

**COURSE  
OUTCOME  
(2020-21)**

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## Department of Bengali

Course: B.A. Honours and Program in Bengali

1 <sup>st</sup> and 2 <sup>nd</sup> SEM
1. A basic idea on Bengali literature and its relevance in modern society. 2. A preliminary understanding of major literary works.
3 <sup>rd</sup> and 4 <sup>th</sup> SEM
1. An understanding of the society which is the primary requisite to study and literary piece. 2. Development of literary appreciation
5 <sup>th</sup> and 6 <sup>th</sup> SEM
1. Critical assessment of various works 2. A study of world literature vis a vis Bengali literature

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## Department of English

### Course: B.A. Honours & Program in English

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<p>1<sup>st</sup> and 2<sup>nd</sup> Sem. B.A English</p>	<p><u>HONOURS :</u>            CC-1 : Preliminary knowledge about the history of literature from Anglo-Saxon to 17<sup>th</sup> Century and the relevant texts of that period.            CC-2 : Understanding British prose and drama (from prescribed texts) of Anglo-Saxon period to 17<sup>th</sup> 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>Program :</u>            CC-1: Formation of ideas about Rhetoric and Prosody            CC-2 : Understanding of representative poetry of British and Indian Literature.</p>
<p>3<sup>rd</sup> and 4<sup>th</sup> 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>Program :</u>            CC-3 : Understanding representative fiction and short stories of 20<sup>th</sup> Century.            CC-4 : Understanding non-fiction and drama of the 20<sup>th</sup> Century.  <u>HONOURS :</u></p>
<p>5<sup>th</sup> and 6<sup>th</sup> Sem. B.A English</p>	<p>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>Program :</u>            CC-5 : Gaining knowledge on composition            CC-6 : Phonetics and Phonology</p>

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## Department of Hindi

### Course: B.A. Honours and Program in Hindi

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

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## Department of Sanskrit

Course: B.A. Honours and Program in Sanskrit

1 <sup>st</sup> SEM
<ul style="list-style-type: none"><li>• Understand the language and basic of it and its grammar.</li><li>• Analyse Epic, specially Indian ancient Epic-Ramayana and Mahabharata.</li><li>• Determine Prosody in the light of 'Chhandamanjari'.</li></ul>
2 <sup>nd</sup> SEM
<ul style="list-style-type: none"><li>• Understand Drama through Dramaturgy (Sahitya Darpan 6<sup>th</sup> Chapter).</li><li>• Analyse History of Sanskrit Literature with modern Indian Language.</li></ul>
3 <sup>rd</sup> SEM
<ul style="list-style-type: none"><li>• Understand Sanskrit grammar: General grammar, Karaka and Samas.</li><li>• Understand Indian Polity: Specially Arthasashtra and Manusamhita.</li></ul>
4 <sup>th</sup> SEM
<ul style="list-style-type: none"><li>• Analyse different Linguistic law: Grim, Grassman, Verner etc. Understand Linguistics.</li><li>• Analyse Ancient Indian Literature and develop understanding of Veda, Vedic Literature, The Bhagwat Gita (Karmayoga).</li><li>• Develop writing skill of students through script writing.</li></ul>
5 <sup>th</sup> SEM
<ul style="list-style-type: none"><li>• Understand poetics through Sahitya Darpan, Kavya prakash, determine Alankara.</li><li>• Understand Indian culture and analyse its reflection in Sanskrit Literature.</li><li>• Understand methodology: with special reference Pouranic Literature.</li></ul>
6 <sup>th</sup> SEM
<ul style="list-style-type: none"><li>• Analyse Indian philosophy: Tarkasangrah, Yogsutra.</li><li>• Understand Indian social institution.</li><li>• Understand environment need of its awareness in Sanskrit Literature.</li></ul>

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## Department of Economics

Course: B.A. Honours and Program in Economics

B.A. (Honours in Economics)	<b>1<sup>st</sup> Semester:</b> <ul style="list-style-type: none"><li>• <b>Micro Economic theory:</b> Students learn about the general concepts of economics, theory of demand, theory of production and cost, perfect and imperfect competition under market structure.</li><li>• <b>Macro Economic theory:</b> 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.</li></ul>
	<b>2<sup>nd</sup> Semester:</b> <ul style="list-style-type: none"><li>• <b>Micro Economic theory:</b> Students get 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.</li><li>• <b>Mathematical Economics:</b> 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.</li></ul>
	<b>3<sup>rd</sup> Semester:</b> <ul style="list-style-type: none"><li>• <b>Statistical method:</b> A detailed study of tabular and diagrammatic presentation of data, measures of central tendency and dispersion, co-relation and regression analysis and index number.</li><li>• <b>Macro Economic theory:</b> Students are introduced to consumption function, money market, investment function and theories of inflation.</li><li>• <b>Development Economics:</b> 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.</li></ul>

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**4<sup>th</sup> 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.

**5<sup>th</sup> Semester:**

- **Public finance:**

Students get knowledge about the introductory part of public economics, principles of taxation, public debt and Indian public finances.

- **International Economics:**

Students get idea about the basic of trade, theory of trade, balance of payment and problems of adjustment.

- **DSE:**

Students are introduced to the classical political economy, Indian Economic history, money and financial market of India and environmental Economics.

**6<sup>th</sup> Semester:**

- **Basic Econometrics:**

Students are exposed to the basic concepts of econometrics, classical linear regression model-two and three variable case and violations of classical assumptions.

- **Indian Economics:**

- Students get knowledge of economic planning, Indian tax structure during plan period, public sector in India and India's Foreign trade.

- **DSE:**

Students are introduced to economics of growth, urban economics, entrepreneurial economics and a project work based on field survey or from secondary data source.

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<b>Program</b>	<ul style="list-style-type: none"><li>• Students learn about consumer and producers behaviour.</li><li>• Students get knowledge about National income, different concepts.</li></ul>
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# Department of Political Science

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

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

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

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- 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 view on rule of law, and freedom of thought
- Explain Bankim Chandra's views on nationalism.
- Describe Rabindranath Tagore's critique of nationalism.
- Describe Swamy Vivekananda's Ideal society.
- Describe Gandhi's view on Swaraj and trusteeship.
- Describe Ambedkar's view on social justice.

### **CORE PAPER 7 : POLITICAL SOCIOLOGY**

- Explain the nature and scope of Political Sociology
- Describe in detail the basic concepts :
  - 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.

