COURSE OUTCOMES AND PROGRAMME OUTCOMES

Department of Political Science

B.A POLITICAL SCIENCE:

Programme Outcomes:

After the completion of the programme, a student will be able to:

1. Understand the idea of political theory, its history and an assessment of its critical and contemporary trends.
2. Understand the international relations and contemporary world politics.
3. Equip themselves with the concepts, principles, theories and processes studied in political science, so as to facilitate their career choices and employment.
4. Develop the analytical abilities, observational skills and decision-making facilities of the students so that they will be able to face different challenges of life.

Programme Specific Outcomes:

After the completion of the B.A programme in Political Science students will be oriented to:

1. Understand the basic concepts of political theory, global politics, public administration, comparative politics.
2. Understand various changes in the patterns of political behavior, ideas and structures.
3. Take individual and team responsibility, functions effectively and respectively both as an individual or as a team leader and have the skill to work effectively in multi-disciplinary teams.
4. Develop critical thinking about various political and administrative institutions and their functioning.
5. Develop logical thinking about socio-political and economic issues on the basis of contemporary political discourses.
6. Aware of various rights, legal instruments and their values in protecting individuals and civil society.

Course outcomes:

Sl. No.	SEMESTER	PAPER CODE & TITLE	UNIT/CHAPTETR	COURESE OUTCOMES
1	L	POL HC 1016 Understanding Political Theory	1. Introducing political theory 2. Political theory and practice, 3. The grammar of Democracy	1. To introduce the idea of political theory and various approach. 2. To reconcile theory practice in relation to democracy.
2	l	POL HC 1026 Constitutional Government and Democracy in India	1.The constitutional assembly and the constitution 2.Organs of government 3.Federalism and	1. To acquaint students with constitutional design of state structures and institutions. 2. To understand the conflict in constitutional provisions.

			decentralization	
3	II	POL HC 2016 Political Theory Concepts Debates	1. Importance of freedom 2. Significance of equality 3. Indispensability of justice 4. The universality of rights	1. Understand the various concepts in political theory and appreciate how they can be helpful to analyze crucial political issues. 2. Appreciate how these concepts and debates enrich political life and issues surrounding it.
4	II	POL HC 2026 Political Process in India	1. Political parties and the party system 2. Determinants of voting behavior 3. Regional aspirations 4. Religion and politics 5. Caste and politics 6. Affirmative action policies 7. The changing nature of the Indian state	1. Understand the working of major political institutions of India. 2. Understand the major debates in Indian politics along the axes of caste, gender, region and religion.
5	III	POL HC 3016 Introduction to Comparative Government and Politics	1. Understanding comparative politics 2. Historical context of Modern Government **3.** Themes for comparative analysis	1. To make students understand the basic concepts in comparative politics. 2. To enable students to have a comparative analysis of countries related to the political institutions and behaviour.
6	III	POL HC 3026 Perspectives on Public Administration	1. Public administration as a discipline 2. Theoretical perspectives Classical theories 3. Public policy 4. Major approaches in public administration	1. To enable students to learn the basic concepts related to public administration and its importance. 1. To enable students to have an understanding of public policy and its formulation.
7	III	POL HC 3036 Perspectives on International Relations and World History	1. Studying international relations 2. Theoretical perspectives **3.** An overview of 20th century international relations history, World War II onwards	**1.** To make students understand the key theoretical approaches in international relations **2.** To familiarize students with the evolution of international state systems and its importance.
8	IV	POL HC 4016 Political Processes and Institutions in Comparative Perspective	1. Approaches to studying comparative politics 2. Electoral System 3. Party System 4. Nation- State	1. To understand, comprehend and analyse the complex nature and functioning of the Political systems, Political institutions and corresponding issues to these both in a

			5. Democratization **6.** Federalism	country specific case of India and cross-country perspectives. 2. To demonstrate critical thinking about key issues of Political system of different forms, Political process and public policy.
9	IV	POL HC 4026 Public Policy and Administration in India	1. Public Policy 2. Decentralization 3. Budget	1. Be familiarized with and gain knowledge about the processes of public policy making in India and their significance in administering the state. 2. Develop the ability to assess the functioning of the government and the administration in ensuring a citizen centric welfare administration in India.
10	IV	POL HC 4036 Global Politics	3. Globalization 4. Comparative Global Issues 5. Global Shifts	**1.** To enable students to understand how to approach a wide range of important global Political and economic policy problems and participate in public policy debates on the crucial issues facing the world today. **2.** To have knowledge of the essential theoretical assumptions underlying globalization's conceptual frameworks of the relationships to policy interventions.
11	V	POL HC 5016 Classical Political Philosophy	6. Text and Interpretation 7. Antiquity 8. Interlude 9. Possessive Individualism	1. To interpret ideas underling traditions in classical political philosophy. 2. To appraise the relevance of classical political philosophy.
12	V	POL HC 5026 Indian Political Thought-I	1. Traditions of Pre-Colonial Indian Political Thought 2. Ved Vyas 3. Manu 4. Kautilya 5. Aggannasutta 6. Barani	1. To underline themes and issues in political traditions of pre-colonial India. 2. To evaluate the relevance of political thought of pre-colonial India for contemporary politics.

			7. Abul Fazal 8. Kabir	
13	V	POL HE 5016 Human Rights	1. Introduction to Human Rights 2. Approaches and Perspectives 3. Human Rights and UNO 4. Human Rights and the Role of NGO's	1. To describe the basic concepts of human rights. 2. To describe different measures taken for the protection of human rights.
14	V	POL HC 5046 Select Constitution-I	1. Constitution and Constitutionalism 2. United Kingdom 3. United States of America 4. Comparative study of UK and USA	1. Students will be able to understand the importance of constitutions. 2. Students will be introduced to the various types of constitutions and the forms of governments from different parts of the world.
15	VI	POL HC 6016 Modern Political Philosophy	1. Modernity and its Discourses 2. Romantics 3. Liberal Socialist 4. Radicals	1. To interpret ideas, underline traditions in modern political philosophy. 2. To analyses the debates and arguments of leading political philosophers of different philosophical traditions.
16	VI	POL HC 6026 Indian Political Thought-II	1. Introduction to Modern Indian Political Thought 2. Rammohan Roy 3. Pandita Ramabai 4. Vivekananda 5. Gandhi 6. Ambedkar 7. Tagore 8. Iqbal 9. Savarkar 10. Nehru 11. Lohia	1. To underline themes and issues in political thought modern India. 2. To assess the relevance of political thought of modern India in understanding contemporary politics.
17	VI	POL HE 6016 Human Rights in India	1. Origin and Development Human Rights in India 2. Institution Mechanism for Protection of Human Rights 3. Emerging Issues of Human Rights 4. Human Rights of Vulnerable Groups	1. To describe origin and development of human rights in India. 2. To familiarize the emerging issues related to human rights.
18	VI	POL HC 6046 Select Constitution-II	1. Peoples Republic of China-I 2. Peoples	1. Students will be able to understand the importance of constitutions of different

			RepublicChina-II 3. Switzerland-I 4. Switzerland-II	countries of the world. 2.This paper is an integral part of public services examinations

Programme outcomes, Programme specific outcomes and course outcomes

Department of Education

Programme outcomes:

Generally, the program helps the students to understand the different dimensions of Education. The course explains the Indian and Western schools of Philosophy and their impact on Education. The course also involves understanding the meaning and different perspectives of psychology and different theories of intelligence and personality. The recommendations of the different Education Commissions are included in the course program. It also discusses the contribution of great educators and great philosophers.

Highlight the important programme outcomes as given below…….

PO1: After completion of B.A. the students are acquire knowledge in the field of social sciences, literature and humanities which make them sensitive and sensible enough.

PO2: After B.A. graduate students will be acquainted with the social, economic, historical, geographical, political, ideological and philosophical tradition and thinking.

PO3: The B.A. programme also empowered the graduate students to appear for various competitive examinations like UPSC, APSC, Bank PO, SSC, Railway Requitement Board Examinations etc. and prepare them for post graduate programme of their choice.

PO4: The B.A. programme enables the students to gather the valuable knowledge with human values framing the base to deal with various problems in day-to-day life with courage and humanity.

PO5: After B.A. graduate students will be ignited enough to think and act over for the solution of various issues prevailed in the human life to make this world better than ever. And

PO6: The B.A. programme provides the base to be the responsible citizen

B. Programme Specific outcomes:

The course of Education subject prepares the students for higher studies in Education and Psychology. It is also notable or remarkable that the education subject equips students for various avenues or paths like research work, teaching, competitive examinations like UPSC, APSC, Bank PO, NET, B. Ed etc. However, the subject prepares students for jobs in DIET and B. Ed Colleges. Moreover, the education subject encourages to various teaching strategies like micro-teaching, lesson plans, practice teaching in schools, learning by doing, project work etc. which are integral parts of the syllabus and these are some important essence of teaching skills which will train the students in their future endeavour. And, students will gain a reasonable knowledge of teaching skills and techniques in educational psychology.

A. Course outcomes:(For both Major and Regular Courses under Non CBCS)

Semester: I

1. Principles of education: a. Through this paper students can acquire knowledge of the process of foundation theories of philosophies and principles of education.

b. Through this paper students can gain knowledge about different aims of education.

2. Foundation of educational Psychology: By this paper students able to understanding with scientific principles and theories of education and with the different methods, theories of educational psychology.

Semester: II

1.Development of education in India I and II: Through these paper students can understanding the comparison between ancient and modern education system and its important aspects.

2.Sociological foundation of education: After completion of this course students able to understanding the process of different types of social interaction, and its relevance in education which are organization, culture and social problems in India etc.

Semester III

1.Emerging issues and education: Students will understand various emerging issues in education like Universalization of primary education, literacy programmes, women empowerment, Human Right, integration of globalization, Environmental and Population issues etc.

2.Measurement and Evaluation in Education: Through this paper students will be acquainted with terms of different types of educational measurement and importance of evaluation in the field of education and psychology.

3.Educational Technology: From this particular paper students will get a knowledge with different types of technology and its uses in the field of education and innovation in education through educational technology, computer and innovations of technology.

Semester: IV

1. Educational Technology: After completion of this course students are able to understand about the teaching technology, behavioural technology and instructional technology, also they able to understand about the communication, process, teaching aids, system approach and use of computer and internet in educational technology.
2. Environmental Education and Population Education: After completion of this course these students are able to understand about the concept and importance of environmental education, also make the students aware of environmental stressors and knowledge on disaster management education.

