

**COURSE
OUTCOME
(2017-18)**

Contents

Department of Bengali	1
Department of English	2
Department of Hindi	3
Department of Sanskrit	4
Department of Economics	5
Department of Political Science	8
Department of History	16
Department of Geography	17
Department of Philosophy	18
Department of Sociology	19
Department of Physics	20
Department of Mathematics	21
Department of Chemistry	22
Department of Computer Science	24
Department of Computer Application	25
Department of Botany	26
Department of Zoology	27
Department of Microbiology	29
Department of Nutrition	30
Department of Commerce	31

Department of Bengali

Course: B.A. Honours and Programme in Bengali

1. It has been the endeavours of the Department of to develop the students an appreciation of Bengali Literature.
2. The development of Bengali language and the growth of its literature is traced from the ancient focusing on the middle and modern period as well.
3. The creative ability of the student is nurtured.

Department of English

Course: B.A. Honours and Programme in English

<p>1st and 2nd Sem B.A. English</p>	<p><u>HONOURS:</u> CC-1: Preliminary knowledge about the history of literature from Anglo-Saxon to 17th Century and the relevant texts of that period. CC-2: Understanding British prose and drama (from prescribed texts) of Anglo-Saxon period to 17th Century. CC- 3 and 4: Understanding Renaissance and its representative texts. <u>GE- 1:</u> Formation of idea about Women Empowerment in Contemporary India. AECC 1: Formation of idea about Prose Writings from prescribed texts. <u>Programme:</u> CC-1: Formation of ideas about Rhetoric and Prosody CC-2 : Understanding of representative poetry of British and Indian Literature.</p>
<p>3rd and 4th Sem. B.A. English</p>	<p><u>HONOURS:</u> CC-5 and 6: Getting an overall idea on the Puritan, Restoration and Augustan Period and their representative texts. CC-7 and 8: Understanding Romantic Literature and the corresponding representative texts. CC- 9 and 10: Understanding Victorian Literature and the representative texts of that period. <u>Programme:</u> CC-3: Understanding representative fiction and short stories of 20th Century. CC-4: Understanding non-fiction and drama of the 20th Century.</p>
<p>5th and 6th Sem. B.A. English</p>	<p><u>HONOURS:</u> CC-11 and 12: Having an overall idea of the Modern British Period and the representative texts of that era CC-13: Understanding Shakespeare: his sonnets and plays. DSE-1 and 2: Understanding some prescribed texts of Indian Writing in English. DSE- 3 and 4: Understanding some prescribed texts of American Literature. <u>Programme:</u> CC-5: Gaining knowledge on composition CC-6: Phonetics and Phonology</p>

Department of Hindi

Course: B.A. Honours and Programme in Hindi

1 st & 2 nd Sem	<ol style="list-style-type: none">1. A Basic idea on Hindi literature & its relevance in modern society.2. A preliminary understanding of major literary works.
3 rd & 4 th Sem	<ol style="list-style-type: none">3. An understanding of the society which is the primary requisite to study and literary piece.4. Development of literary application.
5 th & 6 th Sem	<ol style="list-style-type: none">5. Critical assessments of various works.6. A study of world literature vis-à-vis Hindi literature.

Department of Sanskrit

Course: B.A. Honours and Programme in Sanskrit

- CO1: Understand the language, and basic of it and its grammar.
- CO2: Analyse Epic, specially Indian ancient Epic- Ramayana and Mahabharata.
- CO3: Determine Prosody in the light of 'Chhandamanjari'.
- CO4: Understand Drama through Dramaturgy (SahityaDarpan 6th chapter).
- CO5: Analyse History of Sanskrit Literature with modern Indian Language.
- CO6: Understand Sanskrit grammar: General grammar, Karaka and Samas.
- CO7: Understand Indian Polity: Specially Arthasashtra and Manusamhita.
- CO8: Analyse different Linguistic law: Grim, Grassman, Verner etc. Understand Linguistics.
- CO9: Analyse Ancient Indian Literature and develop understanding of Veda, Vaidic Literature, The Bhagwat Gita (Karmayoga).
- CO 10: Develop writing skill of students through script writing.
- CO 11: Understand Poetics through SahityaDarpan, Kavyaprakash, Determine Alankara.
- CO 12: Understand Indian Culture and analyse its reflection in Sanskrit Literature.
- CO 13: Understand Methodology: with special reference Pouranic Literature.
- CO14: Analyse Indian Philosophy: Tarkasangrah, Yogsutra.
- CO 15: Understand Indian social institution.
- CO 16: Understand Environment need of its awareness in Sanskrit Literature.

Department of Economics

Course: B.Sc. Honours and Programme in Economics

1st Semester:

- **Micro Economic theory:**

Students learn about the general concepts of economics, theory of demand, theory of production and cost, perfect and imperfect competition under market structure.

- **Macro Economic theory:**

Students gain knowledge about the scope and nature of macro economics. Other concepts include national income accounting, classical system, Keynesian model of income determination Keynesian system.

2nd Semester:

- **Micro Economic theory:**

Students give the idea of imperfect competition which includes monopoly, monopolistic completion and oligopoly. Also they become aware of theory of factor pricing, general equilibrium and economic welfare.