### **OPTIONAL : SKILL ENHANCEMENT PAPER**

#### **1: DEMOCRATIC AWARENESS WITH LEGAL LITERACY**

- 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 rights and 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

#### **2: PUBLIC OPINION AND SURVEY RESEARCH**

- Define Public Opinion
- Measuring Public Opinion:
  - 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

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### **CORE PAPER 8: MODERN WESTERN POLITICAL THOUGHT**

- 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.

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**OPTIONAL : SKILL ENHANCEMENT PAPER**

**1:LEGISLATIVE PRACTICES AND PROCEDURES**

- 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

**2:PEACE AND CONFLICT RESOLUTION**

- 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

**CORE PAPER 11 :WORLD POLITICS: ORGANIZATIONS AND ISSUES**

- Explain Cold War and its major events.
- Describe:
  - 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:
  - a) Development and Environment.
  - b) Human Rights: UNDHR
  - c) Terrorism

**CORE PAPER 12: BASIC THEORIES OF PUBLIC ADMINISTRATION**

- Explain the nature, scope and evolution of Public Administration
- Differentiate between Private and Public Administration.
- Explain the major concepts of organization:
  - (a) Hierarchy,

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- (b) Unity of Command,
- (c) Span of Control,
- (d) Authority,
- (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**

### **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

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	<p>c) Environment.</p> <p><b>4.INDIA’S FOREIGN POLICY IN A GLOBALIZING WORLD</b></p> <ul style="list-style-type: none"> <li>• Discuss India’s Foreign Policy in the era of Globalization emerging Issues viz., Trade, Environment and Terrorism.</li> <li>• Discuss       <ol style="list-style-type: none"> <li>a) India’s Foreign Policy towards her neighbours;</li> <li>b) Recent engagement with Pakistan, Bangladesh and China.</li> <li>c) Emerging trends in Indo- US relations</li> <li>d) Role of Indian Diaspora.</li> <li>e) India’s Foreign Policy in the multipolar world: BRICS.</li> </ol> </li> </ul> <p><b>5.GENDER AND POLITICS IN INDIA</b></p> <ul style="list-style-type: none"> <li>• Conceptualize Gender in Politics Political Participation, policy making and development</li> <li>• Explain the security concern for Women and Third Gender/Transgender</li> <li>• Discuss the issue of the effective participation of Women in Decision making structures with special reference to the issue of Reservation Impact</li> <li>• Explain the concept of Gender Identity with special reference towomen in riot and war.</li> </ul>
<p style="text-align: center;"><b>6<sup>TH</sup></b></p>	<p><b>CORE PAER 13:LOCAL GOVERNMENT IN WEST BENGAL</b></p> <ul style="list-style-type: none"> <li>• Write down the evolution of Rural and Urban local government in West Bengal since independence</li> <li>• Describe thestructure and functions of Panchayati Raj Institutions in the light of the 73rd Constitution (Amendment)Act, 1992.</li> <li>• Describe thestructure and functions of urban local governments under the 74th Constitution (Amendment) Act, 1993and the West Bengal Municipality Act, 1993.</li> <li>• Discuss the issue of local government and empowerment of women, SCs, and STs.</li> <li>• Discuss the State-Local Government Relations: Financial control of the State.</li> </ul> <p><b>CORE PAPER 14 : PROJECT</b></p> <ul style="list-style-type: none"> <li>• Write down a project from within the discipline of Political Science and its allied subjects.</li> </ul> <p><b>DISCIPLINE SPECIFIC ELECTIVE</b></p> <p><b>1.UNDERSTANDING GLOBAL POLITICS</b></p> <ul style="list-style-type: none"> <li>• Explain the evolution of the state system and the concept of sovereignty.</li> </ul>

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- 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

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## Department of History

### Course: B.A. Honours and Program in History

1 <sup>st</sup> and 2 <sup>nd</sup> Semester	<ol style="list-style-type: none"><li>1. A primary understanding of History, its meaning and significance in modern times.</li><li>2. Situating the various events within their respective contexts.</li></ol>
3 <sup>rd</sup> and 4 <sup>th</sup> Semester	<ol style="list-style-type: none"><li>1. Applicability of historical knowledge in the present day society.</li><li>2. Finding the truth amidst a myriad contradictory and conflicting sources</li></ol>
5 <sup>th</sup> and 6 <sup>th</sup> Semester	<ol style="list-style-type: none"><li>1. A comprehensive understanding of the happenings in India and the world from the ancient till the contemporary times.</li><li>2. Adopting an interdisciplinary approach and studying history in conjunction with language, literature and other social sciences.</li></ol>

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# Department of Geography

## Course: B.Sc. Honours and Program in Geography

Semester	COURSE OUTCOME
1 <sup>st</sup> and 2 <sup>nd</sup> Semester	<p>The students will have ability to-</p> <ul style="list-style-type: none"> <li>• Understand the functioning of landform systems in real time and analyse how the natural and anthropogenic operating factors affects the development of landforms.</li> <li>• Distinguish between the mechanisms that control these processes</li> <li>• Asses the role of structure, stage and time in shaping the landforms, interpret geological maps and apply the knowledge in geographical research</li> <li>• Understand the importance of scale in geography</li> <li>• Read and prepare maps, comprehend locational and spatial aspects of the earth surface</li> <li>• Use and importance of maps for regional development and decision making</li> <li>• To know the diversity of changing human and cultural landscape</li> <li>• Understand of population growth and its implications</li> <li>• Understand the diversity of culture</li> <li>• Understand the basics of data collection and sampling</li> <li>• Comprehend the representation and interpretation of the results</li> <li>• Practice results in research.</li> </ul>
3 <sup>rd</sup> and 4 <sup>th</sup> Semester	<ul style="list-style-type: none"> <li>• 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.               <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> </ul> </li> </ul>
5 <sup>th</sup> and 6 <sup>th</sup> Semester	<ul style="list-style-type: none"> <li>• Students will have a clear understanding of the regional geographical approaches of India in general and West Bengal in particular.</li> <li>• They will also be able to find out the relation between geography, environment and human society.</li> </ul>

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- 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.
- 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.

