
COURSE OUTCOMES

Government Kolasib College



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COURSE OUTCOMES

Subject: Economics

Bachelor of Arts (BA) in Economics provides the learner(s) with a thorough understanding of economic theories, quantitative methods, and the practical application of economic analysis to real-world issues. The programme ensures the learner(s) are well-prepared to analyze economic issues, contribute to policy debates, and pursue various career paths in both the public and private sectors.

Programme Specific Outcome–

On the completion of the programme:

- The learners will acquire a solid understanding of essential economic concepts, including microeconomics, macroeconomics, quantitative techniques, and economic theory.
- Learners will interpret data, perform statistical analysis, and engage in economic modelling.
- Critical thinking skills will be honed, allowing learners to analyze economic scenarios effectively.
- Learners will develop research skills specific to economics. They will understand how to conduct social and economic research, both qualitatively and quantitatively.
- Learners will apply mathematical and statistical tools to economic analysis. They will identify, formulate, and solve economic problems using these tools.
- Learners will explore real-world economic challenges. They will analyze social, political, and economic issues from an informed perspective.
- Graduates will have a myriad of career opportunities in industry, trade, commerce, banking, financial institutions and also in the State and Central Economic Service.

Sl. No.	Paper	Course Outcomes
1	Paper I (Eco/1/CC/01): Microeconomics - I	<ul style="list-style-type: none">• The course helps the learner to understand the basic concepts of microeconomics.• It enables the learners to understand the behaviors of consumers and some of the basic theories of production and costs.• It also enables the learner to understand the principles underlying market mechanisms; different market conditions and their equilibrium.
2	Paper II (Eco/2/CC/02): Microeconomics - II	<ul style="list-style-type: none">• The course enables the learner to understand the principles of factor pricing – how rewards are determined for each factors and the associated theories.• Learners will be able to understand how factor market equilibrium is attained under different market conditions.• The course will enable the learner to understand the

		<p>basic measures/methods used in investment analysis.</p> <ul style="list-style-type: none"> Learners will also be able to understand the basic tools in welfare economics and trade theories.
3	<p>Paper III (Eco/3/CC/03): Macroeconomics - I</p>	<ul style="list-style-type: none"> The course enables the learner to understand the process of calculating national income and its components. It enables the learner to determine the equilibrium level of output and employment in the economy. The course helps the learner to comprehend the consumption function, factors influencing consumption and the relationship between income and consumption. It also enables the learner to access the role of investment and money in the working of the economy.
4	<p>Paper IV (Eco/4/CC/04): Macroeconomics - II</p>	<ul style="list-style-type: none"> The course enables the learner to understand the role and functions of money – different kinds of money and determination of the quantity of money in the economy. The course enables the learner to understand the role and functions of banks – different functions of commercial banks and how credit is created; and the role of central bank. It also enables the learner to understand trade cycles, fluctuations in the economy and models of economic growth.
5	<p>Paper V (Eco/5/CC/05): Indian Economy</p>	<ul style="list-style-type: none"> The course enables the learner to understand the basic features of Indian economy like structure, demography and national income. It enables the learner to understand the objectives, strategies and broad achievements of 5 – Year Plans, NITI Aayog and New Economic Policy (LPG). It also enables the learner to comprehend the rationale behind economic reforms in India. The course helps the learner to understand the nature and importance of the Agricultural economy. It also helps the learner to acquire the basic features of regional (Mizoram) economy.
		<ul style="list-style-type: none"> The course helps the learner to understand the role of fiscal policy in economic stabilization, distribution and development. It enables the learner to distinguish between different types of public expenditure and taxes.

6	Paper VI (Eco/5/CC/06): Public Finance	<ul style="list-style-type: none"> • It also helps the learner to apprehend the various sources of public revenue and the division of tax burden. • It helps the learner to understand the concept of budget, process of budgeting, different kinds of budget and the role of finance commission in India.
7	Paper VII (Eco/5/CC/07): Quantitative Techniques - I	<ul style="list-style-type: none"> • The course provides the basic mathematical tools for economic analysis. • It helps the learner to comprehend the methods of differential and, integral calculus and their applications in economic analysis. • The course also enables the learner to use matrix operations and formulate linear programming problems associated with economic problems. • It helps the learner to interpret and analyze economic data using mathematical tools.
8	Paper VIII (Optional A) (Eco/5/CC/08a): Agricultural Economics	<ul style="list-style-type: none"> • The course enables the learner to understand the role and performance of agriculture in the development process of an economy. • It gives the learner an outlook of the rural economy in India and the development of agriculture with growth trends and productivity. • The course helps the learner to understand the role of agrarian relation, land reforms and technological change in agricultural development.
9	Paper IX (Eco/6/CC/09): Environmental Economics	<ul style="list-style-type: none"> • The course provides fundamental concepts in environmental economics. • It helps the learner to understand the economy-environment inter-linkages and the concepts of market failure and externalities with their remedial solution. • The course also introduces the learner to sustainable development and environment valuation; pollution – effects and control measures. • It helps the learner to understand the global environment issues and the international attempts to protect the environment.
10	Paper X (Eco/6/CC/10): Quantitative Techniques - II	<ul style="list-style-type: none"> • The course helps the learner to use various statistical tools in economic analysis and research. • It enables the learner to understand the methods of data collection viz. census and survey method; and the various sampling techniques. • The course helps the learner to derive

		<p>meaningful/useful information like parameters and statistic using various measures of central tendency and dispersion.</p> <ul style="list-style-type: none"> • It also helps the learner to understand the concept of probability and its associated applications in economic analysis and research. • The course enables the learner to interpret inter-relationship between variables using correlation and regression analysis along with their application in the field of research. • It also helps the learner to estimate past and future trends in production, consumption, etc. using time series and index numbers analysis.
11	<p>Paper XI (Eco/6/CC/11): Financial Institutions and market</p>	<ul style="list-style-type: none"> • The course enables the learner to understand the working and performance of various segments of financial sectors. • It helps the learner to understand the roles and objectives of the Central Bank and its various inflation control measures. • It also helps the learner to follow the functions and objectives of commercial banks – its liabilities and assets, and the process of credit creation. • The course enables the learner to understand the structure and functions of financial markets and foreign exchange markets.
12	<p>Paper XII (Eco/6/CC/12b): International Trade</p>	<ul style="list-style-type: none"> • The course helps the learner to understand international trade theories and the role of trade protection. • It helps the learner to identify the importance of trade and trade theories like absolute advantage, comparative cost advantage, etc. • It enables the learner to apprehend gains from trade and the doctrine of reciprocal demand. • It helps the learner to understand the meaning and implications of barriers from trade like tariffs and quotas. • It helps the learner to distinguish between balance of trade and balance of payments along with their components. • It enables the learner to understand impacts of protection in trade and liberalization in trade measures.

COURSE OUTCOME

Subject: Education

Programme Objectives

1. To help students acquire extensive knowledge about educational concepts, ideas, methods and applications. 2. To help learners to have deep understanding and insight about educational concepts, ideas, methods and applications. 3. To develop the higher cognitive abilities etc. and help them function at higher cognitive levels. 4. To develop and promote the different aspects of students personality as well as helping them to have an integrated and balanced personality. 5. To enable students to apply their knowledge in real life situations in order to create new ideas, methods, techniques, innovations etc. in the field of education. 6. To promote scientific temper and research enthusiasm among students.

Programme Outcomes

Students should be well acquainted with the basic tenets of education. They should be fully aware of the concepts, ideas, laws and principles which form the foundation of education. 2. Students should be able to understand the meaning of educational concepts and ideas and be able to explain ideas and concepts in their own words. 3. Students should be able to use their acquired knowledge for the purpose of creating new ideas, methods and solutions to problems. 4. Students should be able to use their analytical ability for in-depth investigative studies. 5. Students should be able to make judgement about the value of educational ideas methodologies and come up with appropriate suggestion and innovations.

Course code	Name of course	Learning Outcome
Paper-I	Psychological Foundations of Education	1. To enable the students to understand the structure and functions of higher mental processes.
		2. To enable the students to understand the meaning and scope of educational psychology.
		3. To enable them to understand the dimensions of growth (e.g. social, emotional, creative and intellectual) and the causes of individual differences.
		4. To enable them to understand different aspects of personality and means of developing an integrated personality.
		5. To develop understanding of the process of learning and teaching and problems of learning.
		6. To understand the role of the school, the teacher and the environment for the growth of children.
		7. To understand the problems of adolescents and role of education in solving those problems.
Paper- II	Philosophical and Sociological Foundations of Education	1. To develop an understanding of the roles of Philosophy and Sociology in Education.
		2. To develop an understanding of some major schools of philosophy and their contributions to

		<p>educational theory and practice.</p> <p>3. To develop knowledge of the structure and functions of the society and the process of social interaction for a change towards better human relationships.</p> <p>4. To develop understanding of some current social problems relating to education.</p>
Paper - III	Development of Education in India	<p>1. To help students understand the development of education in India in historical perspective.</p> <p>2. To understand the salient features of education in ancient, medieval and British India.</p> <p>3. To acquaint them with significant points of selected educational documents and reports of these periods.</p> <p>4. To have an adequate knowledge of the recommendations of various Commissions and Committees on Indian Education.</p> <p>5. To help students understand the development of education in Mizoram in historical perspective.</p>
Paper-IV	Issues and Trends in Contemporary Indian Education	<p>1. To develop in students understanding of basic aspects and problems relating to elementary, secondary and higher education and the role or functions of various organizations in education at different stages.</p> <p>2. To enable students to understand the initiatives and actions taken by Government of India in providing alternatives for schooling.</p> <p>3. To help students understand some important modern trends in education.</p>
Paper - V	Research Methodology in Education	<p>1. To develop an understanding among students about the concept and types of educational research.</p> <p>2. To acquaint them with the various methods of research, sampling designs, tools of data collection and report writing etc.</p>
Paper -VI	Statistics in Education	<p>1. To acquaint the students with the basic statistic techniques.</p> <p>2. To develop ability to organise educational data and use various statistical measures in the analysis and interpretation of data.</p> <p>3. To develop the ability to interpret test results.</p> <p>4. To develop the ability to represent educational data through graphs and to develop skills in analysing different descriptive measures.</p>
Paper - VII	Educational Evaluation	<p>1. To develop an understanding of the need and importance of Evaluation in Education.</p> <p>2. To develop an understanding of various types of measuring scales.</p>

		3. To develop an understanding of the various characteristics of tests.
		4. To develop knowledge about the process of constructing different types of items for tests.
		5. To develop understanding of the process of standardizing the test.
		6. To develop knowledge about the new trends in evaluation.
Paper- VIII - Optional - (A)	Educational Technology	1. To enable the students to understand about the concept, nature and scope of educational technology.
		2. To expose the students to the basic developments in Educational Technology.
Paper VIII- Optional- (B)	Educational Guidance and Counselling	1. To help in understanding the meaning and importance of guidance and counselling.
		2. To develop the ability to interpret various records for assessing the student's strengths and weaknesses.
		3. To develop the ability to identify gifted children who need enrichment and to channelize their unique potentialities in a positive way through proper guidance.
		4. To develop the ability to identify exceptional children who need special care and help and to make such provisions for them.
		5. To understand the concept of mental health and processes of healthy adjustment and good interpersonal relationships.
		6. To help the adolescents in facing their problems to develop a positive self-concept, self-confidence and an optimistic attitude towards life, through proper counselling.
Paper - IX	Curriculum Development	1. To understand the meaning, concept and scope of curriculum.
		2. To understand the basis of curriculum construction, transaction, evaluation and innovation.
Paper - X	Educational Planning and Management	1. To develop knowledge and understanding of the Meaning, Scope Process and Types of Management.
		2. To develop the ability to identify the roles of participating members (individual or collective) and to plan various institutionalized managerial activities.
		3. To develop the ability of making objective decision in educational management
Paper XI	Development of Educational Thought	1. To develop in students familiarity with the evolution of educational thought through the ages in important societies.
		2. To enable students to understand the development of educational thoughts and practices in global perspective.

Paper - XII - Optional (A)	Project Work	1. To enable the students to have practical experience of applying the knowledge gained in theoretical papers.
		2. To develop understanding of the process of selecting a research project.
		3. To develop an understanding of the process of conducting a research project in the field of education.
		4. To acquaint the students with the process of selecting tools, collecting data, organizing data, analyzing data.
		5. To develop the skill of writing a report.
Paper XII- Optional (B)	Pedagogy	1. To develop understanding of various theories of teaching.
		2. To initiate students to the field of pedagogy.
		3. To develop the ability to analyze classroom teaching-learning, and the ability to observe classroom behaviour.
		4. To develop a positive attitude towards life and the teaching profession.
Paper XII- Optional (C)	Special Education	1. To enable the students to understand the various types of disorders.
		2. To enable the students to understand the problems of challenged children
		3. To enable the students to understand the process of educating challenged children
		4. To enable the students to understand the nature and characteristics of gifted and creative children
		5. To enable the students to know the educational provision for the gifted and creative children.