- **Mathematical Economics:**

Students get information of some basic mathematical concepts with economic illustration, calculus and its application in economics, differential and integral calculus, difference and differential equations.

3rd Semester:

- **Statistical method:**

A detailed study of tabular and diagrammatic presentation of data, measures of central tendency and dispersion, co-relation and regression analysis and index number.

- **Macro Economic theory:**

Students are introduced to consumption function, money market, investment function and theories of inflation.

- **Development Economics:**

In this course students gain knowledge about the concepts of economic development and under-development theories of economic growth and labour surplus economy and development strategies.

4th Semester:

- **Statistical Method:**

Students learn about time series analysis, probability theory, random variable and mathematical expectation, uni-variate probability distribution, sampling theory and sampling distribution, estimation and testing of hypothesis.

- **Indian Economics:**

Students thoroughly learn about structural changes in the Indian Economy, various concepts relating to agricultural sector, industrial sector, population, poverty and unemployment about the parallel economy in India.

- **Mathematical Economics:**

Students learn about determinants and matrices. Linear programming, input-output analysis and basic game theory.

3rd Year:

- **International Economics:**

Students learn about the theories of trade, Balance of Payment and problems of adjustment, trade intervention and role of IMF as a source of international liquidity. SDRs, IBRD, World Bank.

- **Money and Capital market:**

Students get knowledge about definition of money market, nature and functions of Commercial and Central Bank, control of Central Bank over the NBFIs, basic Concepts of organized and unorganized Capital Market. They become aware of the role and functions of Regulatory Authorities, particularly SEBI.

- **Development Economics:**

Students are introduced to different concepts of development, sustainable development, PQLI, HDI, HPI, concept of surplus labour. They learn about development and underdevelopment as a historical process and the obstacles to development. They come to know about Trap Models, Lewis Model and the choice of technique in a labour surplus economy. They get idea about trade as an engine of growth and the historical evolution from GATT to WTO.

- **Classical Political Economy:**

Students get information about Adam Smith labour theory of value, Ricardian one sector model, Classical Political economy and Marx, stages of growth theory of Rostow and Marx. They get acquainted with Marx's theory of value, the concept of industrial reserve army, the law of falling rate of profit and the theories of crisis.

- **Econometrics and Quantitative Techniques:**

Students gather knowledge about the importance and role of econometrics, CLRM (two variable and three variable case), techniques of dynamic analysis and its applications in the field of Dornier's analysis of growth, Cobweb model, Dynamic multiplier, Accelerator Interaction Model

- **Public Economics and Environmental Economics:**

Students come to know about the instruments of Public Finance, concept of public goods and private goods, the ability and benefit approaches to taxation, compensatory fiscal policy, public debt and its economic effects, anti-inflationary fiscal policy. They become aware environment-economy interaction, optimal level of pollution, conflict between net private and net social benefits of pollution, concept of WTP and WTA, Coase Theorem.

- **Indian Economic Planning:**

Students get knowledge of economic planning, fiscal policy and monetary policy.

- **Computer Applications and Project:**

Students are exposed to the nature and sources of data for economic analysis. They learn to represent data set graphically and the use of spreadsheet / excel for statistical analysis estimation of descriptive statistics like- mean, median, mode, standard deviation correlation, classical regression. Students also learn how to write a project based on primary data.

Department of Political Science

Course: B.A. Honours and Programme in Political Science

SEMESTER	COURSE OUTCOME
1 ST	<p data-bbox="407 384 1300 415">CORE PAPER 1: POLITICAL THEORY (LIBERAL TRADITION)</p> <ul data-bbox="456 436 1511 741" style="list-style-type: none">• Study of the Normative, Behavioural & Post-behavioural, and Feminist approaches to the study of Politics.• Explain the Idealist, Liberal and Neo-liberal theories of the nature of the State.• Explain the concept of the State Sovereignty and its monistic and pluralistic theories.• Understanding the basic concept of democracy and its classification.• Describe the concepts of Liberty, Equality, Rights, Law and their interrelations• Describe the concept of Justice with special relations to the theory of Rawls. <p data-bbox="407 779 1029 810">CORE PAPER 2: COMPARATIVE POLITICS</p> <ul data-bbox="456 852 1511 1157" style="list-style-type: none">• Write down the history of the development of Comparative Politics and differentiate between Comparative Politics and Comparative Government.• Study of the approaches to the study of Comparative Politics.• Explain the theories of Political System as presented by Easton, Almond and Powell.• Explain the theories of Political Modernization and Political Development with special reference to Pye and Huntington.• Explain the Dependency Theory of Andre Gunder Frank. <p data-bbox="407 1194 1511 1262">ABILITY ENHANCEMENT COMPULSORY PAPER 1 : ENVIRONMENTAL STUDIES</p> <ul data-bbox="456 1304 1511 1409" style="list-style-type: none">• Describe the environment, pollution and its causes and classification, wildlife, ecosystem, legal provisions both national and international for the protection of environment.

