literature upon European (especially British) literature</p>
3	CC3 - Indian Writing in English	<p>By the end of this course, students will be able to:</p> <p>CO1: demonstrate a thorough understanding of the evolution of Indian writing in English, beginning with the 19th century</p> <p>CO2: discuss the works of a section of important writers across literary genres</p> <p>CO3: analyze and critique the position of the English language and the discipline of literary studies in colonial and post-colonial India</p>
4	CC4 - British Poetry and Drama (14th-17th Century)	<p>By the end of this course, students will be able to:</p> <p>CO1: demonstrate a thorough understanding of the evolution of British literature from Chaucer to Shakespeare</p> <p>CO2: discuss the evolution of forms and genres such as narrative poetry, the sonnet, tragedy, comedy, metaphysical poetry</p>

CO3: illustrate a concrete understanding of and undertake analysis and criticism of major texts in the literary canon

Sr. No	Course Name	Course Outcomes
	History	
1	CC1 - History of India From the earliest Time to C 300 BCE	<p>CO1: By the end of this course, students will develop clear ideas about the early Indian notion of History and the sources and tools to reconstruct ancient Indian History with different interpretations.</p> <p>CO2: Students will be able to recognize the evolution of hunter-gatherer economy to food-producing economy.</p> <p>CO3: Students will develop an understanding of the transition from Bronze Age culture to Iron Age culture</p>
2	CC2 – Social Formations and Cultural Patterns of the Ancient World other than India	<p>CO1: By the end of this course, students will be able to comprehend the evolution of human kind.</p> <p>CO2: Students will be able to discuss and appraise Bronze Age civilization in the different parts of the world and the discovery of iron.</p> <p>CO3: Students will be able to evaluate the economic and political features of classical antiquity</p>
3	CC3 – History of India II C 300 BCE to C750 CE	<p>CO1: By the end of this course, students will be able to recognise and recollect the evolution of social and economic institutions in the ancient and early medieval India.</p> <p>CO2: Students will be able to discuss the cultural and philosophical developments in this period.</p>
4	CC4 – Social Formations and Cultural Patterns of the Medieval World other than India	<p>CO1: By the end of this course, students will be able to recognise and recall a brief outline of Central and West Asian civilizations.</p> <p>CO2: Students will be able to analyze social, economic and cultural features of medieval Europe</p>



Sr No	Course Name	Course Outcomes
Journalism & Mass Communication		
		By the end of this course, students will be able to:
1	CC1 – Introduction to Journalism	CO1: Grasp the concept of news and press CO2: Critique the language of news CO3: Write news and articles CO4: Acquire basic knowledge of computer for Print Journalism
2	CC2 – History of Indian Journalism	By the end of this course, students will be able to:  CO1: Display knowledge about Early Indian Journalism  CO2: Recall the history of the rise of Nationalist Journalism  CO3: Analyze in-depth about the Extremist Press  CO4: Appraise the contributions of various newspapers like the Telegraph, National Herald , The Hindu ,The Times of India, The Statesman  CO5: Demonstrate knowledge on news agencies
3	CC3 – Reporting and Editing	By the end of this course, students will be able to:  CO1: Demonstrate their knowledge of the principles of Page Making  CO2: Recognize and recall the positions, qualities and duties of various correspondents  CO3: Develop deeper knowledge about specialization in Journalism

4      CC4 – Media and Communication      By the end of this course, students will be able to:

CO1: Develop an understanding of the forms, levels and functions of Communication and Mass Communication

CO2: Recognize the role of media in a democracy

Sr. No	Course Name	Course Outcomes
	Mathematics	
1	CC1: Calculus, Geometry & Vector Analysis	<p>CO1: Recognizing the science dealing with the rate of change, the concept of differentiation and integration.</p> <p>CO2: Developing a thorough understanding of the applications of differentiation (such as measuring velocity, acceleration, etc) and integration (such as estimating areas, volumes, etc).</p> <p>CO3: Developing an introductory understanding of the concepts of distance between two points, slope and transformations of origin.</p> <p>CO4: Demonstrating the ability to visualize various forms of straight lines, planes, conic sections.</p>
2	CC2: Algebra	<p>CO1: Developing an introductory understanding of algebra, which is the science of operations.</p> <p>CO2: Demonstrating a thorough understanding of topics such as the Polar representation of complex numbers, n-th roots of unity, De Moivre's theorem for rational indices and its applications, Linear difference equations with constant coefficients (up to 2nd order), and so on.</p> <p>CO3: Recognizing the inequality involving <math>AM \geq GM \geq HM</math>, Cauchy-Schwartz inequality.</p> <p>CO4: Developing an understanding of of matrix operations and its applications to solve linear equations.</p>
3	CC3: Real Analysis	<p>CO1: Demonstrating an understanding of real analysis, which is an important part of pure mathematics to increase the knowledge of real numbers.</p> <p>CO2: Developing a thorough understanding of the mathematical operations, ordering, boundedness, dense, limiting, closure and compactness properties of real numbers.</p> <p>CO3: Discussing the Bolzano-Weirstrass theorem.</p> <p>CO4: Developing the ability to study sequences and its boundedness and convergence property; series of real functions; the Fourier series; half range series.</p>
4	CC4: Group Theory - I	<p>CO1: Demonstrating the concept of groups, normal subgroups and permutations.</p>