COURSE OUTCOME

Subject: English

Students graduating with a Bachelor of Arts degree in English will have demonstrated ability to:

- (i) Read, interpret and write about a diverse range of texts in English.
- (ii) Understand those texts analytically and critically.
- (iii) Understand those texts on the basis of careful close reading.
- (iv) Understand those texts through past and current literary theory.
- (v) Understand that those texts are culturally constructed in time, place and tradition.
- (vi) Understand how those texts inform culture.
- (vii) Participate in critical and cultural discourses of English Literature.
- (viii) Participate appropriately through multiple spoken and written forms in English.
- (ix) Analyze texts of various literary forms closely in terms of style, figurative language and convention.

Sl. No	Course	Course Outcomes
1	ENG/I/FC/I : ENGLISH I	Students should be able to: i) able to differentiate and understand the different Parts of Speech, Tense and Voice ii) understand Direct and Indirect Speech, and the concept of Concord iii) write a job application letter, a resume and reports and essays iv) communicate verbally in English
2	Elective Core Subject I : Course I	Students should be able to: i) understand and analyze the history of English Literature from Old English Period, Elizabethan period, 18 th century (with an emphasis on satire), 19 th century (the Romantic Age and Victorian Age) and 20 th century or Modern Literature. ii) develop working knowledge of the principal works, authors, genres and periods of English literature.
3	ENG/II/FC/2 : ENGLISH – II	Students should be able to : i) read, understand and analyze poems. ii) understand and analyze short stories.
4	Elective Core Subject I : Course II	Students should be able to : i) understand and have an outline knowledge of the history of English Language. ii) understand and have a basic knowledge of Phonetics.
5	ENG/III/FC/3 : Alternative English	Students should be able to : i) read, understand, interpret and analyze poems. ii) understand and analyze short stories.
6	ENG/III/CC/3 : Poetry & Short	Students should be able to : i) read, understand, analyze poems

	Stories	ii) understand and analyze translated short stories from the North East.
7	ENG/IV/EC/4 : Fiction – I	Students should be able to : i) understand the term Fiction ii) understand, interpret and analyze fiction written in the 18 th Century.
8	ENG/V/CC/5 : Drama –I	Students should be able to : i) understand drama as a genre of literature ii) understand, interpret and analyze dramatic works written in the Elizabethan Age.
9	ENG/V/CC/6 : Women’s Writings	Students should be able to : i) understand the concept of Feminism. ii) understand women’s writing as an important area of literary studies iii) understand, interpret and analyze works by women writers across cultures.
10	ENG/V/CC/7 : Literary Theory and Criticism	Students should be able to understand the development and various approaches to criticism in English Literature from the classical period to the contemporary criticism of 20 th Century.
11	ENG/V/CC/8 : Fiction II	Students should be able to understand, interpret and analyze 20 th century English novels.
12	ENG/VI/CC/9: Indian Writing in English	Students should be able to : i) understand the cultural and critical nuances of Indian Writing in English. ii) understand, interpret and analyze works by select Indian Writers.
13	ENG/VI/CC/10 : Drama – II	Students should be able to understand, interpret and analyze dramatic works written during the Modern period.
14	ENG/VI/CC/11: Literary Criticism	Students should be able to understand, interpret and analyze selected critical works that form the foundation of various critical approaches to literature.
15	ENG/VI/CC/12: American Literature	Students should be able to understand, interpret and analyze selected works by well known American writers.

COURSE OUTCOME

Subject: Geography

Programme Objectives

The objectives of an undergraduate course in Geography are designed to provide students with a comprehensive understanding of both the physical and human aspects of the subject.

Common objectives include:

- (i) Understanding the Fundamentals of Geography
- (ii) Exploring and Understanding Human-Environment Interaction
- (iii) Developing Geospatial Analysis Skills
- (iv) Enhancing Fieldwork and Research Abilities
- (v) Fostering Global and Local Awareness
- (vi) Encouraging Sustainable Thinking
- (vii) Preparing for Professional Careers and Further Studies

Programme outcomes

Program outcomes for an undergraduate degree in Geography typically include a blend of theoretical knowledge, practical skills, and interdisciplinary approaches. Students will develop the ability to analyze the complex relationships between human societies and the natural environment, including issues such as resource management, deforestation, urbanization, and climate change. They will understand geography at different scales—local, regional, and global—enabling them to appreciate cultural diversity, economic disparities, and environmental challenges worldwide. Students will also gain awareness of sustainable practices, conservation strategies, and environmental policies to promote ecological balance and manage natural resources effectively. They will become competent in conducting geographical surveys, collecting data, and applying both qualitative and quantitative research methods to investigate geographical problems. Additionally, they will acquire proficiency in cartographic techniques, Geographic Information Systems (GIS), remote sensing, and other spatial analysis tools to understand and visualize geographic data. These outcomes equip students with a well-rounded understanding of geographical sciences and their practical applications.

Semester	Course Code	Name of Course	Course Outcome
1	Geog - 101	Physical Geography	Students will have a general understanding of physical geographic processes, the global distribution of landforms and ecosystems, and the role of the physical environment on human populations. The objective of this course is to introduce the latest concepts in the field of geomorphology and climatology.
2	Geog – 201	Human Geography	The objective of this course is to acquaint the students with the man- environment relationship and human capability to adopt and modify the environment under its varied

			conditions; identify and understand environment and population in terms of their quality and spatial distribution pattern, and to comprehend the need for managing and conservation of resources.
3	Geog – 301	Geography of India	This course aims at presenting a comprehensive, integrated and empirical based profile of India. Besides, the objective is to highlight the linkages of systematic geography of India with the regional personality of the country. It is designed so as to present the role of the geographical positioning of India in moulding its geographical personality and its inter-relations with other countries.
4	Geog – 401	Cartographic Technique (Practical)	This course is introduced to inculcate in the student a fairly high level of understanding cartographic techniques used in geographical studies and research.
5	Geog – 501	Geographical Thought	The course intends to acquaint the students with the distinctiveness of geography as a field of learning in social as well as natural sciences. It also aims at knowing the underlying philosophy and methodology of the subject.
	Geog - 502	Economic Geography	Students will have a general understanding of how the physical environment, human societies, and local and global economic systems are integral to the principles of sustainable development.
	Geog - 503	Surveying & Statistical Techniques	To develop a fairly high level of competence in the use of quantitative, cartographic and field work techniques used in geographical studies and research.
	Geog – 504 A	Population Geography (Optional A)	Students will have a general understanding of global human population patterns, factors influencing the distribution and mobility of human populations including settlement and economic activities and networks, and human impacts on the physical environment. Students will understand general demographic principles and their patterns at regional and global scales. To provide the students an understanding of spatial and structural dimensions of population and the emerging issues.
	Geog – 504 B	Agriculture Geography (Optional B)	This course is introduce to familiarised the students with the concept, origin and development of agriculture; examine the role of agricultural determinants towards changing cropping pattern, intensity productivity and diversification.

6	Geog - 601	Geomorphology	The course reviews topics within geomorphology and earth surface processes such as key concepts of geomorphology, landform development at different spatial and time scales, endogenic and exogenic processes, their controlling mechanisms, and their interaction to form the landscape. It considers different geomorphic contexts such as fluvial, coastal, aeolian and periglacial and the interaction between these and climate. The course involves field and laboratory methods relevant to geomorphology.
	Geog - 602	Remote Sensing & Geographical Information System (Practical)	This course is included to introduce to the students the basic principles of aerial photo and satellite imagery and Geographical Information Systems and to train them in visual and digital interpretation of satellite imagery.
	Geog - 603	Project Work (Practical)	Students will be able to use accepted field, laboratory and statistical techniques to quantify the quantity, characteristics, and history of physical phenomena for geographic research and natural resources management.
	Geog – 604 A	Urban Geography (Optional A)	This is concerned with various aspects of cities and emphasizes location and space and studies the spatial processes that create patterns observed in urban areas. To do this, they study the site, evolution and growth, and classification of villages, towns, and cities as well as their location and importance in relation to different regions and cities. Economic, political and social aspects within cities are also important in urban geography.

COURSE OUTCOME

Subject: History

Programme Outcome

- Students will have the ability to apply historical methods to evaluate the past and how historians and others have interpreted it.
- Students will be able to demonstrate broad knowledge of historical events and periods and their significance.
- Students will be able to recognize how different individuals, groups, organizations, societies, cultures, countries and nations have affected history.
- Students will offer multi-causal explanations of major historical developments based on a contextualized analysis of interrelated political, social, economic, cultural and intellectual processes.

Programme Specific Outcome

- By learning political processes, society, religion, culture, economy from the past periods of the world and utilized it to avoid mistakes and for improvement for the present and future generations.
- Acquiring the importance and value of museums, libraries, archives for historical research skills and other items having historical values and understanding the benefits of maintaining it for the future generations.
- Developing a sense of patriotism and nationalism by understanding the struggles and thrives of our forefather.
- Developing critical thinking skills, and comprehensive job-oriented study. It prepares them to face all competitive exams for civil services, teachers, politicians, social workers etc.

Course Code	Name of Course	Course Outcomes
UG/Hist/I/EC/01	History of Mizoram (upto the 1960s)	<ul style="list-style-type: none">• The course introduces to the students the nature of historical development in Mizoram such as culture, customs, traditions and practices of the Mizo.• It inculcated among the students the spirit of nationalism and the greatness of the traditional chiefs and their relations with the British
UG/Hist/II/EC/02	History of India upto Post Mauryan period	<ul style="list-style-type: none">• The course teaches students the elements of change and continuity in Indian history from the ancient period upto the post-Mauryan period.• It inculcated the knowledge of the social, political and cultural development during the said period.

UG/Hist/III/EC/03	History of India (Gupta to Sultanate Periods)	<ul style="list-style-type: none"> The course presents the method of historiographical studies to the students, the elements of change and continuity in the sphere of political, social and cultural particularly from the period of Gupta to Sultanate period.
UG/Hist/IV/EC/04	History of the Mughals	<ul style="list-style-type: none"> The course provides an overview of the main trends and developments in India during the Mughal period (1526-1757). It gathered, organized and reinterprets the existing sources, both primary and secondary. It also acquainted the students with the knowledge of socio-economic and political developments during these periods.
UG/Hist/IV/EC/05	Modern India-I	<ul style="list-style-type: none"> The course is intended to familiarize students with the rise and growth of British power in India. and imparts to the students the feeling of nationalism and patriotism.
UG/Hist/IV/EC/06	Historiography	<ul style="list-style-type: none"> The course acquaints the students about the real nature of history'. It teaches the students how to study history and the different historical school of thought. It prepares and helps the students for future research endeavours.
UG/Hist/IV/EC/07	Early Modern Europe	<ul style="list-style-type: none"> This course enlightens the students regarding the political, economic, religions and cultural history of continental Europe till the early modern period and the knowledge of the emergence of Europe as the first truly global power. It also gives lessons on the ideas that shape modern institutions.
UG/Hist/IV/EC/08(C)	History of North East India (1822-1986)	<ul style="list-style-type: none"> The course highlights the history of Assam and the whole of North East India with the major trends of socio-political and economic developments from 1822 to the reorganization of the states. It also imparts knowledge on the policies adopted by the British in North East India and the effect of India's

		nationalist's movement in North East India.
UG/Hist/IV/EC/09	Modern World History	<ul style="list-style-type: none"> The course covers the political transformation of the modern world from the 19th century till the end of the second war. It also imparts knowledge on the socio-cultural development during that period, knowledge on the first and the Second World War and the changes and continuity of the world.
UG/Hist/IV/EC/10	Contemporary World	<ul style="list-style-type: none"> The course imparts to the students the political history of the world since the end of the Second World War focusing on the change and continuity over time and space. It also inculcates knowledge on the socio-economic and cultural developments of the said period and cultural developments of the period and the globalization and its impact over the world
UG/Hist/IV/EC/11	Modern India -II	<ul style="list-style-type: none"> The course introduces the students to the historiography of Indian nationalism, the rise of nationalism and India's struggle for independence from British imperialism and the roles played by the leaders and different sections of the Indian during the freedom movement. it also acquainted the students with the British policy, stressing on the positive and negative effects
UG/Hist/IV/EC/12(A)	History of USA (1776- 1945)	<ul style="list-style-type: none"> This course introduces the students on early settlement and colonization by Europeans, how the American won freedom from British imperialism and its historical interpretation, the ways in which the history of the United States informs the current political and relationship to global culture.

COURSE OUTCOME

Subject: Mizo

Programme Outcome

Bachelor of Arts (BA) in Mizo equips students with deep comprehension of literature, culture, social dynamics and the analysis of historical landmarks concerning real world challenges. Programme Specific outcome refer to the abilities and skills that graduate students of a specific degree programme are expected to have upon completion of their studies.