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## Department of Philosophy

### Course: B.A. Honours and Program in Philosophy

1st & 2nd Semester	<ol style="list-style-type: none"><li>1. Some general knowledge of Indian and western philosophy. Vedas, Upanishad, theory of Knowledge, Theory of metaphysics and Ideas.</li><li>2. Some Psychological issues e.g., Consciousness, Memory, Attention.</li></ol>
3rd and 4th Semester	<ol style="list-style-type: none"><li>1. Some ethical concept- Indian and Western. Some Psychological concept, Concept of Religion and relation of Philosophy and Religion.</li><li>2. Some knowledge of socio-political ideas. Some Logical concept -Indian and western, Logical analysis, <i>purusartha</i>.</li></ol>
5th and 6th Semester	<ol style="list-style-type: none"><li>1. Some contemporary issues of Philosophy- Indian and western, Idealism, Definite Description, Ahimsa, Nature of God, Nature of the world, Practical Vedanta.</li><li>2. Some problems of Philosophy- Knowledge, Sense-data, Value of Philosophy, Necessity and application of Philosophy.</li></ol>

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## Department of Sociology

### Course: B.A. Honours and Program in Sociology

1st & 2nd Semester	<ol style="list-style-type: none"><li>1. August Comte definition of sociology, scope and relation with other disciplines</li><li>2. Basic concept like Society-Community- Association, Institutions-Culture&amp; Civilization- -Customs, Folkways &amp; Mores, Law &amp; Deviance, Status &amp; Role.</li><li>3. Social Institutions ;Family, Marriage, Economy, Polity, Religion &amp; Education</li><li>4. Social Groups-Definition-classification of groups -primary &amp; secondary groups, in group and out-group, reference group, quasi group</li><li>5. Herbert Spencer- Social &amp; Intellectual background-Theory of Organic Analogy-Evolution-Types of Society.</li><li>6. Emile Durkheim_ Social &amp; Intellectual background-Theories of: Social fact-Division of Labour –Mechanical &amp; Organic Solidarity-Suicide-Religion</li></ol>
3rd and 4th Semester	<ol style="list-style-type: none"><li>1. Iswar Chandra Vidyasagar: Women’s Education, Abolition of Child marriage, widow remarriages, Abolition of Polygamy.</li><li>2. Rabindranath Tagore: Education views on Nationalism and Internationalism</li><li>3. Swami Vivekananda: Views on Youth, Principles of Morality and Ethics, Understanding of Religion and Ideas of Civilization.</li><li>4. Nature of Indian society</li><li>5. Meaning, Nature and Scope of Sociological Theory</li><li>6. Indian sociologist theory discussed</li></ol>
5th and 6th Semester	<p>Some contemporary issues of sociology discussed like</p> <ol style="list-style-type: none"><li>1. Problem of unemployment and poverty</li><li>2. Problem of communalism</li><li>3. Problem of women and child marriage</li><li>4. Techniques for conducting research in sociology</li></ol>

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## Department of Physics

### Course: B.Sc. Honours and Program in Physics

1 <sup>st</sup> Sem	<p><b>Mathematical methods I:</b> This course will give the students an initial mathematical foundation required for further studies in Physics. They get familiar with techniques for solving problems related to vector algebra, linear algebra, calculus, ordinary and partial differential equations, probability distributions, determinant and matrices.</p> <p><b>Mechanics:</b> Learning this course the students get acquainted with the system of particles under Newtonian mechanics, different types of coordinate systems used for solving problems, concepts about various general properties of bulk matter and also different types of simple harmonic oscillations with and without damping as well as forced oscillations.</p>
2 <sup>nd</sup> Sem	<p><b>Mathematical methods II:</b> Studying this course the students become familiar with different types of special functions, complex variables and special integrals which will help them solving various problems in Physics.</p> <p><b>Electricity and Magnetism:</b> Electricity and Magnetism are not only important for Physics but also for all science disciplines.</p> <p>(i) Knowledge of this topic will help the students of any branch of science to have a good grasp of the functioning of various instruments/equipments used in his/her particular field. Most measuring devices in various scientific branches have electrical and magnetic components.</p> <p>(ii) Students will get an opportunity to become familiar with the concepts of sources of electric and magnetic fields.</p>
1 <sup>st</sup> and 2 <sup>nd</sup> Sem (LAB):	<p>Performing these experiments, the students get hand-to-hand knowledge of the application of various theories of Mechanics and DC current. Programming using C/C++ languages will help them for solving problems in further studies in Physics.</p>
3 <sup>rd</sup> & 4 <sup>th</sup> Sem.	<p>Concepts on classical mechanics, thermal physics, wave optics, electromagnetic theory and electronics. Experimental ideas on thermal physics, optics and electronics. SEC courses in 3<sup>rd</sup> and 4<sup>th</sup> semesters provide hands on training, competencies, skill-based knowledge.</p>
5 <sup>th</sup> & 6 <sup>th</sup> Sem.	<p>Development of knowledge on quantum mechanics, advanced thermal physics, statistical mechanics and condensed matter physics. Specialized knowledge adopted through DSE courses like nuclear and particle physics, atomic physics, applied optics etc. Experimental knowledge on advanced level experiments on quantum physics.</p>

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## Department of Mathematics

### Course: B.Sc. Honours and Program in Mathematics

SEM – I	<p>This course will enable the students to</p> <ol style="list-style-type: none"><li>1. Understand various kinds of standard functions and graphs, techniques of integrations and limits.</li><li>2. Learn about real numbers and its basic properties.</li><li>3. Understand the concepts on three-dimensional geometry.</li><li>4. Understand the genesis of ordinary differential equations.</li><li>5. Understand the various techniques of getting exact solutions of solvable first order differential equations and linear differential equations of higher order.</li><li>6. Understand the importance of roots of real and complex polynomials and learn various methods of obtaining roots.</li><li>7. Employ De Moivre's theorem in a number of applications to solve numerical problems.</li><li>8. Recognize consistent and inconsistent systems of linear equations by the row echelon form of the augmented matrix, using rank.</li><li>9. Find eigen values and corresponding eigen vectors for a square matrix.</li></ol>
SEM – II	<p>This course will enable the students to</p> <ol style="list-style-type: none"><li>1. Learn the Picard's method of obtaining successive approximations of solutions of first order ordinary differential equations.</li><li>2. Know how to solve linear homogeneous and non-homogeneous equations of higher order with constant coefficients.</li><li>3. Understand the system of linear differential equations and the solution techniques.</li><li>4. Learn conceptual differences between usual solution and power series solution of some second order ODEs.</li><li>5. Understand the theory and applications of vector analysis.</li><li>6. Understand many properties of the real line <math>\mathbb{R}</math> and learn to define sequence in terms of functions from <math>\mathbb{R}</math> to a subset of <math>\mathbb{R}</math>.</li><li>7. Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence.</li><li>8. Apply the ratio, root, and alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.</li><li>9. Understand the theory and concepts of Riemann integration.</li><li>10. Understand the applications of the fundamental theorems of integration.</li></ol>
SEM – III & IV	<p>Courses like Vector Analysis, Tensor Analysis, Differential Equations, and Mechanics have main application in other branches of sciences like Physics, Chemistry, Biological Sciences etc.</p>