<p style="text-align: center;">2ND</p>	<p>CORE PAPER 3: POLITICAL THEORY (SOCIALIST TRADITION)</p> <ul style="list-style-type: none"> • Explain Marxist approach to the study of politics. • Describe Gramsci’s view on the question of relative autonomy of the State. • Describe socialist perspective on freedom and democracy. • Explain theory of Revolution with special reference to Lenin and Mao. • Explain Marxian theory of Party, Lenin’s contribution and Lenin-Rosa Luxemburg Debate on Party. <p>CORE PAPER 4: COMPARATIVE CONSTITUTIONAL SYSTEM</p> <ul style="list-style-type: none"> • Write down the detail typology of Constitutional Systems. • Write down the detail description of the composition and functions of the Legislature in UK and PRC; second chamber in USA; role of speakers in parliamentary and presidential systems (UK and USA). • Write down the detail description of the executive in UK, USA and PRC. • Describe the relations between executive and legislature in UK, USA and PRC. • Describe the judiciary in UK, USA and PRC (with special reference to the procuratorate). • Describe the Rights of the citizens of UK, USA and PRC and the Duties of the citizens of PRC. <p>ABILITY ENHANCEMENT COMPULSORY PAPER 2 : COMPULSORY LANGUAGE (ENGLISH/HINDI/ BENGALI) as per the syllabus framed by the respective departments.</p>
<p style="text-align: center;">3RD</p>	<p>CORE PAPER 5: WESTERN POLITICAL THOUGHT (ANCIENT AND MEDIEVAL)</p> <ul style="list-style-type: none"> • A brief outline of the background of Western Political Thought with special emphasis on Stoics and Sophists. • Explain Greek Political Thought: <ul style="list-style-type: none"> a) Plato – Theory of justice b) Aristotle – Concepts of state and constitution <ul style="list-style-type: none"> • Explain the Roman Political Thought and the features of Medieval Political Thought in Europe • Explain the Post-Medieval Political Thought in Europe with special reference to Niccolò Machiavelli – Secularization of politics. • Explain Jean Bodin’s theories of state and sovereignty. • <p>CORE PAPER 6 – INDIAN POLITICAL THOUGHT</p>

	<ul style="list-style-type: none"> • Explain Kautilya’s Political Thought with special reference to Dharma and Danda, Saptanga, and Dandaniti. • Describe a broad outline of Medieval Political Thought in India • Describe Raja Rammohan Roy’s vie on rule of law, and freedom of thought • Explain Bankim Chandra’s views on nationalism. • Describe Rabindranath Tagore’s critique of nationalism. • Describe SwamyVivekananda’s Ideal society. • Describe Gandhi’s view on Swaraj and trusteeship. • Describe Ambedkar’s view on social justice. <p>CORE PAPER 7 : POLITICAL SOCIOLOGY</p> <ul style="list-style-type: none"> • Explain the nature and scope of Political Sociology • Describe in detail the basic concepts : <ul style="list-style-type: none"> a) Social Stratification and Politics: Caste, class and elite b) Power, Influence, and Authority. c) Political Culture d) Political Socialization e) Social Mobility, Political parties and Pressure groups. <p>OPTIONAL : SKILL ENHANCEMENT PAPER (ANY ONE)</p> <p>1:DEMOCRATIC AWARENESS WITH LEGAL LITERACY</p> <ul style="list-style-type: none"> • Explain briefly fundamental rights, fundamental duties, other constitutional rights • Explain the laws relating to dowry, sexual harassment and violence against women ; laws relating to consumer rightsand cyber crimes • Write down anti-terrorist laws its Implication for security and human rights; system of courts/ tribunals and their jurisdiction in India – criminal and civil courts, writ jurisdiction,specialized courts such as juvenile courts, Mahila courts and tribunals;alternate dispute such as lokadalats, non-formal mechanisms <p>2: PUBLIC OPINION AND SURVEY RESEARCH</p> <ul style="list-style-type: none"> • Define Public Opinion • Measuring Public Opinion: <ul style="list-style-type: none"> a) Methods and Types of Sampling b) Interviewing: Types- structured, unstructured, focused c) Questionnaire: Question wording; fairness and clarity d) Explain the prediction in polling research: possibilities and pitfalls
	<p>CORE PAPER 8:MODERN WESTERN POLITICAL THOUGHT</p>

4TH

- Explain :
 - a) Thomas Hobbes: Materialism, Human nature, and Sovereignty.
 - b) John Locke: Natural rights, and Property.
 - c) J.J. Rousseau: Concept of General Will.
 - d) Hegel: Dialectics and State.
 - e) Karl Marx and Fredrick Engels: Dialectical and Historical Materialism.
 - f) Jeremy Bentham: Utilitarianism
 - g) J.S. Mill: Utilitarianism, and Liberalism

CORE PAPER 9: INDIAN GOVERNMENT AND POLITICS

- Describe the role of the Constituent Assembly in framing Indian Constitution.
- Explain :
 - a) The Preamble.
 - b) Fundamental Rights and Duties;
 - c) Directive Principles of State Policy.
 - d) Nature of Indian Federalism: Union-State relations.
 - e) Union Executive: President and Vice-President – Election, power and position. Prime Minister – Power and position; Council of Ministers; Relationship of President and Prime Minister.
 - f) Union Legislature: Rajya Sabha and Lok Sabha: Composition and functions; Speaker.
 - g) The Judiciary: Supreme Court and High Courts – Compositions and functions
 - h) Constitutional amendment: Procedures;
 - i) Electoral reforms.