CO2: Demonstrating the ability to visualize the concepts of homomorphism and isomorphism; the structure of ring and integral domain, quotient and polynomial rings; vector spaces, its basis and dimension; eigen values and eigen vectors.

Sr. No.	Course Names	Course Outcomes
	Microbiology	
1	CC1 - Introduction to Microbiology and Microbial Diversity	By the end of this course, students will be able to:  CO1: Develop an understanding of the subject of microbiology. CO2: Display an understanding of microbial diversity.
2	CC2 - Bacteriology	By the end of this course, students will be able to: CO1: Demonstrate an understanding of bacteriology.
3	CC3 - Biochemistry	By the end of this course, students will be able to: CO1: Recognise and appraise the depth and diversity of biochemistry.
4	CC4 – Cell Biology	By the end of this course, students will be able to: CO1: Recognise the scope of Cell Biology.

Sr No	Course Name	Course Outcomes
Philosophy		
1	CC1 - Indian Philosophy	<p>By the end of this course, students will be able to:</p> <ul style="list-style-type: none"> <li>• CO1: Demonstrate a broad understanding of Indian Philosophy.</li> <li>• CO2: Identify the different aspects of Carvaka, Bauddha, Jaina and Nyaya-Vaisesika Philosophy.</li> <li>• CO3: Develop a broad sense of 'Purushartha' of prior mentioned Indian Philosophical schools.</li> </ul>
2	CC2 - Western Philosophy	<p>By the end of this course, students will be able to:</p> <ul style="list-style-type: none"> <li>• CO1: Demonstrate a broad understanding of rationalism of Western Philosophy.</li> <li>• CO2: Discuss about Pre-Socratic era of western Philosophical thoughts.</li> <li>• CO3: Describe epistemological thoughts of different Rationalists.</li> <li>• CO4: Evaluate the transition period of Rationalism.</li> </ul>
3	CC3 - Indian Philosophy	<p>By the end of this course, students will be able to:</p>

- CO1: Demonstrate a broad understanding of Indian Philosophy.

- CO2: Identify the different aspects of Samkhya, Yoga, Mimamsha and Vedanta Philosophy.

- CO3: Develop a broad sense about highest supreme metaphysical reality.

4      CC4 - Western Philosophy

By the end of this course, students will be able to:

- CO1: Demonstrate a broad understanding of Empiricism of Western Philosophy.

- CO2: Discuss and appraise Kant's Philosophy.

- CO3: Describe different epistemological thoughts of Empiricism.

- CO4: Evaluate the transition period of Empiricism.

Sr. No	Course Name	Course Outcomes
Physics		
1	CC1: Mathematical Physics – I (Theory and Practical)	<p>By the end of this course, students will be able to:</p> <p>CO1: Develop a thorough grasp of the mathematical methods required in the study of Physics.</p> <p>CO2: Demonstrate a grasp of Calculus, Differential Equations (First &amp; Second Order) and Calculus of functions of more than one variable, Vector Algebra, Vector Calculus, Orthogonal Curvilinear Coordinates and Matrices.</p> <p>CO3: Recognize the importance of use of various computer-based methods used in scientific computing, including plotting of graphs and programming in python.</p> <p>CO4: Develop an introductory understanding of errors and error analysis, which is a fundamental concept in physics.</p>
2	CC2: Mechanics (Theory and Practical)	<p>By the end of this course, students will be able to:</p> <p>CO1: Develop an understanding of the fundamentals of Dynamics, Dynamics of systems of particles, Work &amp; Energy, Gravitation, Central Force Motion &amp; Rotational Dynamics and General Properties of Matter, all which are aspects of their everyday life.</p> <p>CO2: Perform hands on experiments in related areas to test their theoretical foundation.</p>
3	CC3: Electricity and Magnetism (Theory and Practical)	<p>By the end of this course, students will be able to:</p> <p>CO1: Develop a solid foundation in electricity and electrodynamics which is one of the fundamental foundation pillars of Physics learning, as well as the modern technological world itself.</p> <p>CO2: Demonstrate sufficient theoretical and practical knowledge of electricity and electrodynamics, which forms the basis of higher studies in Physics.</p>
4	CC4: Waves and Optics (Theory and Practical)	<p>By the end of this course, students will be able to:</p> <p>CO1: Develop, through theory and practical, the necessary foundation in SHM &amp; waves.</p> <p>CO2: Demonstrate an understanding of wave optics, which prepares the students for an intensive study of advanced topics at a later stage.</p>