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SEM – V & VI	<p>This Sem contains some advance courses which helps students to choose a suitable path such that she wants to grow as student of mathematics.</p> <p>Courses like Topology, Functional Analysis motivate students doing research in Pure Mathematics.</p> <p>Courses like Discrete Mathematics, Graph Theory, Computer Programming helps student doing research in the fields of Computer Sciences, Cryptography etc.</p>
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## Department of Chemistry

Course: B.Sc. Honours and Program in Chemistry

<b>B.Sc. (Honours in Chemistry)</b>	<b>1<sup>st</sup> Semester:</b> <ul style="list-style-type: none"><li>• <b>Inorganic:</b> Students learn about the scientific theory of atoms, concept of wave function, elements in periodic table &amp; their physical and chemical characteristics, periodicity, bonding and structure of the molecules, molecular orbital theory of covalent compounds to get a comprehensive idea on these fundamental topics.</li><li>• <b>Organic:</b> Students gain the basic idea about organic chemistry which includes structure, bonding, and nomenclature of the organic molecules and also about the reactivity, intermediates, reaction mechanisms, stereochemistry, and conformational analysis chemistry of aliphatic &amp; aromatic hydrocarbons.</li></ul>
	<b>2<sup>nd</sup> Semester:</b> <ul style="list-style-type: none"><li>• <b>Physical:</b> • Students gain a detailed knowledge about some fundamental topics such as: properties of gas, properties of liquids and properties of solids, ionic equilibrium.</li><li>• <b>Organic:</b> Student gets the idea about substitution reaction, addition reaction, basic use of reaction mechanism, some name reactions and their mechanism, preparation and uses of various classes of organic compounds, organometallic compounds and their use and the use of reagents in various transformation.</li></ul> <b>Practical:</b> <ul style="list-style-type: none"><li>• Students perform the experiments on surface tension and viscosity of liquids. Students get idea about qualitative analysis of organic compound which includes special element detection functional group detection and prepare their suitable derivative.</li></ul>
	<b>3<sup>rd</sup> Semester:</b> <ul style="list-style-type: none"><li>• <b>Inorganic:</b> A detailed study of modern theories of acids and bases, and chemistry of s and p block elements of periodic table will help the students to get a thorough knowledge on these aspects of inorganic chemistry.</li><li>• <b>Physical:</b> Students are introduced to second law of thermodynamics &amp; its application, ionic equilibrium, statistical thermodynamics &amp; third law, fundamental ideas on chemical kinetics and properties on solids.</li><li>• <b>Industrial:</b> In this course students gain knowledge on different fields of industrial chemistry: preparation and uses of some specific inorganic compounds, hardness and treatment of water, knowledge on fire extinguisher, corrosion science, glass, ceramics and refractories.</li></ul> <b>Practical:</b> <ul style="list-style-type: none"><li>• Students perform qualitative detection of some acid and basic radicals to get knowledge and practical experience about the radical analysis.</li><li>• Students perform the experiments on kinetics of decomposition <math>H_2O_2</math>, and solubility</li></ul>

product of sparingly soluble salt.

- Students get acquainted with various name reactions, rearrangement reaction, aromatic nucleophilic substitution reaction and reagents including synthesis and properties of some important class of organic compounds

Students get knowledge and practical experience on quantitative estimation of glucose acetone and aniline.

#### **4<sup>th</sup> Semester:**

- **Inorganic:**

Students thoroughly learn about d and f block elements of periodic table and also gain 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.

- **Physical:**

Students get knowledge on chemical equilibrium, electrochemistry, and extended part of kinetics, interface & dielectrics.

- **Organic:**

Students get knowledge on different classes of organic compounds viz. carbohydrate, nucleic acids, alkaloids and terpenoids. They are also taught heterocyclic compound and alicyclic compounds.

- **Chemistry of cosmetics and perfumes:**

They acquired knowledge on preparation, formulation, use of various cosmetic products.

#### **Practical:**

- Students gets idea about how to identify some organic compound depending on their general reaction.
- Students learn to synthesize few simple, double and complex salts.
- Students perform the experiments on equilibrium constant, conductometric/potentiometric titrations of acid and base .

#### **5<sup>th</sup> Semester:**

**Inorganic:** Students gain basic knowledge about the concepts of redox potential and redox equilibria. This also provides the knowledge of redox titrimetric analysis.

- They are also exposed to the field of organometallic chemistry, role of metal ions in living systems and also some other aspects of Bioinorganic chemistry.

- **Organic:**

Students 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.

#### **DCE :**

- Students are introduced to the sources, effects remedial measures of different aspects of environmental pollution.
- Students are exposed to solid state chemistry. In this course they learn the basic concept of the different lattice structure, their defects, chemical bonding in solid.

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	<p><b><u>Practical:</u></b></p> <ul style="list-style-type: none"> <li>• Students prepare some organic compound and determine the melting point. Students get knowledge and practical experience on quantitative estimation of different metal ions by permanganometry, dichromatometry, iodometry and iodimetry methods of analysis.</li> </ul>
	<p><b>6<sup>th</sup> Semester:</b></p> <p><b>Inorganic:</b></p> <ul style="list-style-type: none"> <li>• A detailed study on crystal field theory and magnetochemistry will help the student to get a thorough knowledge on coordination chemistry.</li> <li>• A comprehensive knowledge is developed by studying the content of the course: analytical chemistry, solvent extraction principle, extraction equilibria etc. and also about complexometric titration. Students also learn about the application in analytical chemistry.</li> <li>• <b>Physical:</b> Students learn phase equilibria &amp; colligative property, quantum chemistry, photochemistry &amp; spectroscopy and symmetry and group theory</li> </ul> <p><b>DCE:</b></p> <ul style="list-style-type: none"> <li>• Students are exposed to newer and modern approaches to dynamic stereochemistry, nano chemistry, quantum chemistry and spectroscopy.</li> </ul> <p><b><u>Practical:</u></b></p> <ul style="list-style-type: none"> <li>• Students get knowledge and practical experience on quantitative estimation of few metal ions by complexometric and gravimetric methods of analysis. They also acquire practical knowledge on solvent extraction process.</li> </ul> <p>Students perform the experiments on kinetics of saponification of ester, verification of Ostwald dilution law and determination of indicator constant of methyl red.</p>
<p><b>B.Sc. Program</b></p>	<ul style="list-style-type: none"> <li>• Students acquire knowledge about the basic and fundamental inorganic and organic chemistry.</li> <li>• A comprehensive knowledge is developed by studying the content of physical chemistry course.</li> <li>• To provide a systemic understanding of chemical analysis, principles and theories and to help the students to understand and grasp things quickly, students gather knowledge by doing hands-on practical experiments on organic functional group detection, inorganic radical determination, titration and estimation of metal salt etc.</li> <li>• Students acquire knowledge on the versatile field of chemistry like various industrial chemistry and their applications, cosmetic chemistry and their various components, analytical chemistry, basic concept of green chemistry, macromolecular or polymer chemistry, advance inorganic chemistry etc.</li> </ul>

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## Department of Computer Science

### Course: B.Sc. Honours and Program 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.

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## 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.