CORE PAPER 10: BASIC THEORIES OF INTERNATIONAL RELATIONS

- Explain the basic concepts of International Relations:
 - (a) National power,
 - (b) Balance of power,
 - (c) Collective security,
 - (d) Bipolarity,
 - (e) Unipolarity,
 - (f) Multipolarity,
 - (g) National interest, and
 - (h) Globalization.
- Describe :
 - a) Realism as an approach to the study of International Relations.
 - b) Liberalism as an approach to the study of International Relations.
 - c) World System as an approach to the study of International Relations.
- Describe various techniques of implementation of Foreign Policy viz., Diplomacy, Propaganda and Foreign Aid.

OPTIONAL : SKILL ENHANCEMENT PAPER (ANY ONE)

	<p>1:LEGISLATIVE PRACTICES AND PROCEDURES</p> <ul style="list-style-type: none"> • Describe the powers and functions of people’s representative at different tiers of governance; State Legislative Assemblies ; functionaries of rural and urban local governance • Explain the legislative process of making of a law • Write down the types and role of Legislative Committees • Overview of Budget Process • Explain the types of media and their significance for legislators <p>2:PEACE AND CONFLICT RESOLUTION</p> <ul style="list-style-type: none"> • Write down the basic concepts of International Peace and Conflict Resolution • Describe the theories of International Conflict Resolution with special to Johan Galtung, Joseph Montville, Morton Deutsch • Explain the cross-border relationships between the world’s peaceful and war-torn zones (migration and information flows, economic transactions, international rules and regulations, normative concepts and political decisions) • Explain the current perspective of peace and conflict resolution: Grass-roots level perspective on war and peace
	<p>CORE PAPER 11 :WORLD POLITICS: ORGANIZATIONS AND ISSUES</p> <ul style="list-style-type: none"> • Explain Cold War and its major events. • Describe: <ul style="list-style-type: none"> a) The United Nations; its General Assembly, and Security Council b) Reform of the UN. c) International Financial Institutions viz., World Bank, and IMF. d) Regional Organizations viz., SAARC, and ASEAN. • Analyse the emerging issues in Post-Cold War era: <ul style="list-style-type: none"> a) Development and Environment. b) Human Rights: UNDHR c) Terrorism <p>CORE PAPER 12: BASIC THEORIES OF PUBLIC ADMINISTRATION</p> <ul style="list-style-type: none"> • Explain the nature, scope and evolution of Public Administration • Differentiate between Private and Public Administration. • Explain the major concepts of organization: <ul style="list-style-type: none"> (a) Hierarchy, (b) Unity of Command, (c) Span of Control, (d) Authority,

5th

(e) Centralization, Decentralization, and Delegation,
(f) Line and Staff.

- Describe bureaucracy with special reference to Marx and Max Weber.
- Describe development administration of Fred W. Riggs.
- Describe decision making model of Herbert Simon.

DISCIPLINE SPECIFIC ELECTIVE (ANY TWO)

1.HUMAN RIGHTS: THEORY AND PRACTICE

- Write down the meaning and a brief history of human rights (UDHR)
- Explain the concept of terrorism and counter-terrorism and the impact of terrorism on Human Rights.
- Write down the provisions provided by the Indian Constitution to protect human rights
- Explain the National Human Rights Commission – Composition and functions.
- Explain the evolution, nature, challenges and prospects of Human Rights Movements in India

2.SOCIAL MOVEMENTS IN CONTEMPORARY INDIA

- Explain the meaning and features of Social movements in contemporary India,.
- Differentiate between Social Movement and New Social Movement
- Describe Peasant Movements in India with special reference to Telengana and Singur
- Describe Tribal Movements in India viz., POSCO and Niyamgiri
- Describe Environmental Movements in India viz., Chipko, Narmada Bachao and Silent Valley

3.PUBLIC POLICY IN INDIA

- Discuss the meaning, elements and actors of public policy making and implementation in India.
- An overview of Public Policy in India since independence
- Explain various constraints of Public Policy
- Discuss the Public Policy in India:
 - a) Public Health;
 - b) Education and
 - c) Environment.

4.INDIA'S FOREIGN POLICY IN A GLOBALIZING WORLD

	<ul style="list-style-type: none"> • Discuss India’s Foreign Policy in the era of Globalization emerging Issues viz., Trade, Environment and Terrorism. • Discuss <ol style="list-style-type: none"> a) India’s Foreign Policy towards her neighbours; b) Recent engagement with Pakistan, Bangladesh and China. c) Emerging trends in Indo- US relations d) Role of Indian Diaspora. e) India’s Foreign Policy in the multipolar world: BRICS. <p>5.GENDER AND POLITICS IN INDIA</p> <ul style="list-style-type: none"> • Conceptualize Gender in Politics Political Participation, policy making and development • Explain the security concern for Women and Third Gender/Transgender • Discuss the issue of the effective participation of Women in Decision making structures with special reference to the issue of Reservation Impact • Explain the concept of Gender Identity with special reference towomen in riot and war.
6 TH	<p>CORE PAER 13: LOCAL GOVERNMENT IN WEST BENGAL</p> <ul style="list-style-type: none"> • Write down the evolution of Rural and Urban local government in West Bengal since independence • Describe thestructure and functions of Panchayati Raj Institutions in the light of the 73rd Constitution (Amendment)Act, 1992. • Describe thestructure and functions of urban local governments under the 74th Constitution (Amendment) Act, 1993and the West Bengal Municipality Act, 1993. • Discuss the issue of local government and empowerment of women, SCs, and STs. • Discuss the State-Local Government Relations: Financial control of the State. <p>CORE PAPER 14 : PROJECT</p> <ul style="list-style-type: none"> • Write down aproject from within the discipline of Political Science and its allied subjects. <p>DISCIPLINE SPECIFIC ELECTIVE (ANY TWO)</p> <p>1.UNDERSTANDING GLOBAL POLITICS</p> <ul style="list-style-type: none"> • Explain the evolution of the state system and the concept of sovereignty. • Describe the global economy; Bretton woods institutions and W.T.O.; Transnational economic actors; global poverty; Millennium Development Goals and unfulfilled promises.