1.Philosophy of Education: Students enable to understanding a knowledge of the relationship between education and philosophical ideas like western philosophy, Indian philosophy and Democracy.

2.Great Educators Thinkers: By this paper students are able to understanding the philosophy of different educational thinkers and their contribution to the present-day educational thought in different aspects of education system.

3.Teacher Education in India: To acquaint the learner with the concept, aims, scope and development of teacher education. Also, they will know about its importance of in-service and pre-service teacher training programmes with different organizations involved in teacher education.

Semester: V

1. Philosophy of Education: After completion of this course the leaner able to understand about the relationship between philosophy and education, also able to know about the three major philosophies of education such as Idealism, Naturalism and Pragmatism.
2. Educational Thinkers- Oriental and Occidental: After completion of this course students able understand about the views of Western and Indian thinkers on aim, curriculum, method of teaching, discipline and role of teacher in teaching learning process.

3. Teacher Education: After completion this course students able to understand about the concept, aims, scope and development of teacher education in India, also able to understand about different policies and practices and quality assurance in Teacher education along with the needs and importance of in-service training programmes.

4.Teaching Learning method and pedagogy: Through this paper students are able to understand about the teaching learning process and its different aspects, principles, maxims of teaching and teaching models and it helps the students to positive attitude towards the teaching profession.

5. Statistic in Education and Psychological practical paper: Students will gain knowledge about the experimental psychology in a laboratory. It is also developed scientific attitude amongst the students, also it can develop amongst students about the different statistical procedures used in Education.

Semester: VI

1.Developmental Psychology: Through this paper students are understanding the concepts of development process of human being which is cover from Infancy to Adolescence period.

2.Continuing education and Distance Education: Students are able to understand the concepts of continuing education and distance education which are very relevance to present changing society.

3.Special Education: From this valuable subject student are enable to understand about the meaning and importance of special education and awareness about the different types of government policies and legislations. It also helps to know about the different issues, education provisions and support services of special education.

4.Guidance and Counselling: Through this subject student will develop knowledge about concepts, types, importance of guidance and counselling in the field of education. And it also helps the students to know about qualities and role of a counsellor.

5.Educational Management and Administration: To enable to understand the basic concepts of management, organization and administration of India.

6.Project Paper: This kind of paper helps the students that, the practical insight about action research which are related with education. And it also helps the student about the basic concept of M. Phil and PhD course.

Under CBCS Course:

Major Programme

Semester: I

1.Principle of Education (Paper code: EDU-HC-1016): After completion of this course students are able to understand about the different Aims of Education, various types of Curriculums, Correlation of Studies and Forms of Discipline.

2. Psychological Foundation of Education (Paper code: EDU-HC-1026): After successfully completion of this course students are able to understand about the relationship between education and psychology. Besides these students are able to understand about the concept of memory, motivation, forgetting, attention and interest and its role in learning.

Semester: II

1.Philosophical and Sociological Foundation of Education (Paper code: EDU-HC-2016): After completion of this course students are able to understanding the process of different types of social

interaction, and its relevance in education which are organization, culture and social problems in India etc.

2. Development of Education in India-I (Paper Code: 2026): Through these paper students can understanding the comparison between ancient and modern education system and its important aspects. Besides these students are able to understand about the Vedic Education system as well as during British period of education system.

Semester: III

1. Development of Education in India-II (Paper code: EDU-HC-3016)

After completion of this course learners are able to understand about the educational situation during the time of Independence, also they are able to understand about the importance of National Policy on Education in different tomes.

2.Educational Technology and Teaching Methods (Paper code: EDU-HC-3026): After completion of this course students are able to understand about the teaching technology, behavioural technology and instructional technology, also they are able to understand about the communication process, teaching aids, system approach and use of computer and internet in educational technology.

3. Value and Peace Education (Paper code: EDU-HC-3036): After completion of this course students are able to understand about the meaning and peace of education and its relevance at national and international level.

Semester: IV

1.Great Educational Thinkers (Paper code: EDU-HC-4016): By this paper students are able to understanding the philosophy of different educational thinkers and their contribution to the present-day educational thought in different aspects of education system.
2. Educational Statistics and Practical (Paper code: EDU-HC-4026): Students will gain knowledge about the experimental psychology in a laboratory. It is also developed scientific attitude amongst the students, also it can develop amongst students about the different statistical procedures used in Education.
3.Emerging issues in Education (Paper Code:EDU-HC-4036): Students will understand various emerging issues in education like Universalization of primary education, literacy programmes, women empowerment, Human Right, integration of globalization, Environmental and Population issues etc.

Semester: V

1. Measurement and Evaluation in Education and Practical (Paper code: EDU-HC-5016) Through this paper students will be acquainted with terms of different types of educational measurement and importance of evaluation in the field of education and psychology.

2. Guidance and Counselling (Paper code: EDU-HC-5026): Through this subject student will develop knowledge about concepts, types, importance of guidance and counselling in the field of education. And it also helps the students to know about qualities and role of a counsellor.

3. Developmental Psychology (Paper code: EDU-HE-5026): Through this paper students are understanding the concepts of development process of human being which is cover from Infancy to Adolescence period.
4. Teacher Education in India (Paper code: EDU-HE-5046): After completion this course students able to understand about the concept, aims, scope and development of teacher education in India, also able to understand about different policies and practices and quality assurance in Teacher education along with the needs and importance of in-service training programmes.

Semester: VI

1. Education and Development (Paper code: EDU-HC-6016): After completion of this course students are able to understand about the relation between education and development, also they are able to understand about the role of education in various field like community and human resource development.
2. Project Work (Paper code: EDU-HC-6026): This kind of paper helps the students that, the practical insight about action research which are related with education. And it also helps the student about the basic concept of M. Phil and PhD course.
3. Mental Health and Hygiene (Paper code: EDU- HE- 6016): After completion of this course students are able to understand about the concept and importance of mental hygiene and its relationship with mental health, also able to understand about the principles, factors promoting mental health and the role of home, school and society in maintaining proper mental health etc.
4. Educational Management (Paper code: EDU-HE-6036): After completion of this course students are enable to understand the basic concepts of management, organization and administration of India.

Regular Course:

Semester: I

1.Foundation of Education (Paper code: EDU-RC-1016): After completion of this course students are able to understand about the different Aims of Education, various types of Curriculums, Correlation of Studies and Forms of Discipline.

Semester: II

2. Psychology of Adolescents (Paper code: EDU-RC-2016): After completion of this course students are able to understand about the period of adolescence, also they are able to understand about the significance of the adolescence period in human life etc.

Semester: III

3.Guidance and Counselling (Paper Code: EDU-RC-3016) After completing this course students are able to understand the challenges faced by the teacher as guidance worker, also they able to know about the concept, need and importance of Guidance and Counselling.

Semester: IV

4. History of Education in India (Paper Code: EDU-RC-4016) After successfully completed this course learners are able to understand about the education system during British Period and understand the educational situation during the time of Independence. Also, they can analyse the National Policy on Education in different tomes.

Semester: V

5. (a) Developmental Psychology (Paper Code: EDU-RE-5026) Students are enable to understand the basic concepts relating to development and acquaint about the heredity and environmental factors affecting pre-natal development etc.

(b) Distance Education (Paper Code EDU-RG-5016) After completing this course learners will be able to understand the concepts of Distance Education and its growth in India and Assam and also, acquaint the growing need and importance of Distance Education.

Semester: VI

a) Mental Health and Hygiene (Paper Code: EDU-RE-6016) After completion of this course students are able to understand about the concept and importance of mental hygiene and its relationship with mental health, also able to understand about the principles, factors promoting mental health and the role of home, school and society in maintaining proper mental health etc.

b) Mental Health and Hygiene (Paper Code: EDU-RG-6016) After successfully completed this course students will be able to acquaint with the fundamentals and development of mental health and the characteristics of a mentally healthy person. Besides this they enable to acquire knowledge about the principles, factors promoting mental health and the role of home, school and society in maintaining proper mental health.

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Programme outcomes, Programme specific outcomes and course outcomes

Department of Chemistry

Programme Outcome:

On successful completion of a B.Sc Programme as designed by Gauhati University, a student will attain-

- Eligibility for enrolment into a Master's programme in science, humanities, business management, or any other allied field.
- Eligibility to apply for Graduate level posts in various Govt. Departments.
- Eligibility to enrol in B. ED Course, a required qualification for appearing in Teachers Eligibility Test (TET) to become Trained Graduate Teacher (Science) at schools in Government and Private Sector.
- Incorporation of a number of skill enhancement and ability enhancement course in the programme will boost employability of students.

Programme Specific Outcome:

B. Sc (Honours) degree in Chemistry will enrich and enable a student to

- Enrol into Masters programme (M.Sc) in Chemistry and thereby set a vision of becoming
  - Researcher at an institute of national/ International repute.
  - Professor at colleges/universities of national/ international repute.
  - Scientist at various National and International laboratories and industries related to dyes, drugs, pesticides, germicides, food technology, leather technology etc.
- Apply for various posts in Govt. petroleum exploration, refining and marketing agencies (such as ONGC, OIL, GAIL, etc), Fertilizer companies, polymer industries, pharmaceutical companies among others
- Work as Chemist in different FMCG, food processing industries.
- Try entrepreneurial skill in developing a start-up in petrochemicals and polymer-based ventures.

Course Outcome (Semester and paper wise course outcome)

BSc Honours Course:

Semester	Paper Code: Paper Name	Course Outcome
I	HC-1016: Inorganic Chemistry-I	• Clear understanding of atomic and molecular structure, periodic properties, chemical bonding, and redox behaviour of chemical species. • Hands on experience of standard solution preparation and volumetric estimation.
	HC-1026: Physical Chemistry-I	• Chemical insight into the structure and properties of different states of matter viz. gaseous, liquid and solid • Basic solid state chemistry application of x-ray crystallography • The students will also learn another important topic "ionic equilibria" in this course.
II	HC-2016 Organic Chemistry-I	• Learn the fundamentals of organic chemistry in regards to classification, nomenclature and reactivity of organic compounds • Analysis of chemical and stereo chemical aspects of organic compounds.
	HC- 2026: Physical Chemistry-II	Students are expected to understand • Various concepts of thermodynamics and thermochemistry, chemical systems from thermodynamic point of view. • Partial molar quantities, chemical equilibrium, solutions and colligative properties.
III	HC-3016 Inorganic Chemistry-I	Students will be able to • Apply theoretical principles of redox chemistry in the understanding of metallurgical processes. • Identify the variety of s and p block compounds and comprehend their preparation, structure, bonding, properties and uses. • Experiments in this course will boost their quantitative estimation skills and introduce the students to preparative methods in inorganic chemistry.
	CHE-HC-3026 Organic Chemistry II	• Students will be able to describe and classify organic compounds in terms of their functional groups and reactivity.
	CHE-HC-3036 Physical Chemistry - III	The students are expected to learn • Phase rule and its application in some specific systems. • Laws of chemical transformation • Experimental methods of rate law determination, steady state approximation • Different types of surface adsorption processes • Basics of catalysis including enzyme catalysis, acid base catalysis and particle size effect on catalysis.