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## Department of Botany

Course: B.Sc. Honours and Program in Botany

<p>1<sup>st</sup> and 2<sup>nd</sup> Semester</p>	<ol style="list-style-type: none"><li>1. Study of Algae, their classification, evolution, variation in structures. Salient features of various classes and life cycles of different genera  Under each class.</li><li>2. Position of Fungi in living system, salient features of fungal classes, Life cycles of different genera, Homothallism, Heterothallism, Parasexuality, economic importance of fungal kingdom.</li><li>3. Plant diseases, concept of parasitism, disease symptoms, defense Mechanism during infection, disease cycles and control measures. Concept of fungal toxin.</li><li>4. Origin and evolution of Bryophyta, classification and life histories of various genera. Concept of gametophyte and sporophyte and their evolution.</li><li>5. Concept and importance of palaeobotany, fossilization, types, Factors, geological time scale, importance of Palaeobotany.</li><li>6. Morphological features of Angiospermic plant organs and Embryological aspect of Angiosperm.</li><li>7. Anatomical nature of plant tissue systems, root stem transition, Primary and secondary growth and their anomalies.</li></ol>
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## Department of Zoology

### Course: B.Sc. Honours and Program in Zoology

SEMESTER – I	<p><b>CORE COURSE I</b> Systematics &amp; diversity of life: Protists to Chordates: Came to knowing the basic concept of biosystematics and procedure in taxonomy. Identified the taxonomic status of the entire non-chordates up to chordates and discuss the evolutionary model of the group. 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. To develop critical understanding how animals changed from a primitive cell to form a complex body plan.</p> <p><b>CORE COURSE II</b> Ecology: 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>
SEMESTER – II	<p><b>CORE COURSE III</b> Comparative anatomy &amp; Physiology of non-chordates: Students are able to develop an understanding of the characters used to classify besides being able to differentiate the organisms belonging to different taxa and gaining knowledge of coordinated functioning of complex human body machine. Realize that very similar physiological mechanisms are used in very diverse organisms. Able to describe the physiology of respiratory, renal, endocrine and reproductive systems to define normal and abnormal functions.</p> <p><b>CORE COURSE IV</b> Cell biology &amp; histology: The course will help the students to develop an understanding of how the cell works and the functioning of various cellular organelles, acquiring knowledge of intricate cellular mechanisms involved. To gain understanding of how tissues are produced from cell in a normal course and about any malfunctioning which may lead to benign or malignant tumor leading to cancerous condition.</p>
SEMESTER – III	<p><b>CORE COURSE V</b> Diversity of chordates: 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><b>CORE COURSE VI</b> Comparative anatomy of vertebrates:</p>

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	<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> <p><b>CORE COURSE VII</b>  Fundamentals of Biochemistry:  Understand the chemical nature of life and life process. Get an idea on structure and functioning of biologically important molecules. Help to explore new developments in biochemistry. Enable the students to illustrate various Biochemical pathways.</p>
<p>SEMESTER – IV</p>	<p><b>CORE COURSE VIII</b>  Cell Biology:  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><b>CORE COURSE IX</b>  Parasitology and immunology:  Provides basic knowledge regarding different types of parasites and host, host – parasite interaction and symptoms, pathogenicity of different parasites. 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> <p><b>CORE COURSE X</b>  Biochemistry of Metabolic Processes:  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>
<p>SEMESTER – V</p>	<p><b>CORE COURSE XI</b>  Molecular biology:  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</p>

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	<p>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><b>CORE COURSE XII</b>          Developmental Biology:          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>
SEMESTER – VI	<p><b>CORE COURSE XIII</b>          Principles of Genetics:          Comprehensive and detailed understanding of the chemical basis of heredity. Understanding about the role of genetics in evolution. The ability to evaluate conclusions that are based on genetic data. The ability to understand results of genetic experimentation in animals.</p> <p><b>CORE COURSE XIV</b>          Evolutionary Biology:          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>

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## Department of Microbiology

### Course: B.Sc. Honours in Microbiology

Semester	Course learning outcome
1st semester	<ol style="list-style-type: none"><li>1. Students develop good knowledge of the development of the discipline of microbiology and the contributions made by prominent scientists in this field.</li><li>2. Students develop a very good understanding of the characteristics of different types of microbes, methods to classify these and basic tools to study these in the laboratory.</li><li>3. Students can explain the useful and harmful activities of the microbes.</li><li>4. Students can perform basic experiments to grow and study microbes in the laboratory</li><li>5. Students acquire a fairly good understanding of the diversity of the microbes.</li><li>6. Students acquire a fairly good understanding of the importance of microbes.</li><li>7. Students acquire practical skills of handling microbes in the laboratory</li></ol>
2 <sup>nd</sup> semester	<ol style="list-style-type: none"><li>1. Students develop a very good understanding of various biomolecules which are required for development and functioning of a bacterial cell.</li><li>2. Students develop how the carbohydrates make the structural and functional components such as energy generation and as storage food molecules for the bacterial cells.</li><li>3. Student become well conversant about multifarious function of proteins, can calculate enzyme activity and other quantitative and qualitative parameters of enzyme kinetics and also get knowledge about lipids and nucleic acids</li><li>4. Students are able to make buffers, study enzyme kinetics and calculate <math>V_{max}</math>, <math>K_m</math>, <math>K_{cat}</math> values.</li><li>5. Students learn the principle which underlies sterilization of culture media, glassware and plastic ware to be used for microbiological work.</li><li>6. Students learn the principles of a number of analytical instruments which they use during the course of study and also later as microbiologist for performing various laboratory manipulations.</li><li>7. Students learn the handling and use of microscopes for the study of microbes which are among the basic skills expected from a practicing microbiologist. They also get introduction of a variety of modifications in the microscopes for specialized viewing.</li><li>8. Students learn several separation techniques which may be required to be handled later as microbiologist.</li></ol>