Programme Specific Outcome

On the completion of the programme:

- Students will develop into adept and engaged readers, capable of embracing ambiguity and complexity while articulating their interpretations effectively. They will also cultivate an awareness and curiosity for diverse perspectives.

- Upon completion of the programme, students will have the competence to write proficiently across a range of professional and social contexts.

- Students will engage in writing as a purposeful process of inquiry, actively interacting with the ideas of other writers as they refine and evolve their own thoughts. Furthermore, they will exhibit the skill to revise content for appropriateness to the context and edit for grammatical accuracy and stylistic clarity.

- Students will acquire a comprehensive understanding of the evolution of literature, alongside insights into Mizo history and culture. Through this, they will cultivate the skill to analyze texts within their historical and cultural frameworks, thereby enhancing their comprehension of both the text and its context. This process will also contribute to their increased self-awareness within historical and cultural contexts.

- Students will cultivate a profound appreciation for the richness of literature and language, acknowledging and valuing literature's remarkable ability to evoke a wide range of emotions, stimulate creativity and imagination, and encourage deep introspection and self-reflection as individuals.

- Students will develop a critical mindset when engaging with literary texts, actively extracting and integrating ideas from these texts into their own reading and writing endeavors. This process will enable them to deepen their comprehension and analytical skills, enriching their overall approach to literature.

Sl. No	Course	Course Outcomes
1.	Course 1 Major MIZ100 Mizo Folksong I	At the early college level, students are expected to possess a foundational understanding of the Mizo language and the rich cultural heritage encompassing stories, songs, and folklore. Consequently, the initial course focuses on a period characterized by significant literary growth and heightened cultural awareness.

2.	Course 2 Major MIZ101 Mizo Thu leh Hla Chanchin	Upon completion of this course, students will have the ability to demonstrate a deep appreciation for the relevance and significance of theoretical models in the study of literature. They will showcase their understanding of essential theoretical methodologies by effectively summarizing key concepts and arguments.
3.	Course 3 Multidisciplinary MIZ102 Short Story	Students will acquire a comprehensive understanding of plot construction, characterization, settings, narration, heroism, and other crucial elements and techniques in literary analysis.
4.	Course 4 AEC Introduction to Mizo Language	The Mizo course, designed for the general student body proficient in the language or with a strong command of it, is deeply rooted in the cultured nature of Mizo traditional literature.
5.	Course 5 Major MIZ160 Poetry I	A Student in the college is assumed to have an average background and grounding in the Mizo language and the culture heritage of stories, songs and folklore. As such the first paper covers the period of high development and literary consciousness.
6.	Course 6 Major MIZ161 Short Play I	Dramatic presentation of religious themes formed as in England, the basis of Mizo Dramatic literature. The popularity of drama with the Mizo's indicated by the ease with which translation of the best in English literature have been made in Mizo, before writing in the language has seen a hundred years.
7.	Course 7 Multidisciplinary MIZ120 Essay I	Students will be able to analyse characteristic, structures, different kinds of essays and its history. Students will be able to understand the central idea of the texts. Upon completing the course, students will possess the skills to analyze characteristic structures and various types of essays, delving into their historical contexts. They will also develop the ability to discern the central ideas conveyed within texts.
8.	Course 8 Major MIZ200 Drama I	The dramatic portrayal of religious themes, akin to practices in England, forms the foundation of Mizo Dramatic literature. The widespread popularity of drama among the Mizo community is evident in the seamless translation of renowned English literary works into Mizo, predating the language's own literary development by a century.
9.	Course 9 Major MIZ201 Mizo Folk Narratives	Students will be able to interpret meaning of folk narratives in literature and its genre. Students will be able to value the importance of literature as it is the study of moral and culture through folk narratives.
10.	Course 10 Multidisciplinary MIZ202	A course in Mizo literature relies on conventional classification of literature not with standing the presence of

	Mizo Hnam Nunphung	distinct native classification. Mizo literary heritage is inseparable from the life of the people.
11.	Course 11 Major MIZ 203 Short Story II	Students should be able to read and write the novel/short story as the novel is growing and its development depends largely on the taste of the reading public whose taste may leave something desire.
12.	Course 12 Major MIZ 204 Mizo Folksong II	Students will gain the capability to analyze the significance of Mizo Folk songs in the realm of music, as they encapsulate a brief history of the individuals associated with the music. Folk songs serve as a vital conduit for passing down crucial information from one generation to the next. Additionally, these songs narrate stories of forgotten aspects of life or elements on the brink of disappearance, preserving cultural heritage and societal memories.
13.	Course 13 AEC Mizo Grammar and Writing Skills	Graduating in Mizo could pose challenges for non-native speakers, as even native Mizo speakers can find it perplexing due to its tonal nature, akin to Mandarin. The tone in which words are spoken can alter the meaning of many words. The Mizo Language is written using a straightforward Roman script, employing a phonetic spelling system derived from the widely recognized Hunterian system. It is classified within the Tibeto-Burman family of languages.
14.	Course 14 MZ/5/CC/5 Thu leh Hla Sukthlek (Theory of Literature)	Literary theory encompasses the collection of concepts and methodologies employed in the practical analysis of literature. It does not pertain to the literal meaning of a literary work but rather delves into theories that unveil the potential meanings literature can convey. Essentially, literary theory elucidates the foundational principles, akin to tools, utilized in our efforts to comprehend literature. While all literary interpretations are rooted in theory, they can manifest in various forms of critical engagement, serving as a justification for diverse critical activities.
15.	Course 15 MZ/5/CC/6 Selected Poems in English	Students will be able to introduce poetry with poems. Poetry can be a powerful teaching tool, helping students improve their literacy. It can also allow writers to express their emotions and allow readers to connect those emotions.
16.	Course 16 MZ/5/CC/7 Lemchan (Plays)	The dramatic portrayal of religious themes, akin to practices in England, forms the foundation of Mizo Dramatic literature. The widespread popularity of drama among the Mizo community is evident in the seamless translation of renowned English literary works into Mizo, predating the language's own literary development by a century. Upon completing the course, students will possess the skills to analyze characteristic structures and various types of essays, delving into their historical contexts. They will also develop the ability to discern the central ideas conveyed within texts.

17.	Course 17 MZ/5/CC/8(B) Mizo Hnam Nunphung (Mizo Cultural Studies)	In cultural studies, students often analyse popular culture, media, art, literature and everyday practices to understand broader social issues such as identity formation, globalization, inequality, resistance, and cultural presentation. Cultural studies provides a framework for examining culture as a dynamic and complex system that influences and reflects the experiences and perspectives of individuals and communities within society.
18.	Course 18 MZ/6/CC/9 Mizo Thu leh Hla Chanchin (History of Mizo Literature)	A study of the history of Mizo Literature offers insights into the rich literary heritage of the Mizo people, reflecting their cultural evolution, societal values and historical experiences. The history of Mizo literature reflects the resilience, creativity and cultural pride of the Mizo people, showcasing a vibrant literary tradition that continues to flourish and evolve in the contemporary era.
19.	Course 19 MZ/6/CC/10 Thawnthu (novels)	The Mizo novel may perhaps be seen as a direct take over from the avid storytelling of traditional folktales of our ancestor. Academy discipline is an important means of creating critical awareness and development of the genre.
20.	Course 20 MZ/6/CC/11 Hla (Poetry) - II	Students will have the ability to demonstrate a deep appreciation for the relevance and significance of poetry in the study of literature. They will showcase their understanding of different genre by effectively summarizing key concepts and arguments.
21.	Course 21 MZ/6/CC/12(B) Selected Essays in English	Students will be able to recognize the development of English essays and the life history of English essayist. They will be able to have a great inspiration to develop and understand the importance of Essay in literature. Students should be able to analyse characteristics, structures, different kinds of essays and its history.

COURSE OUTCOME

Subject: Public Administration

Programme Outcome

The B.A in Public Administration provides students with the knowledge and experience needed to begin careers in the not-for-profit and public service sectors.

The Public Administration Department is dedicated to provide a programme that will:

- i. Develop the conceptual foundation requisite for success in public administration careers.
- ii. Establish the ability to function effectively in complex, culturally diverse organisational structures.
- iii. Promote student commitment to ethical standards of managerial practice.
- iv. Understand the basic concepts of public administration.
- v. Have the research skills to critically analyze public administration issues and analyse managerial issues and policy recommendations.
- vi. Have the ability to communicate and interact productively with adverse and changing workforce and citizenry.
- vii. Be able to develop/formulate a public policy response to social or economic problem.

Specific Out Come

1. On the successful completion of the programme, the students will get comprehensive knowledge of public and private affairs, understand policy development, policy analysis, economic analysis, management skills and organization theory and application to public service.

2. The programme will nurture the analytical skills of the students in understanding, solving and synthesizing current social, economic and political situations.

3. Completion of the programme opens avenues for the students in pursuing a Masters Degree in Public Administration and pursuing their careers.

Sl. No.	Paper	Course Outcomes
1	Course-I: Elements of Public Administration	<ol style="list-style-type: none">1. Understand the meaning, nature, scope and significance of public administration, evolution of the discipline, difference between public and private administration.2. Understand the different approaches to the public administration.3. Understand the concept and structure of organization, headquarters and field relations.4. Understand the various Principles and Forms of Organisation.5. Understand how control over public administration is exercised.

2	Course-II: Administrative Theory	<p>On completion of the course, the students are able to:</p> <ol style="list-style-type: none"> 1. Understand the meaning and significance of Administrative Theory and the general Ideas of Kautiyya, Karl Marx, and VI Lenin on State and Administration. 2. Understand the classical theories of public administration like scientific management theory, Bureaucratic Organisation and theory of organizational principles. 3. Understand the various neo-classical theories of public administration 4. Understand the meaning and origin of behavioural theories of public administration. 5. Understand the meaning and importance of Comparative public administration.
3	Course- III: Public Administration in India	<p>On completion of the course the student are able to:</p> <ol style="list-style-type: none"> 1. Understand the Constitutional settings of Indian Administration. 2. Understand the Central Administration and important offices in Indian Administration. 3. Have general knowledge about important Ministries in India. 4. Have general information about the Administration of Union Territories, State and District administration. 5. Have basic knowledge about major issues and institutions in Indian Administration.
4	Course-IV: Public Personnel Administration	<p>On completion of the course, the student are able to:</p> <ol style="list-style-type: none"> 1. Understand the concept, meaning, nature, scope of public administration and various types of personnel system. 2. Understand the meaning and importance of recruitment and the main features of system of recruitment for All India, Central and State services. 3. Understand the meaning and importance of Classification—rank and position classification. 4. Understand the meaning and importance of Conduct and Discipline and have general knowledge about conduct rules, disciplinary rules and rights of Civil Servants. 5. Understand the meaning and importance of retirement, its features and forms and the various Retirement benefits of an employees.

5	Course-V: Bureaucracy and Development	<p>On completion of the course, the student are able to:</p> <ol style="list-style-type: none"> 1. Understand the concept, elements and types of bureaucracy and the ideas of Karl Marx and Max Weber on bureaucracy. 2. Understand how bureaucracy in India operates during British period and post Independent era. Acquire knowledge about the Indian Administrative Service, Indian Police Service and Indian Forest Service. 3. Understand the concept and dimensions of development , meaning, nature and scope of development administration and its differences from the traditional administration. 4. Understand the relationship between Bureaucracy and Development. 5. Understand the trends in development and Bureaucracy.
6	Course-VI: Local Self Government in India	<p>On completion of the course, the student are able to:</p> <ol style="list-style-type: none"> 1. Understand the meaning, characteristics and importance of local government. 2. Understand the genesis and evolution of local government in India and how the 73rd and 74th constitutional amendments affects and strengthens the local governments in India. 3. Understand the urban local government and functions of different urban local bodies. 4. Understand the different rural local bodies and their functions. 5. Understand the Legislative, Administrative and financial relations between the State Administration and local government institutions. Understand role and powers and functions of State Finance Commission.
7	Course-VII: Economic Administration	<p>On completion of the course, the student are able to:</p> <ol style="list-style-type: none"> 1. Understand the meaning, scope and importance of economic administration, New Economic Policy- liberalization, privatization and globalization. 2. Understand the meaning and importance of Planning, Plan formulation at the National, State and local level and different planning bodies in India. 3. Understand the forms, features and management of Public undertakings, different Industrial Policy Resolutions and Impact of New Economic Policy. 4. Understand the meaning, Principles and types of Budget and its preparation. 5. Understand the reforms in Indian economy especially in agricultural sector. Co-operative movement and public-private partnership in Economic development.