	CHE-SE-3034 Basic Analytical Chemistry	Upon completion of this course, students shall be able to • Explain the basic principles of chemical analysis • Design/implement microscale and semimicro experiments • Analyze data following scientific methodology.
IV	HC-4016 Inorganic Chemistry III	On successful completion, students will learn- • IUPAC name, bonding, properties and reactivity of coordination compounds • General trends in the properties of transition elements in the periodic table. • To prepare, estimate or separate metal complexes
	HC-4026 Organic Chemistry III	Students shall be able to • Identify and classify different types of N-based derivatives, alkaloids and hetrocyclic compounds/ • Explain their structure mechanism and reactivity/critically examine their synthesis and reactions mechanism.
	HC-4036 Physical Chemistry-IV	In this course the students will learn • Theories of conductance and electrochemistry. • Solubility and solubility products, ionic products of water, conductometric titrations etc. • Various parts of electrochemical cells along with Faraday's Laws of electrolysis • Electrical & magnetic properties of atoms and molecules.
	CHE-SE-4064: Fuel Chemistry	At the end of this course students will learn about • The classes of renewable and non-renewable energy sources. • Composition of coal and crude petroleum, their classification, • Isolation of coal and petroleum products and their usage in various industries. • Determine industrially significant physical parameters for fuels and lubricants.
V	CHE-HC-5016 Organic Chemistry IV	Students will be able to • Explain the important features of nucleic acids, amino acids and enzymes • Examine their properties and applications.
	CHE-HC-5026 Physical Chemistry-V	After completion of this course the students are expected to • Understand the application of quantum mechanics in some simple chemical systems such as hydrogen atom or hydrogen like ions. • Learn chemical bonding in some simple molecular systems. • Understand the basics of various kinds of spectroscopic techniques and photochemistry
	CHE-HE-5026 Analytical Methods in Chemistry	On successful completion students will • Have theoretical understanding about choice of various analytical techniques used for qualitative and quantitative characterization of samples. • Gain hands on experience of the discussed techniques. This will

		enable students to take judicious decisions while analyzing different samples.
	CHE-HE-5056 Polymer Chemistry	After completion of this course the students will learn • The definition and classifications of polymers, kinetics of polymerization, molecular weight of polymers, glass transition temperature, and polymer solutions etc. • Preparation, structure and properties of some industrially important and technologically promising polymers.
VI	CHE-HC-6016 Inorganic Chemistry-IV	By studying this course, the students will learn about • Ligand substitution and redox reactions in coordination complexes. • Organometallic compounds, their bonding, stability, reactivity and uses. • The variety of catalysts based on transition metals and their application in industry. • The use of concepts like solubility product, common ion effect, pH etc. in analysis of ions
	CHE- HC-6026 Organic Chemistry-V	Students will be able to • Explain basic principles of different spectroscopic techniques and their importance in chemical/organic analysis. • Classify/identify/critically examine carbohydrates, polymers and dye materials.
	CHE-HE-6026 Industrial Chemicals and Environment	After successful completion of the course, students would have learnt about • The manufacture, applications and safe ways of storage and handling gaseous and inorganic industrial chemicals. • Industrial metallurgy and the energy generation industry. • Environmental pollution by various gaseous, liquid wastes and nuclear wastes and their effects on living beings. • Industrial waste management, their safe disposal and the importance of environment friendly “green chemistry” in chemical industry.
	CHE-HE-6056 Dissertation	Students complete a project work and then prepare a report on that. By this, students are introduced to the arena of chemical research.

BSc Regular Course:

Semester	**Paper Code: Paper Name**	**Course Outcome**
I	CHE-HG/RC-1016	After completion of this course the students will learn • The atomic structure through the basic concepts of quantum mechanics. • Chemical bonding through VB and MO approaches. • Basic ideas used in organic chemistry, stereochemistry, functional groups, alkanes, alkenes, alkynes etc

II	CHE-HG/RC-2016	After completion of this course the students will learn • Periodic properties in main group elements, transition metals (3d series). • The crystal field theory in coordination chemistry • Kinetic theory of gases, ideal gas and real gases, surface tension, viscosity, basic solid-state chemistry and chemical kinetics.
III	CHE-HG/RC 3016	• Chemical system from thermodynamic points of view. • Chemical equilibrium and ionic equilibrium. • Various classes of organic molecules-alkyl halides, aryl halides, alcohols, phenols, ethers, aldehydes and ketones
	CHE-SE-3034: Basic Analytical Chemistry	Upon completion of this course, students shall be able to • Explain the basic principles of chemical analysis • Design/implement microscale and semimicro experiments analyse data following scientific methodology.
IV	CHE-HG/RC-4016	After completion of this course the students learn • Solutions, phase rule and its application in specific cases, • Basics of conductance and electrochemistry. • Some important topics of carboxylic acids, amines, amino acids, peptides, proteins and carbohydrates.
	CHE-SE-4034: Pharmaceutical Chemistry	Students will be able to • Appreciate the drug development process, • Identify various small molecules used for treatments different ailments and other physiological processes.
V	CHE-RE-5056 Polymer Chemistry	After completion of this course the students will learn • The definition and classifications of polymers, kinetics of polymerization, molecular weight of polymers, glass transition temperature, and polymer solutions etc. • Preparation, structure and properties of some industrially important and technologically promising polymers. • Introduction and history of polymer
	CHE-SE-5014: Chemical Technology & Society	Students shall be familiarized with • Processes and terminologies in chemical industry, like mass balance, energy balance etc • Chemical and scientific literacy as a means to better understand the topics related to the society.
	CHE-RE-6026: Industrial Chemicals and Environment	After completion of the course, students would learn about • The manufacture, applications and safe ways of storage and handling gaseous and inorganic industrial chemicals. • Industrial metallurgy and the energy generation industry. • Environmental pollution by various gaseous, liquid wastes and nuclear wastes and their effects on living beings. • Industrial waste management, their safe disposal and the importance of environment friendly “green chemistry” in chemical industry.

VI	CHE-SE-6034: Fuel Chemistry	At the end of this course students will learn about • The classes of renewable and non-renewable energy sources. • The composition of coal and crude petroleum, their classification, isolation of coal and petroleum products and their usage in various industries. • Determination of industrially significant physical parameters for fuels and lubricants.

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Program Outcomes, Program Specific Outcomes and Course Outcomes
Department of Zoology, SBMS College, Sualkuchi

All courses are focused to increase students' knowledge and critical thinking in accordance to the syllabus and curriculum prescribed by the affiliating university i.e. Gauhati University, Guwahati. The programme outcomes, programme specific outcomes and course outcomes are mainly the subject of the affiliating university. However, for communication with all the stakeholders these are the important points.

B.Sc in Zoology (CBCS Course)	
Programme Outcome	The BSc. Zoology programme is prepared to help the students: 1. To gain basic knowledge of various disciplines of Zoology and General biology and develop skill over animal sciences, understands the interactions among various living organisms. 2. To make them understand the rich diversity of organisms and their ecological significances as NE India being the HUB of Biodiversity. 4. To acquire basic skills in the observation and study of nature, biological techniques, experimental skills and scientific investigation in zoology. 5. To impart awareness for the conservation of the environment and nature. 6. To make understand the complex evolutionary processes and behavioural pattern of various animals. 7. Students are able to correlate the physiological and biochemical processes of animals.
Programme Specific Outcome	As a result of completion of the course, the students will be able to understand ecological factors, environmental conservation processes and its importance in pollution control and protection of threatened species. They will be able to explain physiological and biochemical activities of human beings and its impact on bodies. They will gain knowledge about applied fields of zoology like sericulture, fisheries, apiculture, poultry and dairy farms along with tissue preparation, molecular and statistical techniques. They will understand about various concepts of genetics and its importance in human health. They will be able to apply such knowledge in the practical fields. The students will be able to identify socio-economic animals & it's beneficial effects to human. They will obtain knowledge in wildlife and can choose Wildlife Tourism as a career.

Semester	**Paper**	**Course Outcome (COs)**
Major Course		
	Zoo-HC-1016 (**Theory) Non-Chordates I: Protista to Pseudo coelomates**	• To give a thorough knowledge how to classify according to their characters of Non chordates • To give a brief description on life cycle and pathogenicity of Protozoan and Helminth parasites. • Importance of evolutionary significance
	Zoo-HC-1016 (Practical)	• To know the diversity in non-chordates and their systematic position by observing museum specimens. • To study life cycle of different species through slides or

1st Semester		photographs
	Zoo-HC-1026 **(Theory)** **Principles of Ecology**	• To create basic knowledge on Ecology • To understand the unique and group attributes of population • To give an idea on Gause's Principle with laboratory and field examples for population interaction • To know the impact of community characteristics on ecological succession • To make aware of importance of wildlife conservation and management
	Zoo-HC-1026 (Practical)	• To study life tables and survivorship curves from data provided • Study of different parameters of aquatic ecosystem • To get a knowledge and observation on our National Park, Biodiversity Park, Wildlife Sanctuary etc.
2nd Semester	Zoo-HC-2016 **(Theory) Non-Chordates II: Coelomates**	• To give a thorough knowledge how to classify according to their characters of Non chordates (Coelomates) • To give a brief understanding on social insects • Importance of evolutionary significance
	Zoo-HC-2016 (Practical)	• To know the diversity in non-chordates and their systematic position by observing museum specimens. • To understand organs through permanent slides • To prepare a project report on any topic related to course
	Zoo-HC-2026 (**Theory) Cell Biology**	• To emphasize the role of Cell biology, the most developing areas of biological science. • To make aware of different cell organelles, their structure and role in living organisms
	Zoo-HC-2026 Practical	• To prepare and study various stages of meiosis cell division • To study the presence of Barrbody in human female.
3rd Semester	Zoo-HC-3016 (**Theory**) **Diversity of Chordates**	• To give a thorough knowledge on classification and their characters of Chordates • To give a brief description on Archaeopteryx- a connecting link. • To focus on adaptative radiation of birds and mammals. • To study the distribution of vertebrates in different geographical realms.
	Zoo-HC-3016 Practical	• To know the diversity in chordates and their systematic position by observing museum specimens. • To understand organs through permanent slides • To prepare a power point presentation on any topic related to course
	Zoo-HC-3026 (**Theory) Physiology: Controlling and Coordinating System**	• To create knowledge regarding internal system of chordates • To impart knowledge about the controlling and coordinating systems of animals • To gain knowledge on signal transduction pathways of hormones