Sr. No	Name of Course	Course Outcomes
Political Science		
1	CC1: Political Theory - Concepts	<p>CO1: The course prepares the framework for key concepts such as justice, equality, liberty and fraternity, as well as important political ideologies such as Marxism and liberalism. Students develop a nuanced perspective on the central concepts of world politics.</p> <p>CO2: The course engages students in important political debates (such as, the debate between socialism and liberalism, globalization and localization). Students are able to address key issues from all perspectives, thereby developing a holistic understanding of the world.</p> <p>CO3: The course introduces students to important philosophers and political scientists ranging from John Stuart Mill to Amartya Sen.</p>
2	CC2: Political Theory - Debates	<p>CO1: Students are able to develop a perspective on the political theory of Karl Marx, and on key concepts such as dialectical and historical materialism, class struggle, and so on.</p> <p>CO2: Students develop an understanding of important concepts such as hegemony, civil society, ideology, and study the works of scholars such as Antonio Gramsci and Luis Althusser.</p> <p>CO3: By the end of this course, students are able to engage with conceptualizations of the state as an apparatus of class exploitation.</p>
3	CC3: Indian Constitution	<p>CO1: Students develop a thorough understanding of the Indian Constitution, its framework, its structure and its key concepts, which includes fundamental rights and duties.</p> <p>CO2: Students become well-versed in the structures of the Indian government and political system and all aspects of the same (legislature, executive, judiciary).</p> <p>CO3: Students engage with the Constitution as a living document and through the study of the history of amendments of the same, develop a perspective on its shortcomings as well</p>

4 CC4: Indian Politics

CO1: Students develop a perspective on the different manifestations of Indian politics – coalition politics, party system, the growth of regionalism, communalism, and so on.

CO2: Students learn to engage with various interest groups in Indian politics, such as the business class, the working class, the peasantry, and so on, and their role in Indian politics.

CO3: Students become well-versed in movements such as feminist movement, environment movement, and human rights movement in India.

Sr. No	Course Name	Course Outcomes
Sanskrit		
1	CC1 – Classical Sanskrit Literature (Poetry)	<p>By the end of this course, students will be able to:</p> <p>CO1: Develop an introductory knowledge about the history of classical Sanskrit poetry.</p> <p>CO2: Demonstrate a fair knowledge about Kalidasa, Bharavi, Bhartrihari and their works.</p> <p>CO3: Develop a broad sense of Raghuvamsam, Kiratarjuniyam, Kumarasambhavam and Nitishatakam.</p> <p>CO4: Develop a brief sense about the characteristics of the Sanskrit Mahakavya and Satakakavya.</p> <p>CO5: Appraise and compare Sanskrit Mahakavyas with the other forms of poetry.</p>
2	CC2 – Critical Survey of Sanskrit Literature	<p>By the end of this course, students will be able to:</p> <p>CO1: Develop an introductory knowledge about the history of Vedic and Classical Sanskrit literature.</p> <p>CO2: Demonstrate ideas about the divisions of Vedas like Samhita, Brahmana, Aranyaka and Upanisad.</p> <p>CO3: Recognize the historical and literary importance of the Ramayana, Mahabharata and Puranas.</p> <p>CO4: Display a broad knowledge of the characteristics, divisions and the social, economical, political and literary values of Ramayana, Mahabharata and Puranas.</p> <p>CO5: Demonstrate an introductory knowledge of the history</p>
3	CC3 – Classical Sanskrit Literature (Prose)	<p>By the end of this course, students will be able to:</p> <p>CO1: Demonstrate an introductory knowledge about the history of Sanskrit prose literature.</p> <p>CO2: Display a fair knowledge about Banabhatta and Dandin and their works.</p> <p>CO3: Develop a broad sense of Kadambari and Rajavahanacaritam.</p> <p>CO4: Develop a brief sense about the characteristics of the Sanskrit prose, literature and fable literature.</p> <p>CO5: Recognize the characteristics, divisions and the social, economical, political and literary importance of Panchatantra, Hitopadesa Simhasanadvatimsika</p>

4 CC4 – Self Management in the Gita

By the end of this course, students will be able to:

CO1: Recognize and appraise the construction of the Gita.

CO2: Evaluate the weight and importance of the Gita in our everyday life.

CO3: Demonstrate the idea and procedure of self management as reflected in the Gita.