8	Course-VIII(A): Social Welfare Administration	<p>On completion of the course, student are able to:</p> <ol style="list-style-type: none"> 1. Understand the meaning, scope and importance of social welfare administration and important concepts of social welfare administration. 2. Understand different social problems – unemployment, Juvenile Delinquency, Drug addiction etc., different social legislation – Juvenile Justice Act, Domestic violence Act etc. 3. Understand the meaning and importance of social planning and the role and functions of Government and Voluntary Agencies. 4. Understand the organization and functions of Central Social Welfare Board and State Social Welfare Board and their relationship. 5. Understand the meaning and needs of Personnel For Social Welfare Personnel and the creation of a Special Cadre for Social Welfare Personnel.
9	Course-IX : Political and Administrative Institutions in the Hill Areas of North East India	<p>On completion of the course, the student are able to:</p> <ol style="list-style-type: none"> 1. Understand the geographical location and importance of North-East India, British Annexation of N.E India and its impact, Constitutional status of Mizoram under the Government of India Acts 1919 and 1935. 2. Understand the Political and Administrative Institutions at the grassroot level in the pre and post Independence Period- their powers and functions. 3. Understand the sixth Schedule of the Constitution and Administration of the Autonomous District council in Mizoram and Meghalaya; Organisation, power and function of the District and Regional Councils and their relations with the State Government. 4. Understand the District Administration in Mizoram and Meghalaya in pre and post Independence era. The creation of the States of Meghalaya and Mizoram. 5. Understand the Constitutional and Administrative instruments for the N.E.India like Inner Line Regulation, Mizoram Peace Accord, and Planning machinery at the State and District level and North Eastern Council(NEC).

10	Course-X: Administration of United Nations	<p>On completion of the course, the student are able to:</p> <ol style="list-style-type: none"> 1. Understand the meaning and evolution of International Organisation. League of Nations-Its origin and causes of failure. 2. Understand the Evolution and development, purposes and principles of the United Nations. 3. Understand the structure and functions of the UN- General Assembly, Security Council, ECOSOC, Secretariat and International Court of Justice. Understand the functioning of the Specialised agencies of UN- ILO, WHO, IMF, IBRD, World Bank.
11	Course-XII(B): Rural and Tribal Development Administration	<p>On completion of the course, the student are able to</p> <ol style="list-style-type: none"> 1. Understand the concept, nature and measures of level of rural development, socio-economic and political context: Rural Economy and its contribution to National Economy: Institutional Framework for Rural Development. 2. Understand Rural Development Policies – needs and goals; National Agriculture Policy, Land Reforms Policy; Role of Panchayati Raj System in Rural Development. 3. Understand Indian Tribes–demographic, cultural and geographical characteristics; Tribes Advisory Council; Constitutional Provisions, Policies and Approaches to Tribal Development, in India. 4. Understand Institutional framework for Tribal Development – Central, State and Local; Specialised Agencies – National Commission for Scheduled Tribes, Programmes.

COURSE OUTCOME

Subject: Political Science

Programme Outcome

Students will get practical knowledge of the political systems of the state, the country, and the entire world upon completion of this curriculum. They will learn the history of India's constitutional formation and recognize the key elements and philosophical underpinnings of the Indian Constitution. Besides these, understanding different constitutions will assist students in analysing, interpreting, and evaluating governmental events, trends, and structures and will also have a practical understanding of the most powerful forces at work. The essence and philosophy of the subject will be critically understood by the students, who will also assess government policies and produce insights that are pertinent to policymakers, their fellow citizens, and international communities. They will become excellent contributors to the society as a citizen who becomes an important asset to society, thanks to the knowledge they will acquire after completing the course.

Programme Specific Outcome

(i) Through this course, they will gain specific expertise about the political interpretation.

(ii) Irrespective of subject continuity, it will aid in the development of broad abilities that students will use in their future project.

(iii) They will be able to achieve their particular objectives and find work as academicians, All India Service and Central Service, State Service, Judicial Service, Politicians, and other professions.

Course Code	Name of Paper	Course Outcomes
POLS/I/EC/01	Paper I: Government and Politics of Mizoram	The political development of the state of Mizoram and the political history of Northeast India are introduced to students in this paper. Students would be familiar with Mizoram's political parties, both past and current, including their history, development, and accomplishments. The state's numerous local self-governments, both urban and rural, would also be introduced to the students. The study would shape the students a love and appreciation for their political heritage, an understanding of the importance of grassroots democracy, and an active participation in the functioning of the great Indian democracy.
POLS/II/EC/02	Paper II: Indian Government & Politics	Studying this course would impart knowledge about the Indian Constitution, the functions of different levels of government, the issues and

		future of Indian federalism, and the dangers and difficulties facing Indian democracy.
POLS/III/EC/03	Paper III: Major Political Systems	The course introduces students to the key elements of the constitutions, political structures, and governmental structures of the world's most powerful nations. Additionally, it allows students to compare the democratic systems in India and other countries.
POLS/IV/EC/04	Paper IV: Political Theory	Students gain knowledge through this paper such as the history and development of the state; the purpose and significance of the welfare state; the significance of key ideas like justice, equality, and liberty as well as how they are used in real-world situations. Furthermore, the definition and theories of democracy are taught to students.
POLS/V/CC/05	Paper V: Western Political Thought	Students would have grasped the concepts and ideas of the most prominent Western political theorists (from Plato to Marx). This would firmly establish the basis for comprehending the liberal ideals and theories of today that reinforce much of the world, including democracy, freedom, justice, equality, rights and obligations, governance, political systems, etc. Just as relevant today as it was two millennia ago is the pursuit of the perfect state and the ideal man.
POLS/V/CC/06	Paper VI: International Relations	The principles and issues of the international politics, current developments in international relations, and their implications for global peace and security would all be taught in this course. Studying the behaviours, responses, and interactions of international society's units yields a comprehensive picture of the global system.
POLS/V/CC/07	Paper VII: Public Administration	Government administration is the main topic of this course. It will help students grasp the value of sound policy creation and government initiatives, as well as the collaborative effort needed to foster stability. This course will give students the theoretical understanding and practical skills they need to help the government create and carry out policies that will improve the lives of its residents.

POLs/V/CC/08(A)	Paper VIII (a): Human Rights	Understanding human rights at the intellectual level and its practical implementation in society would be advanced by taking this course. Students will learn about the fundamental liberties to which they are entitled through this study. The goal of studying the rights of children, women, minorities, the elderly, and those with disabilities is to implant in them the value of tolerance and inclusivity in the formulation of public policy. Students will learn negotiation, mediation, and consensus-building techniques in this course, which aims to transform them into constructive change agents.
POLs/VI/CC/09	Paper IX: Indian Political Thought	Indian political philosophy from ancient times to the present is the main topic of this course. It will expose students to notable figures like Kautilya, Raja Ram Mohan Roy, Gokhale, Gandhi, Nehru, M.N Roy, J.P.Narayan and others who have influenced and still affect societies around the world. Along with introducing them to indigenous ideas like socialism, nonviolence, social liberalism, nationalism, and total revolution, all of which contributed to the contemporary development of India.
POLs/VI/CC/10	Paper X: Indian Foreign Policy	purpose of this topic is to provide students with an overview of the history of Indian foreign policy, including the different elements that have influenced it over the years. In a world where international politics are always evolving, it will also allow students to understand about the dynamics of Indian foreign policy. Along with learning about India's position in the global community, students would also learn about her relationship with major world powers and her close neighbours.
POLs/VI/CC/11	Paper XI: The United Nations	The United Nations is the largest international organization in the world, and this course will assist students in analysing its composition and operations. Through the study of their efforts to advance peace and security, it will assist in making students more aware of the pressing global concerns. Moreover, it will educate students to the UN's activities and human rights

		through its different agencies, including UNESCO, WHO, and ILO, as well as its programs, like UNICEF, UNDP, and UNEP. Additionally, it will examine the UN's need for reform and challenge its continued relevance.
POLS/VI/CC/12 (B)	Paper XII (b): South East Asia Politics	The course's objective is to increase the students' understanding of politics in Southeast Asia. Through a comparative analysis of these nations, it also provides insight into the political culture of South East Asian nations. At best, it makes the pupils aware of the various political systems and motivates them to understand the importance of these nations in the global community.

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COURSE OUTCOME

Subject: Botany

Program Specific Outcomes

- Perceive the significance of microbes and plants for human welfare, and structural and functional aspects of plants. Demonstrate simple experiments related to plant sciences, analyse data, and interpret them with the theoretical knowledge. Used interdisciplinary approaches such as ecology, economics ethics and policy to devise solutions to environmental problem.
- Understand the culturally specific way of how human see plants and the way we utilized plant species. Understand the distinguish features of angiosperm family and apply their knowledge in classification of Angiospermic plants.

Program Specific Outcomes

- Perceive the significance of microbes and plants for human welfare, and structural and functional aspects of plants. Demonstrate simple experiments related to plant sciences, analyse data, and interpret them with the theoretical knowledge. Used interdisciplinary approaches such as ecology, economics ethics and policy to devise solutions to environmental problem.
- Understand the culturally specific way of how human see plants and the way we utilized plant species. Understand the distinguish features of angiosperm family and apply their knowledge in classification of Angiospermic plants.

Course Code	Name of Course	Course Outcomes
BOT/I/CC/01	Cryptogams	In successful completion of this course, the students will be able to: 1. Illustrate diversity among algae, Fungi, Bryophytes and Pteridophytes and can categorize them. 2. Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles. 3. Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat. 4. Compare and classify Pteridophytes and Bryophytes based on morphology, reproduction and life cycle. 5. Evaluate the ecological and economic value of microbes, thallophytes and bryophytes.
BOT/II/CC/O3	Phanerogams	In successful completion of this course, the students will be able to: 1. Classify and compare Angiosperm and Gymnosperms based on the morphology, anatomy, reproduction and life cycles.

		<p>2. Evaluate the economic value of commercial crops such as Tea, Gram, Mustard, Teak etc.</p> <p>2. Explain anomalous growth occur in <i>Mirabilis</i>, <i>Bignonia</i> etc.</p> <p>3. Critically understand various taxonomical aids for identification of Angiosperms.</p> <p>4. Analyse the morphology of the most common Angiosperm plants of their localities and recognize their families.</p> <p>5. Illustrate and interpret various aspects of embryology</p>
BOT/III/CC/O5	Plant Physiology, Biochemistry, Ecology	<p>In successful completion of this course, the students will be able to:</p> <p>1. Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.</p> <p>2. Evaluate the role of minerals in plant nutrition and their deficiency symptoms. Interpret the role of enzymes in plant metabolism.</p> <p>3. Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants. Analyse the biochemical reactions in relation to Nitrogen and lipid metabolisms.</p> <p>4. Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and biotic factors on plant communities.</p> <p>5. Appraise various qualitative and quantitative parameters to study the population and community ecology. Correlate the importance of biodiversity and consequences due to its loss.</p>
BOT/IV/CC/07	Microbiology, Cytology, Genetics, Evolution	<p>In successful completion of this course, the students will be able to:</p> <p>1. Classify Bacteria based on morphology and nutrition.</p> <p>2. Recognize importance of microorganisms in antibiotics, food, beverage, and biofertilizer industry and in cycling Carbon and Nitrogen.</p> <p>3. Demonstrate techniques to observe the cell and its components under a microscope.</p> <p>4. Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.</p> <p>5. Elucidate the role of extra-chromosomal genetic material for inheritance of characters and evaluate the structure, function and regulation of genetic material</p>

BOT/V/CC/09	Fungi, Plant pathology, Biostatistics	<p>In successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Analyse and ascertain the plant disease symptoms due to Fungi and Bacteria. 2. Understand plant defense mechanisms and interaction between plants and pathogen. 3. Apply general method of control measures for disease infected plants. 4. Isolate pathogen from disease infected parts of plants. 5. Frame problems using statistical representation of relevant structure and relationship and solve using standard technique
BOT/V/CC/11	Algae, Lichen, Bryophytes	<p>In successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Classify algae based on pigments and storage product. 2. Comprehend economic importance of algae, Lichen and Bryophytes 3. Classify and compare different types Lichen based on habitat 4. Understand origin and evolution of Bryophytes and its reproduction.
BOT/V/CC/13	Cytogenetics, Plant breeding, Bioinformatics	<p>In successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Elucidate the role of extra-chromosomal genetic material for inheritance of characters. 2. Evaluate the structure, function and regulation of genetic material. 3. Understand the application of principles and modern techniques in plant breeding Past and present of plant cultures in vitro. 4. Grasp general idea of plant culture laboratory, media and sterility of equipment used in plant culture 5. Apply knowledge in existing software effective to extract information from large databases and to use this information in computer modeling.
BOT/V/CC/15	Environmental biology, Ethnobotany	<p>In successful completion of this course, the students will be able to</p> <ol style="list-style-type: none"> 1. Recognize the physical, chemical and biological components of Earth's system and how they function. 2. Used interdisciplinary approaches such as ecology, economics ethics and policy to devise solutions to environmental problem. 3. Demonstrate the need of environmental conservation to others.