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3 <sup>rd</sup> semester	<ol style="list-style-type: none"> <li>1. Students learn about microbial growth and effect of environment on microbial growth.</li> <li>2. Students get knowledge about various types of metabolism present in microbes.</li> <li>3. Students are acquainted about structural features and organization of a typical cell.</li> <li>4. Students get an idea about protein sorting and transport within a cell signaling, cell cycle, cell death and cell renewal.</li> <li>5. Students learn about the structure of genetic material, replication, transcription, translation, gene expression and regulation.</li> <li>6. Students understand basic microbiological laboratory practices.</li> <li>7. Students learn to determine microbial quality control in food and water and various microbial food safety standards.</li> </ol>
4 <sup>th</sup> semester	<ol style="list-style-type: none"> <li>1. Students get knowledge about the various habitats of microbes, microbial interaction and biogeochemical cycles.</li> <li>2. Students learn about waste management, microbial bioremediation and can determine water potability.</li> <li>3. Students learn about microbial spoilage of foods, food preservation techniques, fermented foods, food sanitation and control.</li> <li>4. Students get an idea about various industrial microbiological techniques and production of various industrial products involving microorganisms.</li> <li>5. Students acquire knowledge about biofertilizers and biopesticides.</li> </ol>
5 <sup>th</sup> semester	<ol style="list-style-type: none"> <li>1. Students learn about immune cells and organs, antigens and antibodies, various mechanisms of immune system and various immunological techniques.</li> <li>2. Students acquire knowledge about normal micro flora of human body, host pathogen interaction, various microbial diseases and anti-microbial agents.</li> <li>3. Students get a basic idea about various statistical methods, sampling distribution, standard error, testing of hypothesis, level of significance and degree of freedom, large and small sample test.</li> <li>4. Students get introduction to bioinformatics and biological databases.</li> <li>5. Students learn about sequence alignment, phylogeny, phylogenetic trees, genome organization and analysis.</li> <li>6. Students get knowledge about viral transmission, salient features of viral nucleic acid and replication.</li> <li>7. Students are introduced to oncogenic viruses.</li> <li>8. Students learn about practical application of virology.</li> </ol>
6 <sup>th</sup> semester	<ol style="list-style-type: none"> <li>1. Students acquire good knowledge about microbial genome organization and mutation, plasmids, mechanism of gene exchange, transposable elements and phage genetics.</li> <li>2. Students learn to practically isolate plasmid DNA, chromosomal DNA and protein. They also get idea about isolating mutants.</li> </ol>

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	<ol style="list-style-type: none"><li>3. Students get introduction to genetic engineering, various tools, Strategies and methods of molecular cloning and application of recombinant DNA technology.</li><li>4. Students learn about Mendelian principles of Genetics, linkage and crossing over, extra- chromosomal inheritance, characteristics of chromosomes and genetic recombination.</li><li>5. Students get an idea about microbial biotechnology and its application.</li><li>6. Students gain knowledge about therapeutic and industrial biotechnology.</li><li>7. Students learn about microbial products and then recovery, microbes for bio- energy and environment and RNAi</li><li>8. Students are acquainted regarding intellectual property rights.</li><li>9. Students are given an opportunity to visit industries to known the industrial processes involving microbiology</li></ol>
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## Department of Nutrition

### Course: B.Sc. Honours in Nutrition

1 <sup>st</sup> Semester	<p><b>CCI</b> : Introduction and basic knowledge development on community nutrition status, different health programmes, epidemiological term, method, approach, Epidemiology of Nutritional diseases, Community food protection, immunization basics.</p> <p><b>CCII</b>: Fundamentals on biochemical basics, different macro &amp; micro nutrients &amp; water metabolism, Biophysical knowledge on thermodynamics, acid base balance, Enzymes. Electrophoresis, photometry principle, Waste disposal.</p> <p><b>CCII Practical</b>: Qualitative estimation of different nutrients &amp; adulterants. Ph determination, solution preparation of different normality &amp; molarity.</p>
2 <sup>nd</sup> Semester	<p><b>CCIII</b>: Theoretical knowledge on different food commodities, Food groups, their structure, use functions of macro &amp; micro nutrients, role in Nutrition Science, Food standard, food additives. Knowledge on bakery &amp; confectionary.</p> <p><b>CCIV</b>: Nutrition based Physiology of human being to understand Nutrition Science clearly.</p> <p><b>CCIV Practical</b>: Skill development to do Quantification of different micro and macro nutrients in food, qualitative assessment of normal and abnormal constituents in urine. Blood Pressure measurements.</p>
3 <sup>rd</sup> Semester	<p><b>CCV</b>: Knowledge on different nutrition programming, its evaluation method, nutrition management in emergency situation.</p> <p><b>CC VI</b>: Basics information development on Human Nutrition including different form of Malnutrition, Body composition, Minimum Nutrients requirements, RDA, Energy requirement, Growth and development of human and its connection to nutrition.</p> <p><b>CCVII</b>: Theoretical knowledge on fundamental diet therapy &amp; its different aspect, Exchange list concept including different foods groups, socio cultural food habit.</p>

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	<p><b>CCVII Practical:</b> Learning on calculation of Energy, Carbohydrate, Protein, fat requirement in general people, energy distribution in meal &amp; meal planning, Balance sheet preparation.</p> <p><b>SEC I:</b> Preliminary and fundamental knowledge on Child development and growth.</p>
4 <sup>th</sup> Semester	<p><b>CCVIII:</b> Introduction to food microbiology, Food spoilage and contamination, Bacterial food infection, Cultivation of microorganism.</p> <p><b>CCVIII Practical:</b> Ability build up for Preparation of Media, Pure culture of microbiological techniques, Staining of microorganisms, Staining of microorganisms, Microbiological examination of milk.</p> <p><b>CCIX:</b> Knowledge development on Diet Therapy, supplementary feeding, diet classification, Meal &amp; Diet preparation on different age group of different socio economic condition.</p> <p><b>CCIX Practical:</b> Training on Planning and preparations of Meal of different age group of different socio economic condition, Concept on Vegetarian diet.</p> <p><b>CCX:</b> Development of Concept of food preservation &amp; processing, methods and preserved foods.</p> <p><b>CCX Practical:</b> Hands on training on Efficacy testing of the method of Food preservation, Jam &amp; Jelly preparation, Visit to food industry and report preparation.</p> <p><b>SEC II:</b> Capability of Micronutrient analysis of different recopies by Indian Food Composition Table.</p>
5 <sup>th</sup> Semester	<p><b>CCXI:</b> Information of different Non Communicable Disease and Diet therapy on non communicable diseases.</p> <p><b>CCXI Practical:</b> Training on Diet formulation of Obesity, Diabetes, CVD, Kidney disease, Stress.</p> <p><b>CCXII:</b> Fundamental development of knowledge on Research methodology, steps to formulate research, hypothesis.</p> <p><b>CCXII Practical:</b> Review paper formulation on concerned topic.</p>