	Zoo-HC-3026 Practical	• To acquire knowledge about various tissues by preparing permanent slides • To study various endocrine glands by observing slides
	Zoo-HC-3036 **(Theory) Fundamentals of Biochemistry**	• This course will provide students with a deep knowledge in biochemistry. • Defining and explaining the basic principles of biochemistry studies for illustrating different their structure, function and metabolism.
	Zoo-HC-3036 Practical	• To impart idea on functional group of various biomolecules • To know the action of pH, temperature on salivary amylase • To know the separation technique of amino acid using paper chromatography
4^{th} Semester	Zoo-HC-4016 **(Theory) Comparative anatomy of Vertebrate**	• This course will provide students with a deep knowledge in physiology. • Explaining various aspects of physiological activities of animals should be familiar with physiological systems in vertebrate systems.
	Zoo-HC-4016 Practical	• Through sharing of video recording documents students will be acquainted with different organs of human body • Demonstration of skeletal systems of different vertebrates
	Zoo-HC-4026 (**Theory) Physiology Life sustaining System**	• This course will provide a deep knowledge in physiology. • By the end of the course, students should be familiar with physiological systems in chordates.
	Zoo-HC-4026 Practical	• Gain knowledge of determination of blood groups. • To create knowledge regarding total count of RBCs and WBCs of chordates. • To gain the knowledge f haemin crystal formation of blood • To make the student observe the histological structure of different organs in vertebrate.
	Zoo-HC-4036 (**Theory) Biochemistry of Metabolic process**	• This course will provide students with a deep knowledge in biochemistry of metabolic processes. • Defining and explaining the structure, function and metabolism of protein, carbohydrate and lipid students will get knowledge the role of biomolecules in the body.
	Zoo-HC-4036 Practical	• The course will make available to understand of detection and estimation of protein by Lowry's method • The course will provide how to perform the acid and alkaline phosphate assay from serum.
	Zoo-HC-5016 (**Theory)** **Molecular biology**	• To impart knowledge about the DNA replication in prokaryotes and eukaryotes. • To create knowledge about the salient feature of DNA and RNA • To gain knowledge on gene regulation • To create knowledge about the concept of genetic code • To understand the process of protein synthesis

5th Semester	Zoo-HC-5016 Practical	• To gain knowledge on quantitative estimation of DNA and RNA • To study the polytene chromosomes from Chironomus larva • To estimate growth kinetics of E. coli. By turbidity method
	Zoo-HC-5026 (**Theory) Principles of Genetics**	• To emphasize the central role of genetics in the life of all organisms • To study the concept of chromosomal mechanisms of sex determination in man and drosophila • To know the various techniques adopted for recombination in bacteria and virus.
	Zoo-HC-5026 Practical	• To study human karyotype and pedigree analysis of human inherited traits • To study the Mendelian laws and gene interactions.
	Zoo-HE-5016 **(Theory) Computational Biology and Biostatistics**	• To inspire the students in learning the scope of bioinformatics • To update and expand basic Biostatics skills. • To equip with the knowledge of modern developments and recent trends in biological sciences
	Zoo-HE-5016 Practical	• To access the biological databases and interprete the output. • To learn graphical representation of statistical data with the help of computer
	Zoo-HE-5046 (**Theory) Parasitology**	• The course will provide the information about the parasitic Protists, parasitic platyhelminths, parasitic nematodes, parasitic arthropods and parasitic vertebrates.
	Zoo-HE-5046 Practical	• Through practical demonstration the students will make aware of life cycle of various parasites and their effect on human and other poultry birds
6th Semester	Zoo-HC-6016 (**Theory) Developmental Biology**	• To impart knowledge about historical perspective of cytoplasmic development • To create knowledge about cell- cell interaction • To gain knowledge on implantation of human embryo • To create knowledge about the agents affecting embryonic development • To emphasize the hormonal regulation on development
	Zoo-HC-6016 Practical	• To acquire knowledge about various developmental stages of frog and chick embryo through permanent slides and life cycle.
	Zoo-HC-6026 **(Theory) Evolutionary Biology**	• This course will provide students with a deep knowledge on evolutionary concept • Students will acquire a broad understanding of microevolution and species concept • Gain knowledge of origin and evolution of man and horse and also about the primate phylogeny
	Zoo-HC-6026 Practical	• Students will learn homology and analogy of specimens, fossils from models etc. • Through different bioinformatic tools students will learn to construct the phylogenetic trees of a given trait.

	Zoo-HE-6016 **(Theory)** **Biology of Insect**	• To learn about the insect taxonomy, morphology and physiology • To Study global environmental problems and its impact on the social insects. • To learn the insects around us as mechanical and biological vectors, the role of chemicals in host plant interaction
	Zoo-HE-6016 Practical	• To learn about body parts of insect • To learn the methods of collection, preservation and identification of different insects. • To study the insects around us as harmful and beneficial and their products
	Zoo-HE-6046 (Theory) **Wildlife Conservation and management**	• This course will provide students with a deep knowledge in values of wildlife, their conservation ethics and importance of conservation of wildlife, importance of National Park and Sanctuaries etc. • To study population attributes and relation to their habitat
	Zoo-HE-6046 Practical	• The course is designed to make aware about the wild mammalian fauna, avian fauna, herpeto- fauna etc. Students will get interested to know the study of animal evidences in field by observing pugmarks, hoofmarks, nest, antlers etc. They will be given the knowledge of different equipment's needed in wildlife studies.
Generic/Regular Course		
	Zoo-HG/RC-1016 **(Theory)** **Animal Diversity**	• To give a thorough knowledge how to classify according to their characters of Non chordates • To give a brief description on life cycle and pathogenicity of Protozoan and Helminth parasites. Importance of evolutionary significance • To give a thorough knowledge how to classify according to their characters of Non chordates (Coelomates) • To give a brief understanding on social insects and importance of evolutionary significance of peripatus
	Zoo-HG/RC-1016 Practical	• To know the diversity in non-chordates and their systematic position by observing museum specimens. • To study life cycle of different species through slides or photographs
	Zoo-HG/RC-2016 **(Theory)** **Comparative anatomy and Developmental Biology of Vertebrates**	• This course will provide students with a deep knowledge in physiology. • Explaining various aspects of physiological activities of animals should be familiar with physiological systems in vertebrate systems. • To impart knowledge about historical perspective of cytoplasmic development • To create knowledge about cell- cell interaction • To gain knowledge on implantation of human embryo • To create knowledge about the agents affecting embryonic development • To emphasize the hormonal regulation on development
	Zoo-HG/RC-2016 Practical	• Through video recording students will be acquainted with different organs of human body

		• Demonstration of skeletal systems of different vertebrates • To acquire knowledge about various developmental stages of frog and chick embryo through permanent slides and life cycle.
	Zoo-HG/RC-3016 **(Theory)** **Physiology and Biochemistry**	• To create knowledge regarding internal system of chordates • To impart knowledge about the controlling and coordinating systems of animals • To gain knowledge on signal transduction pathways of hormones • This course will provide students with a deep knowledge in biochemistry. • Defining and explaining the basic principles of biochemistry studies for illustrating different their structure, function and metabolism.
	Zoo-HG/RC-3016 Practical	• To acquire knowledge about various tissues by preparing permanent slides • To study various endocrine glands by observing slides • To impart idea on functional group of various biomolecules • To know the action of pH, temperature on salivary amylase
	Zoo-HG/RC-4016 **(Theory)** **Genetics and Evolutionary Biology**	• To emphasize the central role of genetics in the life of all organisms • To study the concept of chromosomal mechanisms of sex determination in man and drosophila • To know the various techniques adopted for recombination in bacteria and virus. • This course will provide students with a deep knowledge on evolutionary concept • Students will acquire a broad understanding of microevolution and species concept • Gain knowledge of origin and evolution of man and horse and also about the primate phylogeny
	Zoo-HG/RC-4016 Practical	• To study human karyotype and pedigree analysis of human inherited traits • To study the Mendelian laws and gene interactions • Students will learn homology and analogy of specimens, fossils from models etc. • Through different bioinformatic tools students will learn to construct the phylogenetic trees of a given trait.
	Zoo-RE-5016 **(Theory)** **Applied Zoology**	This course will provide students with a deep knowledge in Parasitic world, host parasite relation and also epidemic disease. Students will know about the insects of economic importance. They will also gain the knowledge on poultry farming, aquaculture and also preservation and insemination in cattle.
	Zoo-RE-5016 Practical	Students will be able to identify different parasitic species, vectors etc. By visiting poultry farm, animal breeding centre, fish culture system they will understand the importance of these in practical life.

	Zoo-RE-6016 **(Theory)** **Aquatic Biology**	The course will provide the information about the aquatic biology of freshwater ecosystem as well as marine biology. Students will learn about the management of aquatic resources, factors affecting their environment, causes of pollution.
	Zoo-RE-6016 Practical	Students will be able to identify the phytoplankton, zooplankton and macrophytes. They will gain knowledge about the use of limnological instruments and their importance in determination of BOD and dissolved oxygen of water bodies.