2.UNDERSTANDING SOUTH ASIA

- Explain:
 - a) The strategic importance of South Asia in Global Politics
 - b) Geo- Politics in issues border conflict maritime dispute.
 - c) State system in South Asia with special reference to Nepal, Bhutan, Pakistan, Bangladesh and Sri Lanka.
 - d) Regional integration in South Asia: SAARC

3. CITIZENSHIP IN A GLOBALIZING WORLD

- Discuss:
 - a) Classical conceptions of citizenship
 - b) The Evolution of Citizenship and the Modern State
 - c) Citizenship and Diversity
 - d) Citizenship beyond the Nation-state: Globalization and global justice
 - e) The idea of cosmopolitan citizenship

4.POLITICS IN WEST BENGAL

- Explain the dynamics of politics in West Bengal
- Discuss the role of Leadership role emphasizing on caste and class as factors.
- Explain the politics of Ethnicity viz., Gorkhaland Movement and Kamtapur Movement.
- Discuss the nature and role of Civil Society in West Bengal.

5. ENVIRONMENTAL POLITICS

- Explain the meaning, key related ideas and significance of Environmentalism
- Discuss the collective action problems and environmental challenges in developing and developed countries;
- Discuss the major environmental movements in India viz., Chipko – Narmada Bachao
- Discuss the regional and international efforts to address climate change.
- Discuss green governance with special reference to Sustainable Human Development

Department of History

Course: B.A. Honours and Programme in History

1. Development of inquisitiveness amongst the students.
2. Students developed an understanding on the relevance of studying history in contemporary times.
3. Students understood that though History deals with the past, it is inextricably linked with the present and the future as well. Hence History can be a powerful tool to shape our times and also the times to come, in a positive way.
4. An overall understanding of the various events in both Indian and world context.
5. Awareness about the current debates in History and building up of argumentative ability among the students.

Department of Geography

Course: B.Sc. Honours and Programme in Geography

YEAR	COURSE OUTCOME
1st and 2nd Semester	<ul style="list-style-type: none"> • Students will acquire an understanding of the various tectonic processes, geomorphologic processes and got a clear perception about various theories that made our earth. • Students will learn to prepare and to analyze their own the geological maps which make them a clear understanding of different geological features of the earth surface. They also learn to prepare land use maps on the basis of various surveying instruments.
3rd and 4th Semester	<ul style="list-style-type: none"> • Students will also develop clear understanding of various atmospheric processes which influence our day to day weather patterns. They also develop clear perception about soil and biosphere which made our earth surface. • They will also develop statistical data analysis in manual as well as automated mode. They learn open source software to understand the remote sensing and GIS. • During this year, students will be able to trace out the exact philosophy of geography, its evolution and its makers as well as various schools and approaches of study in geography. • Students will understand the interconnection between people and places in different regions, the distribution of economic activities, man-environment interrelations in local and regional and world perspective.
5th and 6th Semester	<ul style="list-style-type: none"> • Students will have a clear understanding of the regional geographical approaches of India in general and West Bengal in particular. • They will also be able to find out the relation between geography, environment and human society. • Students will be able to synthesize geographic knowledge and apply geographic research techniques in preparing urban land use map and to short out the different local environmental issues. <ul style="list-style-type: none"> • At the end of the course, students will learn to prepare and to analyze their own maps on the basis of statistical data and will able to analyze spatial data. • The students will be able to clear the understanding about the environmental and resource management policies.

Department of Philosophy

Course: B.A. Honours and Programme in Philosophy

1. Basic concept of Indian Philosophy, Concept of Vedas and Upanishads
2. Concept of knowledge, Ideas and Substance and some western philosophical concept
3. Some ethical issues of Indian and western philosophy; values and role of human life. Concept of *Purusartha*.
4. Some logical analysis, psychological problems and solutions, nature of memory, consciousness and intelligent.
5. Some Socio-political issues, religious concept. Different types of religion. Concept of ahimsa, liberation. Hinduism, Buddhism, Islamism, Christianity.
6. Definitions of truth, word meaning, sentence meaning.
7. 7. Some contemporary issues of philosophy, Idealism, definite description, ahimsa, nature of God, Nature of the World and Practical Vedanta.