		<p>4. Understand the culturally specific way of how human see plants and the way we utilized plant species.</p> <p>5. Acquire an understanding of the importance of plants in our daily life.</p>
BOT/V/CC/17	Pteridophytes, Gymnosperm, Palaeobotany and Palynology	<p>In successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the evolution of plants through Geological time scale 1. Gain knowledge of life cycle of some Gymnosperm and Pteridophytes plants. 2. Understand ovules evolution in Gymnosperm 3. Explain the process of fossilization and compare the characteristics of extinct and extant plant 4. Justify evolutionary trends in Tracheophytes to adapt for land habitat. 5. Gain knowledge in pollen allergy and Palynology.
BOT/V/CC/19	Angiosperm taxonomy, Anatomy and Embryology	<p>In successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the comparative account among the families of angiosperm and its diversity. 2. Understand the distinguish features of angiosperm family and apply their knowledge in classification of angiospermic plants. 3. Comprehend how different plant tissue structures evolve and modify their function with respect to their environment 4. Identify different types of plant tissues and make them able to correlate their physiology. 5. Illustrate and interpret various aspect of embryology
BOT/V/CC/21	Plant metabolism, Biochemistry and Thermodynamics	<p>In successful completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand bio-molecules, metabolites and pathways that are the prerequisite. 2. Understand biosynthesis of plant hormones and their action. 3. Interpret the role of enzymes in plant metabolism. 4. Extract and separate plant pigments by paper chromatography 5. Understand laws of thermodynamics and the concept of free energy, enthalpy and entropy.
		<p>In successful completion of this course, the students will be able to:</p>

BOT/V/CC/23	Plant biotechnology, Experimental Embryology	<ol style="list-style-type: none">1. Acquire knowledge in techniques, mechanisms and biotechnological methods in plant development.2. Demonstrate southern, western and Northern blotting technique.3. Gain general idea in tissue culture techniques and how to prepare media.4. Explain different enzymes used in molecular cloning5. Understand the process of micropropagation.
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LEARNING OUTCOME

Subject: Chemistry

The CBCS Course curriculum of the discipline of Chemistry is well designed and very promising. The core course would help to enrich the subject knowledge of the students and increase their confidence level in the field of both academia and industry. Generally, electives make integration among various interdisciplinary courses to fulfil the vision and mission of designing the course. The introduction of Skill Enhancement Courses (SEC) would help to gain more powerful knowledge not only in their core Chemistry subject but also in interrelated multidisciplinary subjects both theoretically and practically. The inclusion of Discipline Specific Courses (DSE) has brought an opportunity in front of students to gain knowledge on various naturally and industrially important useful materials and also helps them to familiar and expert in handling different chemistry-based software after proper training. In brief the student graduated with this type of curriculum would be able to disseminate subject knowledge along with necessary skills to suffice their capabilities for academia, entrepreneurship and industry. After careful analysis of the course, the department of Chemistry has pointed out the following outcomes of the course.

Semester	Course Code	Course Outcomes
I	CHEM/I/EC/01 Inorganic Chemistry-I- Theory	To know the modern structure of atom. To study periodic properties of elements and redox reactions. To study the chemical bonding and shapes of the molecules. To learn about the co-ordination compounds. To study about of nuclear chemistry and radioactivity.
	Inorganic Chemistry-I- Practical CHEM/I/EC/02	To learn how to detect basic and acid ions experimentally following standard procedure. To learn how to prepare different types of standard solutions. To learn acid and base titrations.
II	CHEM/II/EC/03 Organic Chemistry-I- Theory	To study about electron-displacement effects in organic molecules and the basic concept of reaction mechanism. To study about aromatic and aromatic halogen compounds. To study about aldehydes and ketones. To study about aromatic and aliphatic amines. To study Nucleophilic Substitution Reactions and elimination reactions in organic reactions.
	CHEM/II/EC/04 Organic Chemistry-I- Practical	To learn about the experimental method for systematic qualitative analysis of organic compounds containing one functional group. Detection of elements (N, Cl, Br, I, S). Detection of the following functional groups (with systematic reporting) -COOH, -NH ₂ , -NO ₂ , -OH (phenolic) & -CO (Carbonyl group) and amide

III	CHEM/III/EC/05 Physical Chemistry-I- Theory	To understand the basic concept of kinetic theory of gases and know how to solve numerical problems related to that topic. To learn the transport processes of liquids and gases. To learn about the colloidal solution and its properties. To study about the dissociation equilibria of weak acids, bases and water. pH of water and pH scale , buffer solution. Hydrolysis of water etc. To study about the need of a second law of thermodynamics. Heat engines and its use.
	CHEM/III/ C/06 Physical Chemistry-I- Practical	Determination of Surface tension of a field liquid by Drop number method. Determination of coefficient of viscosity by Oswald's viscometer of ethanol – water system. Determination of water equivalent of a calorimeter. Determination of heat of neutralization of a strong acid with strong base. Study of Heat of dilution of H ₂ SO ₄ and then determination of the strength of the unknown acid.
IV	CHEM/IV/EC/07 Analytical Chemistry-I- Theory	To study about the Safety and hygiene in the Chemistry Laboratory and qualitative analysis. To study about the Classical separation methods in liquids. To study about the Evaluation of experimental Data In analytical chemistry. To study about the procedure of Volumetric analysis. To study about the procedure of gravimetric methods in analytical chemistry.
	CHEM/IV/EC/08 Analytical Chemistry-I- Practical	Determination of indicator constant- colorimetry. Beer's Law - Determination of concentration of solution by colorimetry. Determination of pH of a given solution using glass electrode. Dissociation constants of weak acid, base. Determination of pH of a given buffer. To titrate HCl solution against NaOH solution potentiometrically and to determine the concentration of HCl in a solution. To titrate a solution of Fe ²⁺ salt against Cr ₂ O ₇ ²⁻ and to determine the formal redox potential of Fe ²⁺ reversible to Fe ³⁺ system. To carry out the following Iodo / Iodimetric Titrations
V	CHEM/V/CC/09 Inorganic Chemistry-II- Theory	To study about the different parameter of solids. To study the modern approaches of chemical bonding (Molecular Orbital Theory, Metallic Bonding concept, Role of weak intermolecular forces). To study the chemistry of s and p block elements including noble gases and their compounds in detail To study about the concept of , Acids and bases, Non-Aqueous Solvents, Molecular symmetry. To study the chemical and physical properties of d and f Block elements and their compounds. To study about Coordination Chemistry. Valence Bond theory (inner and outer orbital

		complexes). Crystal field theory, factors influencing the magnitude of crystal field splitting, crystal field splitting in octahedral, tetrahedral and square planar geometry. CFSE in weak and strong fields.
	CHEM/V/CC/10 Inorganic Chemistry-II- Practical	To learn the preparation of the following inorganic compounds: Cuprous Chloride, Cu_2Cl_2 , Aluminium Potassium sulphate $\text{K}_2\text{SO}_4 \cdot \text{Al}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$ (Potash alum) or $\text{K}_2\text{SO}_4 \cdot \text{Cr}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$ (Chrome alum). Tetra ammine copper (II) sulphate, $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4 \cdot \text{H}_2\text{O}$. Potassium trisoxalatochromate (III), $\text{K}_3[\text{Cr}(\text{C}_2\text{O}_4)_3]$. Micricosmic salt, $\text{Na}(\text{NH}_4)\text{HPO}_4 \cdot 4\text{H}_2\text{O}$. Potassium chlorochromate (III), $\text{CrO}_2\text{Cl}(\text{OK})$. Sodium cobaltinitrite $\text{Na}_3[\text{Co}(\text{NO}_2)_6]$. Chrome red, $\text{PbCrO}_4 \cdot \text{PbO}$. To learn about the gravimetric analysis of (i) Estimation of nickel (II) using Dimethylglyoxime as the precipitant. (ii) Estimation of sulphate as Barium sulphate / Barium as Barium sulphate. (iii) Estimation of iron as Fe_2O_3 by precipitating iron as $\text{Fe}(\text{OH})_3$.
	CHEM/V/CC/11 Organic Chemistry-II- Theory	To study about the basic concepts of Stereochemistry. The concept of geometrical and optical isomerism. E & Z system of nomenclature, geometrical isomerism in oximes and alicyclic compounds and Sequence rules, D & L and R & S system of nomenclature. To study about conformational isomerism in organic compounds. To study about the heterocyclic organic compounds. (a) To study about Active Methylene Compounds: Definition of active methylene group, examples of active methylene compounds, tautomerism, difference between tautomerism and resonance (Keto-enol tautomerism). (b) To study the following name reactions: Cannizzaro's reaction; acidity of α -hydrogen in carbonyl compounds, formation of enolates, aldol condensation, Perkin-reaction, benzoin condensation, Clemmensen and Wolff-Kishner reductions. To study about organic synthesis and name reactions: Formation of carbon-carbon bond, electrophilic and nucleophilic carbon species, acid-assisted reaction (Friedel Crafts alkylation and acylation), base- assisted condensations (Knoevenagel, Michael, Wittig reaction, Reformatsky reaction, Claisen-Schmidt reaction, Mannich reaction); Formation and acid-assisted cleavage of acetals and ketals; mechanisms of formation and hydrolysis of esters and amides (acyclic and cyclic)

	CHEM/V/CC/12 Organic Chemistry-II- Practical	To learn experimentally the following organic preparation: Preparation of the following organic compounds, Phthalimide, Dinitro benzene, Picric acid Benzoic acid, Aspirin from methyl salicylate. To learn experimentally about the separation of binary organic mixture by acid and base concept in the laboratory and also the determination of melting point of organic compound.
	CHEM/V/CC/13 Physical Chemistry-II- Theory	To study about Maxwell's Distribution Law of Molecular Velocities (Derivation); Evaluation of average, root mean square (rms) & Most Probable Velocities, and Average Kinetic Energy (KE) from Maxwell's law, KE as a function of Temperature; Degrees of freedom; Law of Equipartition of Energy. To study about the solid state: Space lattice and Unit cell (Definitions); Laws of Crystallography; Laws of Constancy of Interfacial angles and Rational indices; Miller indices; Law of Symmetry: Symmetry Elements in Crystals, Seven crystal systems. Bravais lattices; X-ray Diffraction by Crystals; Derivation of Bragg's equation. Experimental methods of crystal analysis; Bragg's X-ray spectrometer; The Debye- Scherrer powder method. To understand rate laws, rate equations of different types of reactions, determine rate constant values, order of reactions, effect of temperature and other factors on reaction rate, homogenous catalysis, catalytic effect on reaction rate, equations related to chemical catalysis. To study the Third Law Statement; Nernst Heat Theorem; Calculation of absolute Entropy from Heat Capacity Data (up to Debye T^3 Law); Concept of Residual Entropy, Gibb's (G) and Helmholtz (A) Energy; Gibb's - Helmholtz Equation; Variation of G and A with P, V, and T. and thermodynamics of Open System Concepts of Partial Molar properties and Partial Molar Energy (Chemical potential), Gibbs – Duhem equation. Variation of Chemical potential with T & P. To study about the Electrical Conductance; Specific, Equivalent and Molar Conductivity; Variation of Conductance with Dilution for weak and strong electrolytes; Kohlrausch's Law of independent migration of ions. Arrhenius theory of Electrolytic dissociation; Ostwald's dilution law, Ionic strength, Debye – Huckel – Onsager equation for strong electrolytes (derivation not required), Asymmetry effect; Electrophoretic effect. Drift Velocity, Ionic mobility and Transport number; Determination of

		transports number by Hittorf's and Moving boundary Method.
	CHEM/V/CC/14 Physical Chemistry-II- Practical	Determination the solubility of a given salt (BaCl_2) at two temperatures (60°C and 40°C) and to determine the heat of solution. Determination of the solubility of benzoic acid (an organic acid) at two temperatures (50°C and room temperature); and then to determine the heat of solution of that solute. Determination of the strength of the given ferrous sulphate solution potentiometrically. Determination of velocity constant of the hydrolysis of methyl acetate, catalysed by an acid. Determination of the strength of hydrochloric acid solution (approx. N/10) by titration against standard sodium hydroxide solution conductometrically (use oxalic acid for the standardization of sodium hydroxide conductometrically). Acid-Alkali titration using potentiometer. Determination of the strength of a halide solution potentiometrically using silver nitrate. Conductometric titration of a weak acid and a strong base. Conductometric titration of a strong acid and a weak base.
	CHEM/V/CC/15 (B)* Industrial Chemistry (Option B)	To study about the Fertilizer: Essential nutrients (N, P, K) and their role in plants; Manufacture, important properties and uses of - Nitrogenous fertilizers (Urea, Ammonium Sulphate, Calcium Ammonium Nitrate), Phosphatic fertilizers (Calcium Superphosphate, Phosphate Slag), Potash fertilizers (Potassium nitrate) and mixed fertilizers; Biofertilizers. Cement: Composition of Portland cement; Essential raw materials, manufacture (through wet process) and setting of cement. Glass: Raw materials for glass manufacture, Manufacture of ordinary glass, Variety of glass (Soft glass, Hard glass, Flint glass, Jena glass, Pyrex glass, Crooke's glass, Quartz glass and Safety glass). To study about the Fermentation Technology: Introduction, application of fermentation-microbial biomass, microbial enzyme, transformation process, recombinant products, fermentation process, mode of operation