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Program Outcomes, Program Specific Outcomes and Course Outcomes
Department of Economics, SBMS College, Sualkuchi

Semester	Paper	Course Outcome	Program outcome	Program Specific Outcome
1st Semester	Eco-HC-1016(Core Course-I) Introductory Microeconomics	Expose the students to the basic principles of Microeconomic theory	Students ascertain full intellectual maturity in their graduation	The emphasis will be on thinking like an economist and the course will illustrate how economic concept can be applied to analyses real life situation
	Eco-HC-1026(Core Course-II)Mathematical Methods for Economics	It provides Knowledge of Basic Mathematics that enables the study of economic theory at the undergraduate level.		
	Eco-HG-1016(Generic Elective) Fundamentals of Microeconomics.	Expose the students to the basic principles of Microeconomic theory		
2nd Semester	Eco-HC-2016(Core Course-III) Introductory Macroeconomics	It provides concepts associated with determination and measurement of aggregate macroeconomic variables.		
	Eco-HC-2026(Core Course-IV) Mathematical Methods for Economics-II	It provides Knowledge of Mathematics that enables the study of economic theory at the undergraduate level		

	Eco-HG-2016(Generic Elective) Micro Economic Theory	Expose the students to the basic principles of Microeconomic theory.	Students ascertain full intellectual maturity in their graduation level	The emphasis will be on thinking like an economist and the course will illustrate how economic concept can be applied to analyse real life situation
3rd Semester	Eco-HC-3016(Core Course-V) Intermediate Microeconomics-I	It provides a sound training in Microeconomic Theory and practice.		
	Eco-HC-3026(Core Course-VI) Intermediate Macroeconomics-I	It emphasis more on concepts associated with application of macroeconomic theory and practices.		
	Eco-HC-3036(Core Course- VII) Statistical Methods for Economics	It provides statistical knowledge and application of statistical tools in economics.		
	Eco-SE-3014(SEC-I) Data Collection and Presentation	It provides the knowledge on the use of statistical tools to analyse data.		
	Eco-HG-3016(Generic Elective) Fundamentals of Macroeconomics.	It provides concepts of basic macroeconomic theory and practices.		
4th Semester	Eco-HC-4016(Core Course- VIII) Intermediate Microeconomics-II	It provides the micro foundations to the various aggregative concepts used in the previous course.		
	Eco-HC-4026(Core Course-IX) Intermediate	It provides the macro foundations to the		

	macroeconomics -II	various aggregative concepts used in the previous course.		
	Eco-HC-4036(Core Course-X) Introductory Econometrics.	It provides a comprehensive econometric concepts and techniques for quantitative analysis of economic theory.	Students ascertain full intellectual maturity in their graduation level	The emphasis will be on thinking like an economist and the course will illustrate how economic concept can be applied to analyse real life situation
	Eco-SE-4014(SEC-II) Data analysis	It provides the knowledge on the use of statistical tools to analyse data.		
	Eco-HG-4016(GE) Macroeconomic Theory	It provides concepts of advanced macroeconomic theory and practices.		
5th Semester	Eco-HC-5016(Core Course-XI) Indian Economics-I	It provides major trends in economic indicators and policy debates in India in the post independent period.		
	Eco-HC-5026(Core Course-XII) Development Economics-I	Acquire knowledge on economic growth and development		
	Eco-HE-5026(HE) Money and Financial Market	It provides knowledge on money and financial market, specially of stock market.		
	Eco-HE-5036(HE) Public Finance	It provides Knowledge on public finance and fiscal policy		

	Eco-RE-5016(RE) Economic Development and policy In India.	It Provides knowledge of major trends on aggregate economic indicators.		
6th Semester	ECO-HC-6016(Core Course- XIII) Indian Economics-II	It provides major trends in economic indicators and policy debates in India in the post independent period.		
	ECO-HC-6026(Core Course) Development Economics -II	Acquire knowledge on economic growth and development.		
	Eco-HE-6016(HE) Environmental Economics.	It provides knowledge on Economic causes of Environmental problems and solutions and also economic implications of environmental policies.		
	Eco-HE-6026(HE) International Economics	It provides knowledge on international trade and policies and theories.		
	ECO-RE-6016(RE) Economic development and policy in India-II.	It Provides knowledge of major trends on aggregate economic indicators. It also examines sector specific trends in key indicators of Indian Economic Development		

Programme outcomes, Programme specific outcomes and course outcomes

Department of Computer Science

PROGRAMME SPECIFIC OUTCOMES:

Programme Outcome: Bachelor of Computer Applications

Students, who choose BCA Programme, develop the ability to think critically, logically, analytically and to use and apply current technical concepts and practices in the core development of solutions in the form of Information technology. The knowledge and skills gained with a degree in Computer Science prepare graduates for a broad range of jobs in education, research, government sector, business sector and industry. The program covers the various essential concepts in Computer Science. The course lays a structured foundation of Computer fundamentals, Numerical methods, Data structure, Algorithm and Complexity analysis, Software Engineering, Programming Concepts in various languages (C, C++, Java etc.), Computer Networking, System Administration, Operating System, Computer Architecture, Microprocessor, Web technology, Computer Graphics and Database management system etc. An exceptionally broad range of topics covering current trends and technologies in computer science: Advanced web technology, Mobile application, Animation, Data mining etc. Also, to carry out the hand on sessions in Computer lab using various Programming languages and tools to have a deep conceptual understanding of the topics to widen the horizon of students' self-experience.

The completion of the BCA Programme shall enable a student to:

1. To communicate technical information both orally and in writing
2. Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
3. To learn and develop sophisticated technical products independently.
4. To design, implement, and evaluate computer-based system, process, and component.
5. Program to meet desired needs by critical understanding, analysis and synthesis.
6. Identify applications of Computer Science in other fields in the real world to enhance the career prospects
8. Realize the requirement of lifelong learning through continued education and research.
9. Use the concepts of best practices and standards to develop user interactive and abstract application
10. Understand the professional, ethical, legal, security, social issues and responsibilities.

Program Objectives

The Department of Computer Science achieves its mission by pursuing the following objectives:

-To teach students how to apply the principles of computer science, mathematics and scientific investigation to solve real-world problems appropriate to the discipline.

-To teach students lifelong learning skills, which will allow them to successfully adapt to evolving technologies throughout their professional careers.

-To prepare students for employment and advanced studies, and provide them with significant experiences in complex software development for real-world problems.

-To teach students effective teamwork, communication and interpersonal skills that enable them to work with others effectively in their professional careers.

-To prepare students to function ethically and responsibly, and to be conscious of ethical, social, global, legal, security and professional issues related to computing.

	SL NO	CORE SUBJECT	PROGRAM OUTCOME	SPECIFIC OUTCOME
Semester 1	1	C1: BCA-HC-1016 Introduction to C programming	1. Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2. Start own business in web development and software development and Hardware. 3. Develop different web and windows-based applications. 4. Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently. iii) To design, implement, and evaluate computer-based system, process, component, or program to meet desired needs by critical understanding, analysis and synthesis.
	2	C2: BCA-HC-1026 Computer Fundamentals & ICT Hardware	1. Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2. Start own business in web development and software development and Hardware. 3. Develop different web and windows-based applications.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	3	GE 1B: BCA-HG-1026: Office Automation	1. Students are eligible to apply for jobs in various companies, industries, banks, Govt office.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	4	C4: BCA-HC-2026 Digital Logic Fundamentals	1. Students are eligible to apply for jobs in various companies, industries, banks, Govt office.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge

				gained in core courses to a broad range of advanced topics in computer.
	5	(English Communication) ENG-AE-1014/	1. Students are eligible to apply for jobs in various companies, industries, banks, Govt office.	i) To communicate technical information both orally and in writing.
	6	Environmental Science ENV-AE-1024	1. Students are eligible to apply for jobs in various companies, industries, banks, Govt office.	i) To communicate technical information both orally and in writing.
Semester 2	1	C3: BCA-HC-2016 Mathematics –I	1. Students are eligible to apply for jobs in various companies, industries, banks, Govt office.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in mathematics
	2	C4: BCA-HC-2026 Digital Logic Fundamentals	1. Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2. Start own business in web development and software development and Hardware. 3. Develop different web and windows-based applications.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	3	GE 2B: BCA-HG-2026: Introduction to Bio-Informatics	1. Students are eligible to apply for jobs in various companies, industries, banks, Govt office.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
Semester 3	1	C5: BCA-HC-3016 Software Engineering	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Start own business in web development and software development and Hardware. 3.Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	2	C6: BCA-HC-3026 Data Structure and Algorithms	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Start own business in web development and software development and Hardware. 3.Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.

	3	C7: BCA-HC-3036 Database Management System	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Start own business in web development and software development and Hardware. 3.Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	4	SEC-1A: BCA-SE-3014: Web Technology	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Start own business in web development and software development and Hardware. 3.Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	5	GE 3A: BCA-HG-3016: Introduction to Indian History	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in History.
Semester 4	1	C8: BCA-HC-4016 Computer Organization and Architecture	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office 2. Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	2	C9: BCA-HC-4026 Mathematics-II	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in mathematics
	3	C10: BCA-HC-4036 Object Oriented Programming in C++	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office 2. Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	4	SEC-2C: BCA-SE-4034: Advanced Web Technology	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office 2. Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.

	5	GE 4B: BCA-HG-4026: Information Security and Cyber Laws	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office 2. Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
Semester 5	1	C11: BCA-HC-5016 Java Programming	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office 2. Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	2	C12: BCA-HC-5026 Operating System	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office 2. Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	3	DSE-2C: BCA-HE-5046: Programming in Python	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office 2. Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	4	DSE-1: BCA-HE-5016: Project Work / Dissertation	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office 2. Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
Semester 6	1	C13: BCA-HC-6016 System Administration using Linux	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office 2. Develop different web and windows-based applications	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer.
	2	C14: BCA-HC-6026 Computer Networks	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office	i) To communicate technical information both orally and in writing.

	3	DSE-3C: BCA-HE-6036: Multimedia and Application	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office	i) To communicate technical information both orally and in writing.
	4	DSE-4B: BCA-HE-6066: Artificial Intelligence	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office	i) To communicate technical information both orally and in writing.

TDC (Computer Application):

Program Outcomes:

1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office.

2.Start own business in web development and software development and Hardware.

3.Develop different web and windows-based applications.

4.Students can also pursue the career of computer operators.

PROGRAMME SPECIFIC OUTCOMES:

The completion of the Computer Application Programme shall enable a student to:

i) To communicate technical information both orally and in writing.

ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.

iii) To design, implement, and evaluate computer-based system, process, component, or program to meet desired needs by critical understanding, analysis and synthesis

iv) Identify applications of Computer Science in other fields in the real world to enhance the career prospects

v) Realize the requirement of lifelong learning through continued education and research.

vi) Use the concepts of best practices and standards to develop user interactive and abstract application

vii)Understand the professional, ethical, legal, security, social issues and responsibilities.