Department of Sociology

Course: B.A. Honours and Programme in Sociology

1. August Comte definition of sociology, scope and relation with other disciplines
2. Basic concept like Society-Community- Association, Institutions-Culture& Civilization-
-Customs, Folkways & Mores, Law & Deviance, Status & Role.
3. Social Institutions: Family, Marriage, Economy, Polity, Religion & Education
4. Social Groups-Definition-classification of groups -primary & secondary groups, in
group and out-group, reference group, quasi group
5. Herbert Spencer- Social & Intellectual background-Theory of Organic Analogy-
Evolution-Types of Society.
6. Emile Durkheim- Social & Intellectual background-Theories of: Social fact-Division of
Labour –Mechanical & Organic Solidarity-Suicide-Religion
7. Social changes and deviance
8. Contemporary social problems

Department of Physics

Course: B.Sc. Honours and Programme in Physics

Year	Course Outcome
1 st year	Introductory Knowledge in mathematical physics, computation, mechanics, electricity and magnetism along with experimental skills on basic fundamental physics.
2 nd year	Concepts on classical mechanics, thermal physics, wave optics, electromagnetic theory and electronics. Experimental ideas on thermal physics and electronics.
3 rd year	Development of knowledge on quantum mechanics, advanced thermal physics, statistical mechanics, condensed matter physics nuclear and particle physics, atomic physics etc. Experimental knowledge on optics and advanced level experiments on quantum physics.

Department of Mathematics

Course: B.Sc. Honours and Programme in Mathematics

There are two types of mathematical courses as pure mathematics and applied mathematics. Pure mathematics is the main building blocks of mathematics whereas applied mathematics teach how to apply mathematics in real field.

Algebra, Analysis, Calculus are part of the pure mathematics course. These courses are fundamental to all mathematical courses. To develop our mathematical skills we need to learn these courses very well.

Courses like Vector Analysis, Tensor Analysis, Differential Equations, Mechanics have main application in other branches of sciences like Physics, Chemistry, Biological Sciences etc.

This year contains some advance courses which helps students to choose a suitable path such that she want to grow as student of mathematics.

Courses like Complex Analysis, Metric Spaces motivate students doing research in Pure Mathematics.

Courses like Computer Programming helps student doing research in the fields of Computer Sciences, Cryptography etc.

Department of Chemistry

Course: B.Sc. Honours and Programme in Chemistry

1st Year:

- After revision of the basic and fundamental topics, students will acquire knowledge on advanced and modern approaches of different aspects of chemistry along with laboratory work.
 - Students become familiar with the quantum mechanical approach to atomic structure, the latest periodic table, bonding and structure of the molecules, modern theories of acids and bases and redox chemistry, preliminary idea on coordination chemistry along with the synthesis of compounds of different nuclearities and about isomerism to get a comprehensive idea on these fundamental topics.
 - Student learns the basic concepts of organic chemistry which includes nomenclature, reaction mechanism, stereochemistry, different types of intermediates. They also learn the kinetics of different reaction.
 - Students get basic ideas on the most fundamental topics of physical chemistry viz. Laws of Thermodynamics, Chemical Kinetics and Kinetic Theory of Gas.
- **Practical:** Students gain knowledge and practical experience on synthesis of different organic compound and how to calculate their melting point.

2nd Year:

- A detailed study of advanced theories on coordination chemistry and chemistry of all the elements of periodic table will help the student to get a thorough knowledge on overall inorganic chemistry.
- In the course, students are enlightened to ideas on extended part of kinetics and second law of thermodynamics and its applications, chemical and phase equilibrium.
- Students are exposed to newer and modern approaches to stereochemistry and reaction mechanism. Students get acquainted with various name reactions, rearrangement reaction, nucleophilic addition to carbonyl group, reaction of alicyclic compound and reagents including synthesis and properties of some important class of organic compounds.

Practical: Students gain knowledge and practical experience on qualitative detection of radicals by semi-micro methods of analysis. They also learn to synthesize few simple, double and complex salts as well.

3rd Year:

- Development of understanding of higher and advanced concepts on several topics including solid state chemistry, organometallic compounds, inorganic reaction mechanism, carbonyl and nitrosyl complexes, role of metal ions in living systems etc. They are also exposed to the field of Nano and supramolecular chemistry in this course. A comprehensive knowledge is developed by studying the content of the course: nuclear, analytical and radioanalytical chemistry. Students also learn application of statistical methods and various instrumental methods in analytical chemistry.

- Students get knowledge on electrochemistry, solid state chemistry as well as photochemistry, spectroscopy and quantum chemistry. They learn symmetry/group and also, statistical thermodynamics in this course.
- Students get knowledge on different classes of organic compounds viz. dyes, medicines, carbohydrate, nucleic acids, alkaloids and terpenoids. They are also taught methodology in organic synthesis and pericyclic reactions. They learn different spectroscopic methods of analysis including UV, IR and NMR techniques. Awareness about the use of green chemistry to cope up with environmental pollution is also focused in this course.
- **Practical:** Students gain knowledge and practical experience on quantitative estimation of different metal ions by titrimetric and colorimetric methods of analysis.
- They perform various physical chemistry experiments like kinetic studies, conductometric titration, potentiometric titration, determination of surface tension, viscosity, equilibrium constant etc.