		<p>fermentation process, the genetic improvement of product formation-mutation. Food Technology: Introduction, food safety assurance, food chemistry-carbohydrates, proteins, lipids, minor components of foods, water in foods, food processing-fundamental of fluid flow, food preservation, food process and flowcharts, refrigerated transport of fruits and vegetables. To Study about the Leather Industry: Curing, preservation and tanning of hides and skins, process of dehairing and dyeing, treatment of tannery effluents. Chemical Explosives: Origin of explosive, preparation and chemistry of lead azide, nitroglycerine, nitrocellulose, TNT, Dynamite, cordite, picric acid, gunpowder, introduction to rocket propellants. To Study about the Coal: Origin and economics importance of coal, type's analysis and composition, coal gasification, carbonisation, coal-tar based chemicals manufacture, coal mines in India. Petroleum: Origin, refining, cracking, reforming knocking and octane number, synthetic gas, synthetic petrol. Fuel gases: large scale production, storage, hazards and uses of coal gas, water gas, producer gas and oil gas. To study about the Polymer Industry: Important industrial polymers, preparation and applications-polyethylene, polyamides, PVC, polyethylmethacrylate, polyesters, polyurethanes, phenol-formaldehyde. Textile Industry: Introduction, textile industry-role of textile designers, timing in the textile industry, designer's projection, adhesives, colour-considerations in textile design techniques of forming colour combinations, changing colour looks, presenting of colour combinations.</p>
	CHEM/VI/CC/16 Inorganic Chemistry-III-Theory	To study about the Organometallic compounds-Definition and classification of organometallic compounds. Preparations, properties and applications of alkyls and aryls of, Magnesium, Boron and Tin. A brief account of bonding in -metal-alkenyl complexes.
	CHEM/VI/CC/17 Inorganic Chemistry-III-Practical	To learn about the experiment of Complexometric (A) Titrations: (i) Complexometric estimation of (i) Mg^{2+} (ii) Ca^{2+} using EDTA (ii) Estimation of temporary, permanent and total hardness of water sample(s). (B) Argentometry: Estimation of Cl^- (i) By Mohr's method (ii) By Vohlard's method. (C) Oxidation-Reduction Titrations: (i) Estimation of Fe(II) and oxalic acid using standardized $KMnO_4$ solution. (ii) Estimation of Fe (II) with $K_2Cr_2O_7$ using internal (diphenylamine/ anthranilic acid) and external (potassium ferricyanide) indicator.

	CHEM/VI/CC/18 Organic Chemistry-III-Theory	To study about the organo photochemistry. To study about pericyclic reaction. To study about the organo metallic compound. Organozinc Compounds – formation and chemical reactions. Organolithium Compounds – formation and chemical reactions Oanosulphur compound and synthetic application of Grinad’s reagent. To study about the spectroscopy: Mass and NMR spectroscopy
	CHEM/VI/CC/19 Organic Chemistry-III-Practical	Study the 200-500 nm absorbance spectra of KMnO_4 and $\text{K}_2\text{Cr}_2\text{O}_7$ (in 0.1 M H_2SO_4) and determine the λ_{max} values. Calculate the energies of the two transitions in different units (J molecule^{-1} , kJ mol^{-1} , cm^{-1} , eV). Study the pH-dependence of the UV-Vis spectrum (200-500 nm) of $\text{K}_2\text{Cr}_2\text{O}_7$. Record the 200-350 nm UV spectra of the given compounds (acetone, acetaldehyde, 2-propanol, acetic acid) in water. Comment on the effect of structure on the UV spectra of organic compounds.
	CHEM/VI/CC/20 Physical Chemistry-III-Theory	To study about the Photochemistry: Difference between Thermal and Photochemical reactions; Grotthus-Draper law; Beer-Lambert’s Law; Stark-Einstein law of photochemical equivalence and quantum yield, Photochemical reactions involving dissociation of HI, CH_3CHO ; Photo-sensitized reaction involving photosensitizes; Quenching & Chemiluminescence. To study about the Quantum Chemistry, Black body radiation; Planck’s radiation law; Photoelectric effect; heat capacity of solids; Postulates of quantum mechanics; Schrodinger wave-equation and its applications to i) free particles ii) particle in a one dimensional (1D) box, quantization of energy levels, zero point energy, Schrodinger wave-equation for H-atom and its separation into three equations (without derivation). To study about the Statistical Thermodynamics Limitations of classical thermodynamics; Concept of distribution of energy; Thermodynamic probability; Boltzmann distribution law. Molecular partition function and its physical significance; Translational, Rotational, Vibrational and electronic partition functions; Relationship between thermodynamic functions and partition functions. To study about the Molecular spectroscopy: Interaction of Electromagnetic Radiation with molecules; Various types of Spectra, Born – Oppenheimer approximation. (a) Electronic Spectroscopy: Electronic spectra of diatomic molecules; selection rules; fate of electronically excited states - radiative and non-radiative

		<p>decay, fluorescence and phosphorescence. (b) Rotational spectroscopy: Rotational energy levels of diatomic molecules (rigid rotor); relationship between the structure/nature of the molecule and selection rule; relative intensity of rotational spectral lines; determination of bond-length. (c) Vibrational Spectroscopy: Vibrational energy levels of diatomic molecules (one dimensional harmonic oscillator); relationship between the structure/nature of the molecule selection-rules; evaluation of force constant from fundamental frequencies; anharmonicity and Morse potential. Dissociation energy, overtones, and hot bands. (d) Raman Spectroscopy: Classical theory of Raman Effect; relationship between the structure/nature of the molecule Selection rules; Effect of nuclear spins, stokes and anti-stokes lines, Mutual exclusion rule. To study about the Electrochemistry: Chemical cells, reversible and irreversible cells with examples. Electromotive force of a cell and its measurement, Nernst equation; Standard electrode (reduction) potential and its application to different kinds of half-cells. Application of EMF measurements in determining (i) free energy, enthalpy and entropy of a cell reaction, (ii) equilibrium constants, and (iii) pH values, using hydrogen, quinone-hydroquinone and glass electrodes.</p>
	<p>CHEM/VI/CC/21 Physical Chemistry-III- Practical</p>	<p>To learn the following experiment: Determination of the partition coefficient of Iodine between CCl_4 and water. Determination of the partition coefficient of Iodine between Kerosene and water. Determination of the partition coefficient of benzoic acid between benzene and water. Verification of Beer-Lambert's law using copper sulphate or $\text{K}_2\text{Cr}_2\text{O}_7$ solution, Colorimetrically or Spectrometrically and determination of the concentration of the above solution. To study the adsorption of oxalic acid on activated charcoal and to verify Freundlich's adsorption isotherm. Preparation of colloidal sols of Arsenious sulphide, $\text{Fe}(\text{OH})_3$, and Prussian blue sols.</p>
	<p>CHEM/VI/CC/22 Natural Products (Option B)</p>	<p>To study about the Stereochemistry: Absolute stereochemistry of morphine and benzyl isoquinoline alkaloids, Conformation of naturally occurring germacranolides, Stereochemistry of rotenoids, Abietic acid, Menthol and and Vinblastine. To study about the Reactions & Rearrangements and Biological significance of Secondary Metabolites: Rearrangement reaction of Morphine, The Wesley – Moser</p>

	<p>rearrangement, Molecular Yoga: A survey of the methods used for determination of structures: Spectroscopic Methods: Ultraviolet – Visible spectroscopy, Infrared Spectroscopy, NMR Spectroscopy, Mass Spectroscopy. Reactions of papverine, The Nametkin rearrangement I Insect Pheromones, Plant - Insect interactions, Defensive secretion of Insects. To study about the semiochemicals and biosynthesis Synthesis of a semiochemical, Synthesis of a chiral marine natural product, A stereoselective Synthesis of reserpine, Synthesis of a paraconic acid. Biosynthesis of some benzyloquinoline alkaloids, Biosynthesis and transformation of isoflavones, Reticuline to morphine.</p>
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IQAC, Govt. Kolasib College

COURSE OUTCOME

Subject: Mathematics

Programme Outcome

Students graduating with Bachelors of Science in Mathematics will

- (i) Acquire knowledge with facts and figures related to Mathematics
- (ii) Understand basic concept, fundamental principles and scientific theories related to various scientific phenomena and their relevance in day-to-day life
- (iii) Understand application of Mathematics in different fields
- (iv) Develop creative thinking to propose novel ideas in explaining facts and figures and providing solutions mathematical problems in variety of contexts

Course Code	Course	Course Outcomes
MATH/I/CC/111	CALCULUS	The course will enable the students to sketch different types of graphs in cartesian coordinate systems, calculate the limit and examine the continuity of a function at a point and interval, uses of derivatives and successive differentiation, Rolle's theorem, mean value theorem, expansion of functions examples of evaluation of integrals from the definition, statements with illustration of the results – fundamental theorem of integral calculus, differentiability of integrals of continuous functions, properties of definite integral, evaluation of integrals using these properties, reduction formulae for trigonometric and exponential functions, functions of several variables, partial derivatives, Euler's theorem for homogeneous function, double integral, sequences, cauchy's sequence, different tests for convergence of sequences
MATH/II/CC/121	ALGEBRA	The course enables the students to learn about binary operation, groups, subgroups, abelian groups, cyclic groups, cosets, Lagrange's theorem, Euler's theorem, Fermat's theorem, Homomorphism and Isomorphism of groups. The course helps the students grasp elementary properties of polynomials over real and complex numbers, sum and product of polynomials, division algorithm, remainder theorem, cubic and biquadratic equations, test of irreducibility of polynomials, roots of

		polynomial with real coefficients, fundamental theorem of algebra with its consequences, complex and n th roots of unity, relation between roots and coefficients of a polynomial, symmetric function of groups, De Moivre's theorem, solution of cubic and biquadratic equations by Cardan's method
MATH/III/CC/231	DIFFERENTIAL EQUATIONS	The course enables the students understand the concept of formation of differential equations, equations of first order and first degree, solutions by separation of variables and by substitution, homogeneous equations, linear equations, Bernoulli's equation, exact equations, reduction to exact form by integrating factors, concept of a general solution of a linear differential equations and also learn a few methods to obtain the general solution of such equations, ordinary differential equation, exact equation, linear differential equation of higher order, concept of partial differential equation and apply a range of techniques to solve first and second order partial differential equations.
MATH/IV/CC/241	VECTOR CALCULUS AND SOLID GEOMETRY	The course helps the students grasp the idea of products of vectors (scalar and vector), properties and geometrical applications, arc length, unit tangent vector, curvature, normal vector, derivatives of scalar and vector products, tangential and normal components of acceleration, concept of line integral, surface integral, volume integral, Stokes' theorem, Gauss divergence theorem, change of axes, pair of straight lines, general equation of second degree, condition for different conics, general conics, relation between cartesian coordinate, polar coordinate, cylindrical coordinate and spherical coordinate, visualize the fundamental ideas about coordinate geometry and learn to describe some of the surface by using analytical geometry, gain knowledge about regular geometrical figures and their properties, straight lines, sphere, cone, right circular cylinders.
		The course will enable the students to use difference operators and find numerical solutions of algebraic and transcendental

MATH/V/CC/351	COMPUTER ORIENTED NUMERICAL ANALYSIS I	equations by using Bisection Iteration, Regula falsi and Newton Raphson method. They can learn about interpolation and extrapolation, find numerical solutions of system of linear equations; Trapezoidal rule and Simpson's 1/3 rule, analyze and solve initial and boundary value problems in differential equations using numerical methods, Taylor's series, Picard's, Euler's , Runge-Kutta and Milne's method
MATH/V/CC/352	REAL ANALYSIS	It helps students to understand basic properties of open sets and closed sets, compact sets, Euclidean spaces and related theorems. Students will develop concept from one variable to several variables, partial derivative , directional derivative, derivability of a function, extreme values of functions, metric spaces; open and closed sets , closure and interior of sets in metric spaces; complete metric spaces.
MATH/V/CC/353	COMPLEX ANALYSIS	The course enables the students understand the basic properties of complex numbers, distance function, triangle and related inequalities, polar representation, geometry of complex numbers, circular/spherical representation, basic properties of analytic functions, power series, analyticity in terms of Cauchy-Riemann equations, convergence of power series, Cauchy-Hadamard formula for radius of convergence, ratio test, integration of complex-valued functions, Cauchy's theorem and integral formula for disc, power series representation of analytic functions, Cauchy's estimate, Liouville's theorem, zeros of an analytic function, maximum modulus theorem.