Program Objectives:

Upon successful completion of a TDC program with Computer Application, students will be able to:

1. Demonstrate proficiency in problem-solving techniques using the computer.

2. Demonstrate proficiency in at least one high-level programming language and one operating system.

3. Demonstrate proficiency in the analysis of complex problems and the synthesis of solutions to those problems.

4. Demonstrate comprehension of modern software engineering principles.

5. Demonstrate a breadth and depth of knowledge in latest Information Technology tools and Techniques

	SL NO	CORE SUBJECT	PROGRAM OUTCOME	SPECIFIC OUTCOME
Semester 1	1	Fundamentals of Computer Applications (TCA-RC-1016)	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	2	ENG-AE-1014	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office.	i) To communicate technical information both orally and in writing.
Semester 2	1	Introduction to Programming in C (TCA-RC-2016	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	2	ENV-AE-2014	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office.	i) To communicate technical information both orally and in writing.
Semester3	1	Operating System (TCA-RC-3016)	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.

	2	Multimedia Applications (TCA-SE-3014)	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
Semester 4	1	Introduction to Database Management System (TCA-RC-4016)	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	2	ICT Hardware (TCA-SE-4024)	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
Semester 5	1	Web Technology (TCA-SE-5014)	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	2	Project Work / Dissertation (TCA-RE-5016)	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.

Semester 6	1	Cyber Law (TCA-SE-6024)	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	2	Computer Networks (TCA-RE-6026	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.

PGDCA

Program Outcomes:

1.Students are eligible to apply for jobs in various multinational companies, industries, banks.

2.They can start their own business in web development and software development.

3.Students are able to use their knowledge to develop different web and windows-based applications.

4.Students can create database, websites and applications for their clients.

5.Students can also pursue the career of computer operators.

6.Students can also become network administrators.

Program Specific Outcomes:

The goals of the computer science department are to prepare students for graduate training in some specialized area of computer science and applications, to prepare students for jobs in industry, business or government, and to provide support courses for students in technology, mathematics and other fields requiring computing skills.

	SL NO	CORE SUBJECT	PROGRAM OUTCOME	SPECIFIC OUTCOME
Semester 1	1	ICT Hardware	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	2	Programming in C	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	3	Overview of Operating System	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	4	Introduction to Office Automation	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in the computer science, to learn and develop sophisticated technical products independently.

	5	Database Management System	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
Semester 2	1	Data Structure through C language	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	2	Internet and Web Technology	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	3	GUI Application Programming	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.

	4	Computer Oriented Numerical Methods	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing. ii) Apply the knowledge gained in core courses to a broad range of advanced topics in computer science, to learn and develop sophisticated technical products independently.
	5	Computer Graphics	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing.
	6	Object Oriented Programming with C++	1.Students are eligible to apply for jobs in various companies, industries, banks, Govt office. 2.Students can also pursue the career of computer operators.	i) To communicate technical information both orally and in writing.

HISTORY DEPARTMENT

A. Programme Outcomes:

History is a discipline that examines the connection between historical events and human experiences. By studying the causes, contexts and chronologies of individual events and larger historical developments, history provides an understanding of the nature of continuity and change in human experiences. History also seeks to place contemporary issues, ideas and relationships in historical perspective. A historical perspective gives a sense of both the chronological ordering of events and the relationship of diverse events at a given moment. It involves sensitivity to cultural differences and awareness of conflicting interpretations of the same occurrence.

The Department of History serves undergraduate students for which the curriculum is designed to provide both Honours and Regular courses with

- An appreciation of the nature and importance of a historical perspective
- An understanding of the development of specific peoples and societies
- An awareness of conflicting interpretations of the past.
-

B. Programme Specific Outcomes:

1. To understand background of our religion, customs, institutions, administration and so on.
2. To understand the present existing social, political, religious and economic conditions of the people.
3. To analyse relationship between the past and the present.
4. To develop practical skills helpful in the study and understanding of historical events. They

   (a) Draw historical maps charts, diagrams etc.

   (b) Prepare historical models, tools etc.

5. To develop in the study of history and activities relating to history. They

   a) Collect ancient arts, old coins and other historical materials;
   b) Participate in historical drama and historical occasions;
   c) Visit places of historical interests, archaeological sites, museums and achieves;
   d) Read historical documents, maps, charts etc.
   e) Play active roles in activities of the historical organizations and associations; and
   f) Write articles on historical topics.

6. The study of history helps to impart moral education.

7. History installs the feeling of patriotism in the hearts of the pupils.

Department of Physics

Programme outcomes, Programme Specific Outcomes and Course outcomes:
The B.Sc.Physics Programme is designed as per Guwahati University syllabus:

Programme Outcomes:

After completing B.Sc. (Physics) Programme students will be able to:

PO1. Apply the basic principles of Physics to the events occurring around us and also in the world.

PO2. Try to find out or analyse scientific reasoning for various things.

PO3. Use of computers and various software and programming skills

PO4. Apply the knowledge to develop the sustainable and eco-friendly technology for pollution free environment.

PO5. Collaborate effectively on team-oriented projects in the field of Physics.

PO6. Communicate scientific information in a clear and concise manner both orally and in writing or through audio video presentations.

PO7. Earn the basic knowledge in designing logic circuit.

Programme Specific Outcomes

PSO1: Students get acquainted with techniques which are useful in industry.

PSO2: Students get conceptual knowledge of entrepreneurships through the co-curricular activities

PSO3: learn the organizational skills and working in group.

PSO4: Students will be well versed with use of computers.

Course Outcome:

PHY-HC-1016
Mathematical Physics I
Course Outcome: Successful students should be able to understand vector and its applications in various fields, differential equations and its applications, different coordinate systems, concept of probability and error.

PHY-HC-1026 Mechanics
Course Outcome: On successful completion of the course students should be able understand Inertial and non-inertial reference frames, Newtonian motion, Galilean transformations, projectile motion, work and energy, Elastic and inelastic collisions, motion under central force, simple harmonic oscillations, special theory of relativity.

PHY-HG-1016 (PHY-RC-1016)
Mechanics
Course outcome: Upon completion of this course, students are expected to understand the role of vectors and coordinate systems in Physics, solve Ordinary Differential Equations, laws of motion and their application to various dynamical situations, Inertial reference frames their transformations, concept of conservation of energy, momentum, angular momentum and apply them to basic

problems, phenomenon of simple harmonic motion, motion under central force, concept of time dilation, Length contraction using special theory of relativity. In the laboratory course, after acquiring knowledge of how to handle measuring instruments (like screw gauge, Vernier calipers, travelling microscope) student shall embark on verifying various principles.

PHY-HC-2016
Electricity & Magnetism
Course Outcome: After successful completion of this course, students will be able to understand electric and magnetic fields in matter, Dielectric properties of matter magnetic properties of matter, electromagnetic induction, and applications of Kirchhoff's law in different circuits, applications of network theorem in circuits.

PHY-HC-2026
Waves & Optics
Course Outcome: After successful completion of this course, students will be able to understand superposition of harmonic oscillations, different types of wave motions, superposition of harmonic waves, interference and interferometer, diffraction, holography.

PHY-HG-2016 (PHY-RC-2016)
Electricity & Magnetism
Course outcome: Upon completion of this course, students are expected to apply Gauss's law of electrostatics to solve a variety of problems, calculate the magnetic forces that act on moving charges and the magnetic fields due to currents, have brief idea of magnetic materials, understand the concepts of induction, and apply them to solve variety of problems. In the Lab course, students will be able to measure resistance (high and low), Voltage, Current, self and mutual inductance, capacitor, strength of magnetic field and its variation, study different circuits RC, LCR etc.

PHY-HC-3016
Mathematical Physics II
Course Outcome: After successful completion of the course, students will be able to solve differential equation using power series solution method, solve differential equation using separation of variables method, special integrals, different properties of matrix, Fourier series.

PHY-HC-3026
Thermal Physics
Total Lectures: 60 Credits: 6 (Theory: 04, Lab: 02)
Course Outcome: Upon successful completion, students will have the knowledge and skills to identify and describe the statistical nature of concepts and laws in thermodynamics, in particular: entropy, temperature, Thermodynamics potentials, Free energies, Maxwell's relations in thermodynamics, and behaviour of real gases.

PHY-HC-3036
Digital Systems & Applications
Course Outcome: After successful completion of the course student will be able to understand the working principle of CRO, develop a digital logic and apply it to solve real life problems, Analyze, design and implement combinational logic circuits, Classify different semiconductor memories, Analyze, design and implement sequential logic circuits, Analyze digital system design using PLD, Simulate and implement combinational and sequential circuits.

PHY-HG-3016 (PHY-RC-3016)
Thermal Physics & Statistical Mechanics
Course outcome: Upon completion of this course, students are expected learn the basic concepts of thermodynamics, the first and the second law of thermodynamics, the concept of entropy and the associated theorems, the thermodynamic potentials and their physical interpretations, Maxwell's

thermodynamic relations, fundamentals of the kinetic theory of gases, Maxwell-Boltzman distribution law, equipartition of energies, mean free path of molecular collisions, viscosity, thermal conductivity, diffusion and Brownian motion, black body radiations, Stefan- Boltzmann's law, Rayleigh-Jean's law and Planck's law and their significances, quantum statistical distributions, viz., the Bose Einstein statistics and the Fermi-Dirac statistics. In the laboratory course, the students will be able to Measure of Planck's constant using black body radiation, determine Stefan's constant, coefficient of thermal conductivity of a bad conductor and a good conductor, and determine the temperature coefficient of resistance, study variation of thermoemf across two junctions of a thermocouple with temperature etc.

PHY-SE-3044
Digital Photography & Editing
Course Outcome: On successful completion of the course students will be able to identify cameras according to formats and view finder systems, identify types of lenses and state what type of lenses to be used for different purposes, apply settings of shutter speed, control depth of field via aperture settings, apply suitable focal length, Use the light metering mechanism of the camera to take photographs.

PHY-HC-4016
Mathematical Physics III
Course Outcome: On successful completion of the course students will able to solve complex integrals using residue theorem, apply Fourier and Laplace transforms in solving differential equations, understand properties of Tensor like Transformation of coordinates, contra variant and co-variant tensors, indices rules for combining tensors.
PHY-HC-4026
Elements of Modern Physics
Course Outcome: On completion of the course students will be able to understand modern development in Physics, Starting from Planck's law, it development of the idea of probability interpretation and the formulation of Schrodinger equation. Students will also get preliminary idea of structure of nucleus, radioactivity Fission and Fusion and Laser.

PHY-HC-4036
Analog Systems & Applications
Course Outcome: On successful completion of the course students will be able to understand about the physics of semiconductor p-n junction and devices such as rectifier diodes, zener diode, photodiode etc. and bipolar junction transistors, transistor biasing and stabilization circuits, the concept of feedback in amplifiers and the oscillator circuits, students will also have an understanding of operational amplifiers and their applications.