Department of Computer Science

Course: B.Sc. Honours and Programme in Computer Science

1. Introduction and basic conception on computer fundamentals. Introductory knowledge about the syntax and semantics of C-Language Implementation of simple mathematical and logical problem using C.
2. Theoretical knowledge on operating system. Thorough idea of data structures and implementation of various data structure operations using C-language.
3. Theoretical knowledge on Digital Logic and its practical implementation in hardware laboratory. A detailed study on Automata theory and Computer Architecture & Organization.
4. A detailed theoretical knowledge of database management system and computer networking. A practical approach of learning RDBMS using SQL and P/L SQL. Practical knowledge of using UNIX operating system and implementation of simple problems using shell programming. A detailed theoretical study of software engineering.
5. Knowledge about object-oriented programming using C++, its application and implementation. A detailed theoretical knowledge of Computer Graphics and practical implementation of Graphics algorithms. Theoretical knowledge on any two from four alternatives Analysis of algorithm, Advanced Database Management System, Compiler Design and Artificial Intelligence.
6. Knowledge of core java and its implementation. Knowledge about Microprocessor and its application. Programming in 8085 microprocessor implementations using 8085 microprocessor kit. Theoretical knowledge on any two from five alternatives Optimization Technique, Advanced Computer Architecture, Animation & Multimedia, Cryptography & Network Security and Soft Computing.

Department of Computer Application

Course: Bachelor of Computer Application (Honours)

1. Introduction and basic conception on computer fundamentals. Practical knowledge on Word, Excel, Powerpoint and access. Introductory knowledge about the syntax and semantics of C- Language Implementation of simple mathematical and logical problem using C. Mathematical overview on algebra, complex numbers, vector, analytical geometry etc.
2. Theoretical knowledge on Digital Logic and its practical implementation in hardware laboratory. Thorough idea of data structures and implementation of various data structure operations using C-language. Standard conceptual knowledge on accounting and costing.
3. Knowledge about object-oriented programming using C++, its application and implementation. A detailed idea on operating system. Practical knowledge of using UNIX operating system and implementation of simple problems using shell programming. Mathematical overview on differential and integral calculus. A brief study on either business system and its application or multimedia system design. An approach to enhance the skills on reasoning and aptitude.
4. A detailed theoretical knowledge of database management system and computer networking. A detailed study on computer organization and architecture. An approach to enhance the skills of communicative English. An analytical study on either Information system analysis and design or microprocessor and its applications. A practical approach of learning RDBMS using SQL and P/L SQL. Introduction to windows programming using Visual Basic.
5. A detailed theoretical study of software engineering, e-commerce and internet. Mathematical approach of learning probability, statistics, numerical methods and algorithms. Knowledge of core java and its implementation. An introductory approach of learning either cyber security or image processing or intelligent systems. A practical approach of web page designing using HTML and PHP.
6. Implementation of simple mathematical and logical problems using Python and C#.net programming language. Theoretical knowledge either on computer graphics, or theory of computation or cloud computing. Practical application of software development.

Department of Botany

Course: B.Sc. Honours and Programme in Botany

1. History, development, habitat, distribution of various cryptogamic plants like Algae, Fungi, Bryophytes, Pteridophytes.
2. Organization, origin, diversity and evolution of lower group of Non flowering plants.
3. Plant diseases, causal organism, disease cycles and control measures.
4. Anatomical studies of various flowering and non-flowering plants including primary and secondary growth and their anomalies.
5. Fossil Botany in relation to types of fossil, process of fossilization factors and importance.
6. Embryological studies of Angiosperm and Gymnosperm.
7. Microbiological studies of Bacteria and viruses in relation to their Structures and reproduction.
8. Plant physiological and Biochemical studies of various plant Processes.
9. Economic Botany, Pharmacognosy, Palynology, Reproductive Biology and Ecology in relation to environment.
- 10 Cell Biology, Genetics, Plant breeding and Biotechnology in applied aspects.
- 11 Practical in above mentioned related fields.

Department of Zoology

Course: B.Sc. Honours and Programme in Zoology

Year	COURSE OUTCOME
1 st Year	<p>Described the general biology of few selected non-chordates useful to mankind. Know about some of the important and common protozoans, helminthes of parasitic nature causing diseases in human beings. Student should be able to describe unique characters of annelids, arthropods, mollusks, echinoderms and hemichordates. Student should be able to recognize life functions of annelids, arthropods, mollusk, echinoderms and hemichordates. To recognise the ecological role of phylum from annelid to hemichordate. To recognise the diversity from annelid to hemichordate. Students are able to understand the physiology at cellular and system levels. Students are able to describe the role and functions of different systems. Able to describe the physiology of respiratory, renal, endocrine and reproductive systems to define normal and abnormal functions.</p> <p>Student should be able to describe unique characters of amphibians, reptiles, aves and mammals. Student should be able to recognize life functions of amphibians, reptiles, aves and mammals. To understand the ecological role of different classes of vertebrates. To understand the diversity of vertebrates.</p> <p>The course will help students gain a knowledge base for understanding vertebrate anatomy and evolution by explaining to them the basic structures and organization of anatomical systems, their development and function and their modifications in the major transitions in vertebrate evolution. It will help students appreciate the importance of comparative vertebrate biology in understanding our own biology by learning about the organization, function and adaptive strengths and weaknesses of our own bodies, and how these traits have been shaped by our evolutionary history.</p>
2 nd Year	<p>An insight to the overview of evolutionary biology, concept of organic evolution during pre- and post- Darwin era evolution and molecular biology- a new synthesis. A concept of – “from molecules to life”, life originated from RNA, introns as ancient component of genes. Understanding of the universal common ancestor and tree of life, three domain concept of living kingdom. Conceptualization of mode of speciation, evolution, systematics, biological classification, origination, extinction, and causes of differential rates of diversification and human evolution.</p> <p>Able to Describe the function and the composition of the plasma membrane. Able to Explain the principles of the cell theory. Able to Differentiate between prokaryotes and eukaryotes. Able to Understand the importance of the nucleus and its components. Able to Understand how the endoplasmic reticulum and Golgi apparatus interact with one another and know with which other organelles they are associated. Able to Identify the three primary components of the cell’s cytoskeleton and how they affect cell shape, function, and movement.</p> <p>Comprehensive and detailed understanding of the chemical basis of heredity. Understanding about the role of genetics in evolution. The ability to evaluate</p>