MATH/V/CC/354A	OPERATIONS RESEARCH	<p>The course will enable the students</p> <ul style="list-style-type: none"> (i) How to formulate LPP and solve LPP with 2 decision variables by Graphical method. (ii) how to solve LPP by Simplex method (iii) learn to form dual problems and technique to solve it, to solve assignment problems, transportation problem (iv) how to solve Pure and Mixed integer programming problem. (v) how to solve different game theory problems <p>Students will acquire in depth knowledge about the fundamentals of Operations Research, its use in different fields in the form of optimization problems</p>
MATH/VI/CC/361	MODERN ALGEBRA	<p>The course will enable the students to – know normal subgroup, centre of a group, quotient group with examples, group homomorphism, understand theorems of group homomorphism, isomorphism, automorphisms, inner automorphisms with examples; know basic properties of rings, characteristics of rings, finite integral domains and examples; have a knowledge on various type of ideals, quotient ring, fields with examples; understand ring homomorphisms, kernels, ring isomorphism, determination of ideals in Z_p, divisibility in integral domains, units, associates, prime elements, irreducible elements, gcd, Euclidean domain, Principal ideal domain, unique factorization domains with examples; know vector spaces, basic properties with examples, subspaces, homomorphisms or linear maps between vector spaces, isomorphisms, understand standard homomorphism and isomorphism theorems, direct sum (internal and external), understand the concept of linear dependence and linear independence, basis and dimension; learn about properties of vector space axioms for the set $L(V, W)$ of linear maps from V to W and also learn the matrix of linear transformation in $L(U, W)$, change of basis theorem, Rank-Nullity theorem, equality of rank of a linear transformation and rank of the associated matrix.</p>

MATH/VI/CC/362	ADVANCED CALCULUS	Students will have knowledge about Riemann theory of definite integrals; improper integrals and tests for convergence, Abel's theorem, Dirichlet's Theorem, Frullani's integral. It helps students to integrals as functions of parameters and its applications, test for uniform convergence. Students can understand line integrals, double integrals, sequences and series of functions, term by term integration and differentiation of power series
MATH/VI/CC/363	MECHANICS	This course will enable the students to (i) understand reduction of coplanar forces; necessary, necessary and sufficient condition for equilibrium of coplanar forces, statical friction (ii) centre of gravity of rigid body, Moment of Inertia, Theorem of parallel axes and perpendicular axes and its application to determine C.G. of the bodies of different shapes (iii) motion of a particle in a straight line and in a plane. Tangential and normal components, radial and transverse components of velocity and acceleration, motion in resisting medium (iv) projectile (v) work, power and energy, impact, direct and oblique impact.
MATH/VI/CC/364B	ELEMENTARY NUMBER THEORY	The course helps the students develop the knowledge about divisibility of integers, division algorithm, Euclidean algorithm, primes in the set of integers, fundamental theorem of arithmetic, Euclid's proof of the infinitude, gaps in the distribution of primes, congruences in integers, residue system, Euler's ϕ -function, Fermat's theorem, Wilson's theorem, Lagrange's theorem, primitive roots, Legendre's symbols, Euler's criterion, Gauss lemma, Law of quadratic reciprocity, linear congruences, Chinese remainder theorem, greatest integer function, arithmetic functions, Mobius inversion formula, linear Diophantine equation, Pythagorean equation.

COURSE OUTCOME

Subject: Physics

Programme Outcomes:

Upon completion of CBCS B.Sc. (Physics) Degree Course, students will gain a profound understanding of fundamental Physics concepts and principles. They will develop essential experimental skills, including designing and conducting experiments, analyzing data, and interpreting results. Critical thinking and problem-solving skills will enable them to tackle complex physical problems with confidence. Students will also learn to plan, execute, and report on research projects, staying up-to-date with the latest scientific advancements. Effective communication skills will allow them to articulate complex concepts and collaborate seamlessly with others. Additionally, they will develop ethical awareness and professionalism, respecting intellectual property rights and environmental sustainability. Technological proficiency in ICT skills and relevant software will prepare students for a rapidly evolving scientific landscape. Moreover, they will cultivate a commitment to lifelong learning and professional development, ensuring they remain adaptable and innovative in their field.

Programme Specific Outcomes:

- The completion of B.Sc.(Physics) -6 Semester Degree Course will empower students to:
 - Develop comprehensive knowledge and understanding of major Physics areas.
- Integrate concepts from related disciplines to address complex physical phenomena.
- Apply theoretical knowledge to real-world scenarios through practical experience.
- Think innovatively and creatively to solve scientific problems.
- Evaluate and interpret experimental data with strong analytical skills.
- pursue Masters degree in Physics, applied physics etc in various universities.
- Communicate scientific information effectively to both technical and non-technical audiences.

Course Code	Name of Course	Course Outcomes
PHY/I/EC/01(T)	Properties of Matter, Oscillations and Acoustics	1. Understand Newton's laws of motion, coordinate systems, rotating frames, centripetal and Coriolis forces, center of mass dynamics, collision mechanics, conservation laws, and gravitational fields and potentials. 2. Understand rotational dynamics, including angular velocity, moments of inertia, torque, and their applications, as well as the principles of Special Theory of Relativity, including Lorentz transformations, time dilation, and mass-energy equivalence.

		<p>3. Understand elasticity (Hooke's law, elastic constants, torsion, and bending), fluid dynamics (flow rates, continuity, Bernoulli's theorem, viscosity, flow types), and surface tension (molecular basis, pressure, capillarity).</p> <p>4. Understand harmonic oscillations (differential equations, energy, examples) and standing waves (harmonics, sound quality, Chladni figures).</p> <p>5. Understand free and forced vibrations (maximum amplitude, resonance, sharpness), noise and music (human ear, audibility limits, intensity, musical scale, noise pollution), auditorium acoustics (Sabine's law, reverberation, live and dead rooms), and ultrasonics (production, detection, applications).</p>
PHY/II/EC/02(T)	Thermodynamics and Mathematical Physics-I	<p>1. Understand ideal and real gas behavior, including temperature interpretation, molecular speeds, specific heat capacities, Van der Waals forces, critical constants, and thermal conductivity.</p> <p>2. Understand the fundamental laws of thermodynamics, including the Zeroth law, first and second laws, Carnot cycle, entropy, and the third law. Understand thermodynamic relationships, potentials, Maxwell's equations, and the Clausius-Clapeyron equation for latent heat.</p> <p>3. Understand scalar/vector operations and applications of theorem. Learn curvilinear coordinates and tensor analysis.</p> <p>4. Understand matrices and its applications, characteristic equations, eigenvalues, eigenvectors, properties of Hermitian and unitary matrices, trace of a matrix, and diagonalization of symmetric matrices.</p> <p>5. Understand Beta and Gamma functions and their application in solving special integrals.</p>
PHY/III/EC/03(T)	Electromagnetism and Optics	<p>1. Understand concept of electric field, applications of Gauss's law, Poisson's/Laplace's equations. Understand capacitor fundamentals, including energy, surface forces, dielectrics, and parallel plate capacitors.</p> <p>2. Understand and apply the concept of electric current, including Ohm's law, Kirchoff's laws,</p>

		<p>network theorems and transient and alternating current behavior, to solve problems in various circuits and networks.</p> <p>3. Understand important magnetic phenomena, Biot-Savart's law, Ampere's law and magnetic field calculations. Understand electromagnetic induction principles, Faraday's laws, displacement current and modified Ampere's law.</p> <p>4. Understand the principles of interference of light, including superposition, Young's double-slit interference and interference by a Fresnel biprism, determining the wavelength of light, theory and application of Newton's rings, Michelson interferometer, concepts related to polarization, double refraction, optical rotation, Brewster's law and Faraday effect.</p> <p>5. Learn Fresnel and Fraunhofer diffraction, Fresnel half-period zones, zone plates, diffraction at slits and apertures, intensity distribution, Rayleigh criterion, resolving powers of telescopes and microscopes, diffraction gratings, intensity distribution, and resolving powers.</p>
PHY/IV/EC/04(T)	Atomic, Nuclear Physics-I and Solid State Physics-I	<p>1. Understand types of mass spectrograph, key concept of atomic structure such as Bohr's theory and Pauli's exclusion principle, X-ray spectra and Compton scattering.</p> <p>2. Understand principles of radioactivity, nuclear properties and reactions, including laws of disintegration, properties of alpha, beta, and gamma rays, nuclear fission, and fusion processes.</p> <p>3. Understand concept of crystal structures, including periodicity, unit cells, symmetry operations, lattice types, crystal planes, Miller indices, and simple structures like NaCl and diamond.</p> <p>4. Understand X-ray diffraction, including Bragg's law, Laue's equations and reciprocal lattice concepts, as well as different types of bonding in crystals and cohesive energy.</p> <p>5. Understand thermal properties of solids including specific heat theories (Dulong-Petit, Einstein, Debye), and the motion of electrons covering concepts like free electron motion,</p>

		electrical and thermal conductivity and Fermi energy.
PHY/V/CC/05(T)	Mathematical Physics-II	<ol style="list-style-type: none"> 1. Understand complex variables, Cauchy-Riemann conditions, series expansions, singularities, and the application of Cauchy's residue theorem in evaluating integrals. 2. Understand and apply methods to solve ordinary differential equations using power series and Frobenius method, and solve partial differential equations using separation of variables for heat flow, vibrating strings, and Laplace's equation. 3. Acquire knowledge about the special functions such as Legendre, Bessel and Hermite differential equations including generating functions, recurrence relations, and orthogonal properties of their respective polynomials and functions. 4. Understand concept of Fourier series, integrals and transforms and their applications to boundary value problems and acquire knowledge of the Dirac delta function and its properties. 5. Understand Laplace transforms and their properties, evaluating integrals with Laplace transform and inverse transforms, apply Laplace transforms to solve differential equations and boundary value problems.
PHY/V/CC/06(T)	Electronics-I	<ol style="list-style-type: none"> 1. Understand P and N-type semiconductors, conductivity, mobility, drift velocity, Hall Effect, PN junction diodes, barrier formation, and current flow in forward and reverse bias. 2. Study rectifier diodes (half-wave, full-wave), filters, Zener diodes for voltage regulation, LED, photodiode and solar cell principles, basic idea of Schottky and Tunnel diodes. 3. Study p-n-p and n-p-n transistors in CB and CE configurations, including regions of operation, current gains, load line analysis, biasing techniques like voltage divider bias, and amplifier classifications. 4. Learn about RC-coupled amplifiers, feedback, and study oscillators like Colpitt's and Hartley and Phase shift. 5. Understand op-amp basics and their ideal characteristics and applications, logic gates,

		truth tables, De-Morgan's theorem, Boolean algebra, binary number system, and logic circuit design.
PHY/V/CC/07(T)	Classical Mechanics and Nuclear Physics-II	<ol style="list-style-type: none"> 1. Learn center of mass motion, reduction of two-body to one-body problem, Kepler's laws, deduction of Newton's laws from Kepler's, constraints, virtual work, Lagrangian, Hamiltonian equations. 2. Understand basic nuclear properties and classification, binding energy, semi-empirical mass formula, nuclear stability, and decay processes such as alpha, beta and gamma. 3. Study nuclear models (liquid drop, shell model), artificial transmutation (reactions, conservation laws), nuclear fission (energy release, chain reactions) and nuclear fusion (p-p, C-N cycles), energy calculation. 4. Understand particle accelerators such as electrostatic, linear, cyclotron, betatron, synchrotrons and accelerators in India. Explore particle detectors: gas-filled, ionization chambers, cloud chambers, etc. 5. Understand cosmic rays' properties, including intensity variations, effects, origin and basic idea of elementary particles, discovery, conservation laws, strange particles, isospin, and quark interactions in particle physics.
PHY/V/CC/08(a)(T)	Atomic and Molecular Spectroscopy	<ol style="list-style-type: none"> 1. Understand the development of atomic models from Rutherford to Bohr and Sommerfeld, derive and apply Rutherford's cross section formula, analyze hydrogen spectral lines, and evaluate the limitations and advancements of each model, including fine structure corrections and quantum numbers. 2. Learn the vector atom model, quantum numbers, electron spin, spin-orbit interaction, magnetic moments, Lande's factor, coupling schemes, selection rules, Pauli's exclusion principle and the fine structure of hydrogen and alkali atoms. 3. Understand the Zeeman and Stark effects, X-ray fine structure and Auger effect, principles of lasers, including Einstein's coefficients, population inversion, pumping schemes, and rate equations for three-level systems.