Honours Generic Paper
PHY-HG-4016 (PHY-RC-4016)
Waves & Optics
Course outcome: Upon completion of this course, students are expected to understand Simple harmonic oscillation and superposition principle, importance of classical wave equation in transverse and longitudinal waves and solving a range of physical systems on its basis, concept of normal modes in transverse and longitudinal waves: their frequencies and configurations, interference as superposition of waves from coherent sources derived from same parent source, Demonstrate understanding of Interference and diffraction experiments, Polarization. In the laboratory course, student will gain hands-on experience of using various optical instruments and making finer measurements of wavelength of light using Newton Rings experiment, Fresnel Biprism etc. Resolving power of optical equipment, the motion of coupled oscillators, study of Lissajous figures and behaviour of transverse, longitudinal waves.

PHY-SE-4044

Photoshop

Course Outcome: On successful completion of the course students will be able to work with the tools in Adobe Photoshop CC, crop image in Adobe Photoshop CC, to resize an image for print and digital media in Adobe Photoshop CC, apply Photoshop filters in print and digital media, apply filters to sharpen the images, different types of brushes used for digital painting.

PHY-HC-5016

Quantum Mechanics & Applications

Course Outcome: On successful completion of the course students will be able to understand the principles in quantum mechanics, such as the Schrödinger equation, the wave function, the uncertainty principle, stationary and non-stationary states, time evolution of solutions, as well as the relation between quantum mechanics and linear algebra. Students will be able to solve the Schrödinger equation for hydrogen atom. Students will have the concepts of angular momentum and spin, as well as the rules for quantization and addition of these, spin-orbit coupling and Zeeman Effect.

PHY-HC-5026

Solid State Physics

Course Outcome: On successful completion of the course students should be able to explain the main features of crystal lattices and phonons, understand the elementary lattice dynamics and its influence on the properties of materials, describe the main features of the physics of electrons in solids; explain the dielectric ferroelectric and magnetic properties of solids and understand the basic concept in superconductivity.

PHY-HE-5036

Course Outcome: Upon completion of this course, students will be able to solve problems in Physics related to Linear Vector space, Matrix algebra, Tensor.

PHY-HE-5056

Nuclear and Particle Physics

Course Outcome: Upon completion of this course, students will have the understanding of the sub atomic particles and their properties. They will gain knowledge about the different nuclear techniques and their applications in different branches of Physics and societal application. The course will develop problem based skills and the acquire knowledge can be applied in the areas of nuclear, medical, archeology, geology and other interdisciplinary fields of Physics and Chemistry.

PHY-HC-6016

Electromagnetic Theory

Course Outcome: On successful completion of the course students will acquire the concepts of Maxwell's equations, propagation of electromagnetic (EM) waves in different homogeneous-isotropic as well as anisotropic unbounded and bounded media, production and detection of different types of polarized EM waves, general information as waveguides and fibre optics.

PHY-HC-6026

Statistical Mechanics

Course outcome: On successful completion of the course students will be learn the techniques of Statistical Mechanics to apply in various fields including Astrophysics, Semiconductors, Plasma Physics, Bio-Physics, Chemistry and in many other directions.

PHY-HE-6036

Advanced Mathematical Physics II

Course Outcome: Upon completion of this course, students will be able to apply the concepts of Calculus of Variations, Group Theory and Probability Theory to solve numerical problems in Physics.

PHY-HE-6046

Astronomy and Astrophysics

Course Outcome: Upon completion of this course, students will be able to understanding the origin and evolution of the Universe. The course will give a comprehensive introduction on the measurement of basic astronomical parameters such as astronomical scales, luminosity and astronomical quantities. It will give an overview on key developments in observational astrophysics. Students will have the idea of the instruments implemented for astronomical observation, the formation of planetary system and its evolution with time, the physical properties of Sun and the components of the solar system; and stellar and interstellar components of our Milky Way galaxy. Students will have the understanding of the origin and evolution of galaxies, presence of dark matter and large scale structures of the Universe.

PHYSICS-DSE: CLASSICAL DYNAMICS

Course Outcome: Upon completion of this course, students will have the overview of Newton's Laws of Motion, Special Theory of Relativity by 4-vectoer approach and fluids. Students will also have the understanding of the Lagrangian and Hamiltonian of a system. By the end of this course, students will be able to solve the seen or unseen problems/numerical in classical mechanics.

Department Botany

Program outcomes, Programme Specific Outcomes & Course Outcomes

Programme Outcomes, Programme Specific Outcomes & Course Outcomes of the B.Sc. Botany programme is designed as per Gauhati University B.Sc. Botany Syllabus

Programme Outcomes (PO)

Sl.No	Program	Outcomes
1	B. Sc. Botany	Knowledge of structural, functional and ecological diversity of plants.
2		Plant systematics and classification including phyto-geographical regions of India and major biomes of the world
3		Knowledge on microbes and their importance in agriculture and medicine
4		Application of computer and bioinformatics for biological data analysis.
5		Knowledge on morphology, uses and economic importance of plants
6		Knowledge on genetics and plant breeding in crop improvement.
7		Knowledge on development of transgenic plants for agricultural or industrial use.
8		Knowledge generation on herbal medicinal plants of Assam and formulate new concepts for a green world, sustainable development, betterment of human health specifically from medicinal plants to meet specific need and eco-friendly environment.
9		Giving opportunities to students to conduct experiments practicallyboth in field and laboratory. Hands on practical helps the students to gain proficiency and skills in different topics of modules offered tothem.
1	Program specific outcome	Critical evaluation of ideas and arguments by collecting relevant information about the plants so as to recognize their position in the classification systems and at phylogenetic level.
2		Students able to understand the basic microbiological interventions in modern day human welfare.
3		Students able to explain how plant function at gene, genome, cellular and tissue level.
4		Knowledge generation on indigenous herbal medicinal plants.
5		Students able to know the role of bio-fertilizer for sustainable agriculture.

Course Outcome (CO)

Sl. No	Corse	Outcome
1	B.Sc. BotanyHonours (HC)	Knowledge on microbial world & their economic importance.
2		knowledge on structure, properties and functions of cell and its components
3		Brief idea on Mycology and Phytopathology
4		Knowledge on archegonia producing plants with their ecological significance and economic importance.
5		Knowledge on morphology of angiosperms and developmental biology of plant body
6		Knowledge on economic importance of crop plants

7		Knowledge on genetics, heredity and evolution in living organisms.
8		Detailed coverage on basic molecular biology, genome organization and central dogma of life
9		Knowledge on ecology of plants and phytogeography.
10		Knowledge on plant systematics, phylogenetic and evolutionary relationships of angiosperms
11		Knowledge on detailed morphological and anatomical study of reproductive structures of angiospermic plants
12		Knowledge on plant-water relationships, mineral nutrition and physiological processes associated with plant growth
13		Knowledge on sustainable utilization of natural resources
14		Basic knowledge on horticulture and its practices on ornamental andcrop plants

1	B.Sc. Botany Regular (RC)-Generic HG)	Knowledge on structure and diversity of microbes, algae and fungi.
2		Basic knowledge on Plant Ecology, biogeochemical cycles of Carbon, Nitrogen and Phosphorus, Knowledge on plant taxonomy, its identification, Classification and Nomenclature, phytogeography and principle of bio-geographical zones of India
3		Knowledge on plant-water relationships, mineral nutrition and physiological processes associated with plant growth
4		Knowledge on different anatomical structures of plant, basic Knowledge on embryology of plants.
5		Knowledge on economic importance of crop plants and application of Biotechnology in plant animal & human welfare.
6		Basic principle, function and working of microscopy used in research, basic principle, structure, composition and function of different cell organelles of prokaryotes & eukaryotes, basics on molecular biology Techniques.
7		Practical knowledge on addressing relevant scientific questions through experimentation
8		Knowledge on bio-fertilizer, basic knowledge on the microbes used as Bio-fertilizer.
9		Brief on Gardening and Nursery and their maintenance.
10		Knowledge on medicinal plants and indigenous medicinal Sciences/systems of India, knowledge on ethno-botany.

Department of English

Programme Outcomes, Programme Specific Outcomes and Course Outcomes
The BA English programme is designed as per Gauhati University syllabus

Sl. No.	Programme	Description
1.	**Programme Outcomes**	• To familiarize the students with the basics of English grammar, and to further their knowledge to an advanced level of grammar.
2.		• To guide the students to a knowledge of proper pronunciation of English words.
3.		• To reduce among the pupils the numerous common errors in both spoken and written English.
4.		• To help the students overcome both the major as well as minor difficulties that they face in translating their thoughts in spoken and written English.
5.		• To help them engage in spoken English by conducting seminar paper presentations and group discussions.
6.		• To familiarize students with the local as well as the global literatures.
7.		• To make students understand the finer differences among the various genres of literature like prose, poetry, drama, criticism etc.
8.		• To help them learn and inculcate the great ideas contained in the classical literature of not only the country, but that of the Western world.
9.		• To assist them in developing a sense of critical thinking regarding the appreciation of different literary forms.

10.	**Programme Specific Outcomes**	• To familiarize students with various free-thinking women writers from all across the globe.
11.		• To hone their skill in identifying the aesthetics and politics of literary works.
12.		• To acquaint students with language and linguistics.
13.		• To draw their attention to literature and culture.
14.		• To introduce them to numerous myths, legends, and folktales of both India as well as other countries.
15.		• To familiarize them with concepts and movements like Orientalism, globalization, religion, ethnography and travel writing.
16.		• To help them deal with significant contemporary issues like memory, displacement, diaspora, hybridity, race and culture.
17.		• To help them explore new narrative possibilities like science fiction and detective literature.
18.		• To make students learn to appreciate the impact of important movements in world history related to literature like the Renaissance, Neo- Classicism, Realism, Modernism, Post-Modernism etc.
19.		• To help familiarize themselves with various post-colonial literatures.
20.		• To popularize among the pupils, literary works through the medium of film adaptations.
21.		• To help students focus extensively on ideas of transnationalism, exile, migration, displacement through the study of literature of diaspora.
22.		• To highlight Popular Literature as a genre.
23.		• To aid students develop a career in the literary field.
24.		• To help students partake in translation of literary works from one language to another.

25.	**Course Outcomes**	• To encourage students to develop a career in general as well as literary journalism.
26.		• To assist students in developing their potential through creative writing.
27.		• To encourage them to pursue higher studies in English literature.
28.		• To help them to pursue a career in the legal profession.
29.		• To aid the students to go for teaching profession.
30.		• To encourage students to pursue career in professions like news reading, sports commentary, and book and film review.