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	<p><b>DSEI:</b> Internship program in dept of dietetics in hospital, report preparation.</p> <p><b>DSE I Practical:</b> Assignment on Audio Visual presentation on internship program.</p> <p><b>DSE II:</b> Theoretical knowledge on Immunization types, schedules, vaccination.</p> <p><b>DSE II Practical:</b> Assignment program &amp; its report writing an child immunization by survey technique.</p>
6 <sup>th</sup> Semester	<p><b>CCXIII:</b> Basics of different Communicable Diseases and Diet therapy on communicable diseases.</p> <p><b>CCXIII Practical:</b> Training on diet formulation of diarrhoea, cholera, hepatitis, jaundice, malaria, HIV AIDS.</p> <p><b>CCXIV:</b> Knowledge gain on Health statistics, data presentation, central tendency, standard error, standard deviation, test of significance.</p> <p><b>CCXIV Practical:</b> Learning of technique on Graphical presentation of data, Computation of central tendency, Analysis of test of significance, Test of significance analysis.</p> <p><b>DSEIII:</b> Theory based knowledge on Diet counseling, phases, model, barrier, field of employment.</p> <p><b>DSEIII Practical:</b> Practical report presentation &amp; Submission of diet counseling on field based study.</p> <p><b>DSEIV:</b> Knowledge on IEC system, Patient education, patient types &amp; features.</p> <p><b>DSEIV Practical:</b> Practical report presentation &amp; Submission of patient education activities on field based study</p>

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## Department of Commerce

### Course: B.Com. Honours and Program in Accounting

Sem-I	<p>Course Learning Outcomes After completing the course, the student shall be able to understand</p> <ul style="list-style-type: none"><li>• the theoretical framework of accounting and to prepare financial statements CO2: learn the accounting system of Consignment Business , hire purchase transactions and instalment payment system,Sectional and Self Balancing Ledgers and dissolution of a partnership firm in details.</li><li>• basic aspects of contracts for making the agreements, contracts ,legitimate rights and obligations under The Sale of Goods Act, apply their skills to initiate entrepreneurial ventures as LLP, fundamentals of Internet based activities under the Information and Technology Act.</li><li>• the concepts of demand and supply and determination of equilibrium price through the interaction of market forces, analyze different approaches explaining the theoretical foundation of consumer behaviour. concepts of cost, nature of production and its relationship to Business operations, concepts of different market forms and analyse different theories related to determination of factor prices.</li></ul>
Sem-II	<p>Course Learning Outcomes After completing the course, the student shall be able to</p> <ul style="list-style-type: none"><li>• develop an understanding of accounting for share capital and debentures , financial statements of a company, cash flow statements, amalgamation and liquidation of companies and prepare consolidated balance sheet for Holding company.</li><li>• understand the regulatory aspects and the broader procedural aspects of Companies Act 2013 and Rules thereunder, follow the basic legal documents and their usage essential for operations and management of company, equip the students with framework of dividend distribution and role of auditors in a company, comprehend and evaluate working of depositories and their functions in stock markets.</li><li>• describe the nature and scope of Macro Economics, Income, Expenditure and their components and determinants, expose fiscal and monetary policy implications through IS-LM framework in short run and long run, theories of demand for money, supply of money approach and working of money multiplier, elucidate causes and effects of different types of inflation and trade-off between inflation and unemployment, describe the role of saving and investment in different size of economies on trade and exchange rate and rate of interest.</li></ul>

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Sem-III & IV	<ol style="list-style-type: none"> <li>1. Some concepts of Advanced Financial Accounting</li> <li>2. Details of Advanced Cost Accounting</li> <li>3. Basic concepts of History of Accounting</li> <li>4. Basic ideas on E-Commerce</li> <li>5. Some concepts on Business Communication</li> <li>6. General view of Accounting Standards and Auditing</li> <li>7. Management Accounting</li> <li>8. Entrepreneurship Development</li> <li>9. Computer Application in Business</li> </ol>
SemV & VI	<ol style="list-style-type: none"> <li>1. Basic concept Computerized Accounting</li> <li>2. Basic ideas Advanced Corporate Accounting</li> <li>3. Some ideas on theories of Microeconomics</li> <li>4. General view of Business Regulatory Framework</li> <li>5. Ideas on Principles of Management</li> <li>6. Details of Corporate Reporting</li> <li>7. Some ideas on Indian Economy</li> </ol>

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# Department of Political Science