	<p>conclusions that are based on genetic data. The ability to understand results of genetic experimentation in animals.</p> <p>Comprehended the energy source, chemical bonds and the principles of thermodynamic understood the importance of acid base balance Attained the knowledge of macromolecule such as carbohydrates, protein and fat, their types and significance. Described the enzymes, mechanism of enzyme action and factors affecting the enzyme activity.</p>
3 rd Year	<p>An overview of DNA replication, recombination and repair of nucleic acid polymerization, accuracy during flow of genetic information. Understanding of post-transcriptional gene control and nuclear transport, evolution of introns, catalytic RNA, alternative splicing. An overview of protein synthesis. Detailed understanding of signaling pathways in malignant transformation of cells, cell transformation, role of oncogenes. Description of siRNA and miRNA basics, regulation of transcription and translation of proteins by miRNA.</p> <p>Be able to list the types of characteristics that make an organism ideal for the study of developmental biology. Be familiar with the events that lead up to fertilization. Be able to describe the first four rounds of cell division in different groups. Be able to describe the stages and cellular mechanisms for gastrulation. Able to understand difference between specification and determination.</p> <p>Imparts knowledge to the student regarding various laws of ecology, types of ecosystem, population and community characteristics and dynamics CO₂. Students gain fundamental knowledge of environmental pollutions due to toxic materials and their effects over ecosystem and learn about sustainable development.</p> <p>Provides basic knowledge regarding different types of parasites and host, host – parasite interaction and symptoms, pathogenecity of different parasites.</p> <p>Provides basics knowledge about immune system and allows the student to create insight as how to improve their immune system and good health. Types of immunity, antigens-antibodies and their properties. Complement system, MHC's and immune responses. Understanding of types of hypersensitivity reactions and auto immune diseases. Ability to understand concepts of tumor immunology and transplantation immunology.</p>

Department of Microbiology

Course: B.Sc. Honours in Microbiology

Course	Course Outcomes (Theory)		Practical	
1st & 2nd Sem B.Sc. (Hons) Microbiology	C-1	Introduction to Microbiology	C-2	Bacteriology Lab
	C-2	& Microbial Diversity Bacteriology		
	C-3	Biochemistry	C-3	Biochemistry
	C-4	Biophysics & Virology	C-4	Biophysics & Virology
3rd & 4th Sem B.Sc. (Hons) Microbiology	C-5	Microbial Physiology &	C-5	Microbial Physiology & Metabolism
	C-6	Metabolism		
	C-7	Cell Biology		
	SEC-1	Molecular Biology Microbial Quality Control in Food and Pharmaceutical		
	C-8	Environmental Microbiology	C-8	Environmental
	C-9	Food & Dairy Microbiology	C-9	Microbiology
C-10	Industrial Microbiology		Food & Dairy	
SEC-2	Bio Fertilizers and Bio Pesticides		Microbiology	

Department of Nutrition

Course: B.Sc. Honours in Nutrition

Year	Course Outcomes
1 st Year	<p>Paper1 : Basic knowledge on human physiology, general aspect of nutrition different age group</p> <p>Paper2: Knowledge development on Nutritional biochemistry, different parameter of Food science & food commodities.</p>
2 nd Year	<p>Paper3: Theoretical knowledge on numerous diet therapy on different disease condition, diet survey technique,</p> <p>Paper 4 Practical: Skill to do qualitative and quantitative estimation of different nutrients, Physiological practical of slide of histological slides, blood group determination, ESR, conduction of Diet survey.</p>
3 rd Year	<p>Paper5: estimation of development of knowledge on Food microbiology, food sanitation, hygiene, Community, epidemiology, Food adulteration, Food standards</p> <p>Paper6: Information development on Community Nutrition, Nutritional assessment, Nutritional program, food service management, immunization, role of dietitian</p> <p>Paper7 Practical: Skill to develop diet charts, diet preparation, growth chart plotting</p> <p>Paper8 Practical Nutritional assessment techniques, Project execution.</p>

Department of Commerce

Course: B.Com. Honours and Programme in Accounting

1. The concept of both Direct and Indirect tax in details.
2. Basic ideas on Computer Applications in Business.
3. Detail ideas about few chapters on Corporate Accounting and Corporate Auditing.
4. The definition, objectives, advantages and disadvantages of Management Accounting and Financial Management.
5. Basic concepts of operation and structure of banking and insurance.