Department of Mathematics
S.B.M.S.College,Sualkuchi
B.Sc. Honours & Regular Courses

The department of Mathematics, S.B.M.S. College,Sualkuchi is affiliated to Gauhati University. The department follows the course curriculum framed and designed by Gauhati University.

The CBCS Course curriculum introduced by Gauhati University is divided into two parts : one is Honours Course and other is Regular course. The honours Course help the students to enrich their Knowledge on the subject and the regular course help the students to make integration with other various courses.

PROGRAMME OUTCOMES:

- Students will be able to communicate mathematics effectively by oral, written, computational and graphic means.
- Create mathematical ideas from basic axioms.
- Utilize mathematics to solve theoretical and applied problems by critical understanding, analysis and synthesis.
- Create a mathematical sense and overall understanding of the subject.
- Will become familiar with the different aspects of mathematics with its various interpretations and with the requirement of lifelong learning through continued education and research.

PROGRAMME SPECIFIC OUTCOMES:

- Students will be able to apply critical thinking skills to solve problems that can be modelled mathematically.
- Able to learn algebra, abstract algebra, linear algebra and vector.
- Understand calculus and differential equations.
- Able to learn real, numerical and complex Analysis.
- Able to learn Group Theory, Ring Theory , Number Theory and Analytical Geometry.
- Able to learn and apply the Computer Programming in C
- Able to plot Graphs, Numerical Programmes, Solution of PDE's by using software.
- Able to undertake project work.

COURSE OUTCOMES: (Honours Course)

Semester	Course Code	Course Name	Course outcome
I	MAT-HC-1016	**Calculus**	After Completion of this course the Students will be known about: ➢ Learn to differentiate & integrate functions and apply the knowledge in solving problems in business, economics and life sciences. ➢ Sketch curves in a plane using its mathematical properties in different coordinate system ➢ Learn the Calculus of Vector functions and its uses to develop the basic principles of planetary motion. ➢ Learn to find the area of surface of revolution and

			volume of solid by integrating over cross sectional area.
	MAT-HC-1026	Algebra	The course enable the students to learn: ➢ About Functions, Relation, Equivalent Classes and Cardinality of a set. ➢ About De Moiver's Theorem to solve numerical problems. ➢ About the solution sets of linear system of equations using Matrix method and Crammer's rule which have different applications in physics.
II	MAT-HC-2016	Real Analysis	➢ Students are introduced to the concept of Real Analysis ➢ Understand many properties of real line R, including Completeness and Archimedean properties. ➢ Learn to define sequences in terms of functions from N to a subset of R. ➢ Learn about bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior and the limit of a bounded sequence. ➢ Learn about the ratio, root, alternating series and limit Comparison tests for convergence and absolute convergence of an infinite series of real numbers.
	MAT-HC-2026	Differential Equations	➢ Learn basics of Differential Equations ➢ Formulate differential equations for various mathematical models. ➢ Solve differential equations and apply the study of exponential decay model, exponential growth of population, drug assimilation into blood.
III	MAT-HC-3016	Theory of Real Functions	➢ Learn about Continuity and Uniform Continuity of functions defined on intervals, purely on mathematical point of view. ➢ Learn extensively about the concept of differentiability using limits, particularly L-Hospital rule help to better handle for difficult differentiation. ➢ Know about applications of mean Mean Value Theorem and Taylor's theorem.
	MAT-HC-3026	Group Theory-I	➢ Link the fundamental concepts of groups and symmetrical figures ➢ Learn about the significance of the notion of Cosets, normal subgroups and factor groups ➢ Learn about Lagrange's Theorem, Fermat's Little theorem, Group Homomorphism and Group Isomorphism
	MAT-HC-3036	Analytical Geometry	➢ Learn about the study of basic geometric structures such as parabola, hyperbola, Conic and their 3_dimensional analogues.
IV	MAT-HC-4016	Multivariate Calculus	The course enable students to: ➢ Know about the extension of one dimensional calculus to two and higher dimensions(i.e. from one variable to multivariable discussion) ➢ Understand the maximization and minimization of multivariable functions subject to the given constraints ➢ Learn about inter-relationship amongst the line integral,

			double and triple integral formulations ➢ Familiarize with Green's, Stoke's, and Gauss Divergence Theorem and know about their applications to several problems in Complex Analysis and Partial Differential Equations.
	MAT-HC-4026	Numerical Methods	➢ Learn some numerical methods to find the zeros of nonlinear functions of a single variable and solution of a system of linear equations, up to a certain given level of precision ➢ Know about methods to solve system of linear equations, such as False Position Method, Fixed Point Iteration Method, Newton's Method, Secant Method and L U Decomposition method ➢ Know about the Interpolation techniques to compute the values for a tabulated function at points not in the table. ➢ Know about the applications of Numerical Differentiation and Integration to convert differential equations into difference equations for numerical solutions
	MAT-HC-4036	Ring Theory	On completion of this course students will be able to: ➢ Learn about the fundamental concepts of Rings, Integral Domains and Fields ➢ Know about ring homomorphism and Isomorphism theorems of ring ➢ Learn about the polynomial rings over Commutative rings, integral domains, Euclidean domains and Unique Factorization domain(UFD)
V	MAT-HC 5016	Complex Analysis	Completion of the Course will enable the students to: ➢ Learn the significance of differentiability of Complex functions leading to the understanding of Cauchy-Riemann equations ➢ Learn some elementary functions and basic concepts to evaluate the Contour integrals ➢ Learn Cauchy-Goursat theorem and Cauchy's Integral Formula and their applications ➢ Learn to expand some simple functions in Taylor and Laurent series, classify the nature of singularities and to find residues
	MAT-HC 5026	Linear Algebra	The course will enable students to: ➢ Learn about the concept of linear independence of vectors over afield, and the dimension of a vector space ➢ Basic concepts of linear transformations, dimension theorem, matrix representation of linear transformation and the change of coordinate matrix ➢ Compute the characteristic polynomial, eigenvalues, eigenvectors, and Eigen spaces as well as well as the geometric and algebraic multiplicities of an eigenvalue and apply the basic diagonalization result ➢ Compute inner product and determine orthogonality on vector spaces, including Gram-Schmidt orthogonalization to obtain orthogonal basis ➢ Determine the adjoint, normal, unitary and orthogonal operators.

	MAT-HE-5016	Number Theory	The course will enable students to: ➢ Learn some properties of prime numbers, and some of the open problems in number theory, Viz. Goldbach Conjecture, linear congruences, Fermat's Little theorem etc. ➢ Know about number theoretic functions and modular arithmetic ➢ Solve linear, quadratic and system of linear congruence equations.
	MAT-HE 5066	Programming in C	The course will enable students to: ➢ Understand and apply the programming concepts of C which is important to mathematical investigation and problem solving. ➢ Learn about structured dada-types in C and learn about applications in factorization of an integer ➢ Use of containers and templates in Various applications in algebra ➢ Rpresent the outputs of programs visually in terms of well formatted text and plots
VI	MAT-HC-6016	Riemann Integration and Metric Spaces	The course will enable students to: ➢ Learn about some of the classes and properties of Riemann integrable functions, and the applications of the fundamental theorems of integration ➢ Know about improper integrals, including beta and gamma functions ➢ Learn about various natural and abstract formulations of distance on the sets of usual or unusual entities. Become aware on such formulations leading to metric spaces ➢ Know about Banach Fixed Point theorem, whose far-reaching consequences have resulted into an independent branch of study in analysis, known as fixed point theory ➢ Learn about the two important topological properties, namely connectedness and compactness of metric spaces
	MAT-HC-6026	Partial Differential Equations	The course will enable students to: ➢ Formulate, Classify and transform first order PDE's into Canonical form ➢ Learn about method of characteristic and separation of variables to solve first order PDE's ➢ Classify and solve second order linear PDE's ➢ Learn about Cauchy problem for second order PDE and homogeneous as well as nonhomogeneous wave equations ➢ Apply the method of separation of variables for solving second order PDEs
	MAT-HE-6066	Group Theory-II	The course will enable students to: ➢ Learn about automorphism for constructing new groups from the given group ➢ Learn about the fact that external direct product applies to data security and electric circuits ➢ Understand Fundamental theorem of finite abelian group

			➢ Be familiar with group actions and conjugacy in S_n ➢ Understand Sylow's theorem and their applications in checking non-simplicity.
	MAT-HE-6086	Project Work	This paper focuses in imparting practical knowledge to students in researches. Project work is given to students as a Special course involving application of knowledge in solving, analysing and exploring difficult problems.

Department of Mathematics
S.B.M.S.College,Sualkuchi
COURSE OUTCOME
Regular Course

Semester	Course Code	Course Name	Course Outcome
I	MAT-RC-1016	Calculus	The Course enable the students to: • Learn about graphs of functions such as polynomial, trigonometric, inverse trigonometric functions, Exponential functions, etc. • Learn about limit and continuity test for functions • Learn about differentiability • Learn about partial differentiation of functions
	MAT-RC-2016	Algebra	The Course enable the students to: • Learn about Theory of equations, expansion of functions and De Moivre's Theorem & it's applications • Learn about matrices, determinant and it's applications in solving system of equations • Learn about group, ring and algebra of vector spaces and their applications
	MAT-RC-3016	Differential Equations	The Course enable the students to: • Learn about basics of differential equations • Formulate differential equations • Learn various method for solving differential equations
	MAT-RC-4016	Real Analysis	The Course enable the students to: • Learn about bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit and uniform continuity of functions • Learn about ratio, root, alternating series and limit comparison tests for convergence and absolute convergent of an infinite series of real numbers
	MAT-RE-5016	Number Theory	The Course enable the students to: • Learn about properties of prime numbers • Learn about some of the open problems in number theory, viz. Goldbach conjecture etc. • Learn about the number theoretic functions and some properties of Euler's phi-function

	MAT-RE-5026	Discrete Mathematics	The Course enable the students to: • Learn about the notion of ordered sets and maps between ordered sets • Become familiar with Boolean algrbra, Boolean homomorphism, switching circuits and their applications
	MAT-RE-6016	Numerical Analysis	The Course enable the students to: • Learn some numerical methods to find the zeros of nonlinear functions of a single variable and solution of a system of linear equations • Learn about iterative and non-iterative methods to solve system of linear equations • Learn to find numerical differentiation of functional values

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