Course: M.A. in Political Science

SEM – I	<p><b>1. MAPOLSC101: INDIAN POLITICAL THOUGHT</b></p> <ul style="list-style-type: none"><li>• Develops insights among students on the relevance of political ideas in ancient, medieval and modern India by exploring the themes, concepts and issues that are integral to the understanding of Political Thought in India.</li><li>• Develops knowledge and expertise on India's tradition of political values and thoughts.</li></ul> <p><b>2. MAPOLSC102: INDIAN GOVERNMENT AND POLIICS SINCE INDEPENDENCE</b></p> <ul style="list-style-type: none"><li>• Develops insights on societal dynamics and their impact on political processes.</li><li>• Identifies specific themes which are significant for the study of politics in India, explores the way in which these themes have acquired salience, and how their changing forms have impacted upon the nature and course of Indian politics.</li><li>• Develops an understanding of how state and politics are informed by social processes and political mobilizations, historically and in contemporary contexts.</li><li>• Imparts understanding of the Constitution of India vis-à-vis the simultaneous political processes.</li></ul> <p><b>3. MAPOLSC103: MODERN WESTERN POLITICAL THOUGHT</b></p> <ul style="list-style-type: none"><li>• Develops an in-depth understanding of ideas and concepts originated from within the Modern Western Political Philosophical Tradition.</li><li>• Helps to be equipped with experiences of the ideas and conceptual acquaintance instigated by several Modern age Western Political Thinkers starting from Machiavelli to Marx.</li></ul> <p><b>4. MAPOLSC104: ADVANCED POLITICAL THEORY</b></p> <ul style="list-style-type: none"><li>• Builds a prior understanding of the nature and value of theoretical inquiry in politics.</li><li>• Develops an understanding of some of the major debates that contemporary political theory is engaged in.</li><li>• Enriches skills of analysis and judgment.</li><li>• The students will be accustomed to the inter-relationship between political practice and political theory.</li></ul> <p><b>5. MAPOLSC105: THEORIES OF COMPARATIVE POLITICS</b></p> <ul style="list-style-type: none"><li>• Develops fundamental grasp over the various theories and</li></ul>
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	<p>explanations specifically some of the major paradigms which have elicited different theories of development, underdevelopment in the study of Comparative Politics.</p> <ul style="list-style-type: none"> <li>• Discerns the Eurocentric bias in the field of comparative politics</li> <li>• Identifies the processes of de-centring which have reconfigured the field in significant ways.</li> </ul>
<p>SEM – II</p>	<p><b>6. MAPOLSC201: THEORIES OF PUBLIC ADMINISTRATION</b></p> <ul style="list-style-type: none"> <li>• Develops a comprehensive albeit in-depth understanding of various theories of organization and models of governance along with the historical development of the discipline of Public Administration and its current trends.</li> <li>• Clarifies what can be the prerequisites for promoting effective and just administration at the local and national levels.</li> </ul> <p><b>7. MAPOLSC202: INDIAN ADMINISTRATION</b></p> <ul style="list-style-type: none"> <li>• Equips the students with the knowledge of the pattern of present administrative system in the Indian federal structure.</li> <li>• Develops understanding of the historical development of Indian Administrative System.</li> </ul> <p><b>8. MAPOLSC203: THEORIES OF INTERNATIONAL RELATIONS</b></p> <ul style="list-style-type: none"> <li>• The students will be able to have knowledge of paradigms, approaches, theories and concepts in the discipline of International Relations along with the historical development of the discipline.</li> </ul> <p><b>9. MAPOLSC204: FOREIGN POLICY ANALYSIS</b></p> <ul style="list-style-type: none"> <li>• The students will be able to be familiar with the foreign policy making process which will enable them to develop certain skills required for various national / international think tanks.</li> </ul> <p><b>10. MAPOLSCMNE205: DYNAMICS OF INDIAN CONSTITUTION</b></p> <ul style="list-style-type: none"> <li>• The course expects to cover the basic structure and the features of the Constitution of India. Hence, the students will be able to have a basic knowledge of the Constitution of India which shall enable them competent for different competitive examinations.</li> </ul>

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SEM – III	<p><b>11. MAPOLSC301: POLITICAL SOCIOLOGY</b></p> <ul style="list-style-type: none"> <li>• Enables the students to study theories and concepts of Political Sociology.</li> <li>• Enables the students to be conversant in conceptual aspects of the discipline of Political Sociology.</li> </ul> <p><b>12. MAPOLSC302: RESEARCH METHODOLOGY</b></p> <ul style="list-style-type: none"> <li>• Equips the students with skills to research on both academic as well as socio-political, socio-economic and socio-cultural issues.</li> </ul> <p><b>13. MAPOLSMJE303: FUNDAMENTAL THOUGHTS IN PUBLIC ADMINISTRATION</b></p> <ul style="list-style-type: none"> <li>• Enables the students to understand the fundamental concepts, ideas and thoughts in the discipline of Public Administration.</li> </ul> <p><b>14. MAPOLSMJE304: CONTENDING ISSUES IN PUBLIC ADMINISTRATION WITH SPECIAL REFERNCE TO INDIA</b></p> <ul style="list-style-type: none"> <li>• The students will be able to learn the fundamental issues, challenges to Public Administration in India.</li> </ul> <p><b>15. MAPOLSMJE305: CONFLICT RESOLUTION AND PEACE STUDIES</b></p> <ul style="list-style-type: none"> <li>• Promotes strategic and critical understanding of issues concerning global peace and security.</li> <li>• Develops knowledge of policies and strategies for minimising conflict in contemporary world order.</li> </ul> <p><b>16. MAPOLSMJE306: INDIAN FOREIGN POLICY</b></p> <ul style="list-style-type: none"> <li>• Develops an understanding of India’s foreign policy making process.</li> <li>• Develops critical mind for assessing India’s relations with neighbours as well as major power countries.</li> </ul> <p><b>17. MAPOLSMNE307: MEDIA AND POLITICS</b></p> <ul style="list-style-type: none"> <li>• Develops skills required for understanding of the reciprocity between mass media and political process and developing expertise in the field of media politics.</li> </ul>
SEM – IV	<p><b>18. MAPOLSC401: STATE POLITICS IN INDIA</b></p> <ul style="list-style-type: none"> <li>• The students would be familiar with the regional variations of political and social issues within the Indian nation-state, social political and economic architecture of Indian</li> </ul>

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federalism beyond its institutional design.

**19. MAPOLSC402: POLITICS OF DEVELOPING SOCIETIES**

- Develops a conceptual understanding of the political processes in the Third World.
- Enables the students to understand different concepts and issues of the Third World.

**20. MAPOLSC403: POLITICS IN SOUTH ASIA**

- Develops an advanced understanding of the various nation states and their stakes and issues in the South Asian region.
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**21. MAPOLSC404: DISSERTATION**

- The students will have an idea of writing research reports.

**22. MAPOLSMJE405: PUBLIC POLICY: CONCEPTS, THEORIES AND PRACTICES IN INDIA**

- Enables to penetrate in the knowledge of policy formulation, policy implementation and policy evaluation.,

**23. MAPOLSMJE406: LOCAL GOVERNMENT WITH SPECIAL REFERNCE TO WEST BENGAL**

- The course intends to delineate onerous understanding of the structures and functions of local government in West Bengal. Hence,the students will be able to build acquaintance of the Panchayati Raj system in West Bengal.

**24. MAPOLSMJE407: CONTEMPORARY ISSUES IN INERNATIONAL RELATIONS**

- Develops expertise in dealing with the challenging issues of international politics.

**25. MAPOLSMJE408: GLOBAL ENVIRONMENTAL POLITICS**

- Develops a rigorous understanding of different environmental issues and their political exposition.

**26. MAPOLSGV409: GRAND VIVA**

- The course delineates the enhancement of presentation skills. Hence, the students will have a sense of presentation and viva voce.

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