Sr No	Course Name	Course Outcomes
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Sociology

1	CC1: Introductory Sociology- 1	<p>By the end of the course students will be able to:</p> <p>CO1: display a fair knowledge about the discipline of sociology. CC1 on Introductory sociology covers the fundamentals of the subject starting with what is called the</p> <p>CO2: Students will acquire the capacity to “Think Sociologically”, i.e to develop a reflexive and critical mind in analysing social issues, incidents and problems.</p> <p>CO3: Students will be able to compare and appraise the basic difference between sociological knowledge and commonsense knowledge, another fundamental in sociology that creates a</p> <p>CO4: Students will develop a sociological outlook or perspective to view the world.</p>
2	CC2: Sociology of India- 1	<p>By the end of the course students will be able to: acquire a holistic knowledge of Indian society and its structure based upon caste, class, tribe, village, kinship and religion.</p> <p>CO1: Acquire a holistic knowledge of Indian society and its structure based upon caste, class, tribe, village, kinship and religion.</p> <p>CO2: Students will comprehend and be able to recall the three major discourses - the colonial discourse, the nationalist discourse and the subaltern discourse - which helps them to</p> <p>CO3: Students will be able to critically analyze the issues of the caste system and class-based stratification system of Indian society, as well as the agrarian social structure of</p> <p>CO4: Students will demonstrate an introductory grasp on Indian society and the sociology of India.</p>
3	CC3: Introductory Sociology - 2	<p>By the end of the course students will be able to:</p> <p>CO1: Analyse several social problems and issues with the help of different theoretical tools or sociological perspectives. Sociology offers multiple or plural perspective to view society</p>

CO3: Demonstrate a grasp of different theoretical perspectives like functionalism, conflict theory, structuralism or feminism to reflect upon the specific time periods in

CO3: Acquire introductory training on research methodology.

4 CC4: Sociology of India - 2

By the end of this course, students will be able to:

CO1: Acquire detailed knowledge about Indian society, the pertinent issues and problems that it garners.

CO2: Recall and compare the ideas of two major stalwarts of Indian society and also the nationalist movement, Mahatma Gandhi and B.R Ambedkar.

CO3: Comprehend the very essence of Indian society and appraise the nature of caste-based politics, politics of differences, inequality and discrimination and exclusion.

CO4: Display their knowledge about various social movements and their struggles.

CO5: Comprehend contemporary challenges such as communalism, recognize ideas such as secularism and the history of the same in pre-independent India.

CO5: Demonstrate an overall grasp on the themes and perspectives of Indian sociology.

Sr No	Course Name	Course Outcomes
Statistics		
1	CC1/GE1: Descriptive Statistics	<p>By the end of this course, students will be able to:</p> <p>CO1: Demonstrate a broad understanding of the definition and scope of Statistics and the concept of data collection and its graphical representation</p> <p>CO2: Illustrate a concrete understanding of the characteristics of data and learn to evaluate measures of central tendency, dispersion , skewness and kurtosis</p> <p>CO3: Learn the notion of bivariate data and idea of correlation and regression and curve fitting</p>
2	CC2 / GE2: Elementary Probability Theory	<p>By the end of this course, students will be able to:</p> <p>CO1: Demonstrate a thorough understanding of Probability Theory- its definitions, and laws, besides the wide range of its applications in problem solving</p> <p>CO2: Develop idea and illustration of random variables and its properties , such as expectation , variance and moments</p> <p>CO3: Discuss and understand standard probability distributions such as Binomial, Poisson, Geometric, Negative Binomial, Uniform, Exponential, and Normal and extend this knowledge with topics like WLLN and Central Limit Theorem</p>

Sr No	Course Name	Course Outcomes
	Zoology	
		By the end of this course, students will be able to:
1	CC1-1-TH – Non-chordates I	CO1: Demonstrate a broad understanding of basic animal classification from protozoa to nematoda CO2: Develop a broad sense of basic anatomy, physiology, morphology and behaviour in general of the above various non-chordate phyla  CO3: Identify aspects of anatomy, physiology, morphology and behaviour of specific examples of representative animals of the above various non-chordate phyla
		By the end of this course, students will be able to:
2	CC1-1-P – Non-chordates I Lab	CO1: Demonstrate a broad understanding of basic animal classification from protozoa to nematoda CO2: Identify and discuss whole mounts of various protozoa CO3: Demonstrate technical competence competent in order to stain and mount various gut parasites of specific animal model prescribed
		By the end of this course, students will be able to:
3	CC1-2-TH – Molecular Biology	CO1: Demonstrate a thorough understanding of nucleic acids CO2: Analyze various genetic phenomena that go on at the molecular level of the cell CO3: Develop a basic understanding of certain universal molecular biology techniques
		By the end of this course, students will be able to:
4	CC1-2-P – Molecular Biology Lab	CO1: Demonstrate a broad understanding of specific chromosome types CO2: Become technically competent in order to quantify genomic DNA, run agarose gels and histologically stain DNA and RNA