		<p>4. Understand basic idea of the Born-Oppenheimer approximation, rotational and vibrational spectra of diatomic molecules, including rigid and non-rigid rotators, harmonic and anharmonic oscillators, selection rules, and the application of vibrational spectroscopy to determine molecular structures and distances.</p> <p>5. Learn the electronic configurations and states of homonuclear diatomic molecules, electronic band systems, Franck-Condon principle, selection rules, and rotational fine structure in vibrational transitions, Fortrat diagram, Raman effect and fundamentals of vibrational Raman spectra including a comparison with infrared scattering.</p>
PHY/VI/CC/09(T)	Quantum Mechanics	<p>1. Understand origins of quantum theory , photoelectric effect, Compton effect, De Broglie hypothesis, wave-particle duality, Davisson-Germer experiment, wave packets, two-slit experiment and Heisenberg's uncertainty principle.</p> <p>2. Understand postulates of quantum mechanics, Schrödinger's equation, eigen values and eigen function, probabilistic interpretation, one-dimensional problems (particle in a box, finite well), boundary conditions, normalized wavefunctions, bound states, and tunneling.</p> <p>3. Learn operator methods in quantum mechanics, simple harmonic oscillator, 3D particle in a box, spherical systems, angular momentum and hydrogen atom problem.</p> <p>4. Study angular momentum operators L^2 and L_z, their eigenvalues and eigenfunctions, spatial quantization, electron's angular momentum and magnetic moment, Bohr magneton, Stern-Gerlach experiment, electron spin hypothesis and Pauli spin operators.</p> <p>5. Understand Hilbert space, vector space, linear combinations, dependence/independence, inner products, basis sets, orthonormal sets, Gram-Schmidt process, matrix representation and Dirac's bracket notation.</p>
		<p>1. Understand Faraday's law of electromagnetic induction, energy storage in inductors and</p>

PHY/VI/CC/10(T)	Electromagnetic Theory	<p>magnetic fields, displacement current, modified Ampere's law, and Maxwell's equations in vacuum and material media with boundary conditions.</p> <p>2. Learn Maxwell's equations in vacuum and material media with boundary conditions. Explore electromagnetic waves in free space, including their wave equation, transverse nature, energy characteristics and radiation pressure.</p> <p>3. Study electromagnetic wave propagation in dielectric and conducting media, including reflection, refraction, polarization, Brewster angle, total internal reflection and skin depth.</p> <p>4. Explore magnetic and scalar potentials, their non-uniqueness, Lorentz and Coulomb gauge transformations, their role in Poisson's and Laplace's equations. Understand magnetic dipoles, Lorentz force law and momentum expressions using electromagnetic potentials.</p> <p>5. Study classical theory of radiation including Kirchhoff's, Stefan-Boltzmann, and Wien's laws. Explore quantum theory of radiation and deduction of radiation formulas, laser principles, thermal equilibrium, Einstein's coefficients and population inversion.</p>
PHY/VI/CC/11(T)	Thermal and Statistical Physics	<p>1. Learn about kinetic theory, brownian motion, Einstein's theory and Perrin's verification for Avogadro's number. Understand the law of equipartition of energy and deduce Maxwell-Boltzmann distribution and experimental verification by Stern. Explore concepts like mean free path and Born's experiment.</p> <p>2. Study gas transport phenomena, viscosity, thermal conductivity and diffusion, with pressure and temperature dependencies. Understand thermodynamic energy functions, Maxwell's relations, differences between CP and CV, and their applications to perfect and real gases. Explore Gibbs phase rule and its application to mono and di-component systems including triple points.</p> <p>3. Learn the statistical foundation of thermodynamics covering probability concepts, phase space representation and equilibrium properties. Understand thermal equilibrium,</p>

		<p>beta parameter, entropy and the Boltzmann distribution law.</p> <p>4. Explore canonical, micro-canonical and grand canonical ensembles, Stirling's approximation. Understand their probability distributions and thermodynamic quantities like internal energy, entropy, free energy, energy distribution, mean particle number and grand potential.</p> <p>5. Study Maxwell distribution of speeds for ideal gases, specific heat, internal energy, quantum statistics (Bose-Einstein, Fermi-Dirac), Fermi level and Fermi energy.</p>
PHY/VI/CC/12(a)(T)	Solid State Physics – II	<p>1. Understand lattice vibrations, phase and group velocities, dispersion relations, acoustic and optical modes, Brillouin zones, and phonons.</p> <p>2. Study the properties of dia-, para-, ferri-, and ferromagnetic materials, Langevin and quantum theories of magnetism, Curie's law, Weiss's theory, ferromagnetic domains, B-H curves, hysteresis, and energy loss.</p> <p>3. Understand polarization, dielectric properties including concepts like electric susceptibility, polarizability and the Clausius-Mosotti equation and dispersion phenomena.</p> <p>4. Learn band theory of solids, concept of holes, classification of solids based on energy bands, direct and indirect transitions and band gaps in materials like germanium.</p> <p>5. Study superconductivity concepts, including critical temperature, magnetic field, Meissner effect, types of superconductors, London's equation, penetration depth, isotope effect, BCS theory and variation of superconducting energy gap with temperature.</p>

COURSE OUTCOME

Subject: Zoology

Programme Outcome

This programme aims to guide students towards higher learning and understanding of zoological as well as biological and applied sciences. Deeper awareness of basic biological, ecological and evolutionary knowledge will help the students understand the importance of sustainable growth in tandem with nature. The knowledge of interconnected network of molecular interaction of different molecules such as nucleic acids, carbohydrates, proteins and lipids will help students gain a higher understanding of the biological world. This programme will help the students develop critical thinking and scientific temper and give them opportunities to contribute to the welfare of the society.

Programme Specific Outcome

- This course is designed to modernize students of the current concepts of life forms. Initial learning of different divisions and classification of animal life will impart the basic and fundamental knowledge of animal as well as plant life forms. Vectors and vector-borne diseases and their significance to human health and welfare will be thoroughly understood.
- The origin of life on earth over billions of years will be understood by the students. Biological understanding of the building blocks/molecules of life – amino acids, proteins, carbohydrates, lipids, nucleic acids and their interconnections and their specific roles in the human body along with the great adversities caused by genetic errors in these biomolecules is a major feature of this programme. Students will learn the basis of immune disorders, cancers and other genetic anomalies which are of concern to human health.
- Upon completion of the programme, the students will have developed a greater understanding of animal science and life sciences as a whole. Critical thinking as well scientific temper will be inculcated in the students which in will help them in their future career paths

Course code	Name of course	Course Outcomes
ZL-I	Biosystematics and Non-chordates Biology	Upon completion of the course - <ul style="list-style-type: none">• Students will understand the basis and fundamentals of animal classification.• Students will have a clear knowledge of internal and external characteristics of non-chordate animals.• Students will understand the distinguishing characters of non-chordates.• Students will gain an in-depth knowledge of the biology of Annelida, Arthropoda and Echinodermata.
ZL-III	Chordate Biology and Anatomy	Upon completion of the course –

		<ul style="list-style-type: none"> • Students will have a clear knowledge of different divisions of chordates • Students will understand the distinguishing features of chordates. • Students will gain a fundamental knowledge of the biology and anatomy of Pisces, Reptilia and Mammalia. • Students will learn the different systems and adaptations of chordates by studying model organisms.
ZL-V	Evolution and Ethology	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will understand the basis of evolution, natural selection and species formation. • Students will learn different hypotheses of origin of life on earth along with Zoo-geographical time scale. • Students will understand basic animal behaviour, communications, adaptations and mimicry in animals. • Students will understand societal structures of insects and the roles of hormones.
ZL-VII	Endocrinology and Reproduction Biology	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will understand endocrine organs and their associated hormones with disorders. • Students will study and learn mechanism of actions of hormones, along with regulation of homeostasis in the body. • Students will gain an in-depth knowledge of gamete formation in human. • Students will learn the fundamentals of menstrual cycle, pregnancy and associated hormones.
ZL-IX	Cell Biology	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will understand the basic unit of life, i.e., the cell and its fine structure. • Students will learn and understand different models of cell membrane structure. • Students will gain comprehensive knowledge of different cell organelles and transport of biomolecules across each organelle. • Students will have a clear understanding of cell cycle, its regulators and basis of cancer formation.

ZL-XI	Physiology	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will have a clear understanding of different organs of the body and their functions. • Students will study and learn the life-supporting systems of the body such as digestive, respiratory, circulatory, excretory and nervous systems. • Students will understand the structure and types of muscle and mechanism of muscle contraction. • Students will gain an insight on the conduction and transmission of nerve impulses in the body.
ZL-XIII	Biochemistry	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will learn the different biomolecules such as carbohydrates, proteins, lipids and nucleic acids. • Students will understand the synthesis and metabolism of biomolecules in the body. • Students will understand the generation of energy (ATP) in the body. • Students will learn different enzymes, vitamins and their functions.
ZL-XV A	Applied Zoology	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will have a clear understanding of commercial animal rearing - pisciculture, apiculture and sericulture. • Students will learn the fundamental process of pest management and vermicomposting. • Students will have an in-depth knowledge of fish farming, ornamental fishes, and adaptations in fishes.
ZL-XV B	Entomology	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will have a comprehensive knowledge of class Insecta and their distinguishing characteristics. • Students will learn the social behaviour of insects, the process of metamorphosis and its hormonal implications. • Students will understand the biology of commercially and economically important insects along with pest management.
ZL-XVII	Molecular Biology and Genetics	<p>Upon completion of the course –</p>

		<ul style="list-style-type: none"> • Students will have a clear understanding of the genetic and hereditary material – DNA and RNA. • Students will learn the replication of DNA, errors in replication. • Students will understand the central dogma of molecular biology and mendelian genetics. • Students will have a concise idea of sex determination, chromosomal aberrations, genetic disorders.
ZL-XIX	Developmental Biology	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will understand the basics of embryological development. • Students will learn the detailed structures of male and female gametes. • Students will have a clear idea of morphogenetic movements, metamorphosis, regeneration in animals along with hormonal regulation of the processes. • Students will understand the concept of ageing and stem cells.
ZL-XXI	Parasitology and Immunology	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will have a clear understanding of the life history and mode of infections of different pathogens. • The biology of Vectors and vector-borne diseases such as malaria will be understood by the students. • Students will have a learn the fundamentals of the immune system and its components. • Students will understand the concept of antigen and antibody. • Students will understand the concept of hypersensitivity and allergic reactions.
ZL-XXIII A	Biotechnology and Bioinformatics	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will learn the fundamental techniques of quantitative and qualitative analysis of DNA, RNA and proteins. • Students will understand the basic concept of genetic engineering and its application in medicine. • Students will gain an insight on the different databases for nucleotides and proteins. • Students will learn the process involved in phylogenetic analysis.

ZL-XXIII B	Ecology and Wildlife	<p>Upon completion of the course –</p> <ul style="list-style-type: none"> • Students will understand the concept of ecology and interactions among different organisms. • Students will learn the different biogeochemical cycles along with the issue of global warming and its implications. • Students will have a comprehensive understanding of community ecology and analysis of species diversity and richness. • Students will learn the need for conservation of natural resources along with anthropogenic effects on wildlife and environment.
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IQAC, Govt. Kolasib College

COURSE OUTCOME

Subject: Bachelor of Computer Application

Program Specific Outcome

- Computer application graduates will apply their knowledge and skills to succeed in their career/ professional development and/or postgraduate education to pursue flexible career paths amidst future technological changes.
- Our graduates will apply basic principles and practices of computing grounded in mathematics and science to successfully complete hardware and/or software related engineering projects to meet customer business objectives and/or productively engage in research.
- Our graduates will demonstrate a sense of societal and ethical responsibility in their professional endeavors, and will remain informed and involved as full participants in our profession and our society.
- Our graduates will demonstrate strong communication skills and the ability to function effectively in multi-disciplinary teams.
- Our graduates will demonstrate strong bonding in team and display distinct leadership traits.
- Our graduates will be prepared for civil service as well as public service examination.

Program Outcome

- Students to have knowledge and expertise in at least one procedure-oriented and object-oriented programming language.
 - Students to have a wide perspective on software development including web-based applications as well as graphic applications.
 - Students to have the familiarity with Desktop Publishing system.
 - Students to have the ability to design and implement optimal databases using current technologies.
 - Students to have understanding of design and working principles of the digital electronics.
 - Students will be able to design and analyze algorithms as per need by relating the data structure and algorithms.
 - Students will be able to identify and describe the communication networks technologies in local area networks and the Internet and countermeasures for security threats.
 - Students will be aware of the design principles of Operating Systems specializing on at least one popular Operating System.
 - Students will have understanding of various legislative acts and articles related to information technologies and international initiative in the field of IT laws.
 - Students will be able to solve simple computational problems involving mathematical structures and processes.
 - Students will have the concepts regarding the architecture and organization of a computer system.
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- Development of good communication skills in both written and verbal.
- Students will acquire skills and ability for life-long learning.

Sl. No	Course	Course Outcomes
1	BCA101/ English Language & Communication Skills	<ul style="list-style-type: none"> • Mastering the art of a professional business presentation • Distinguishing different communication process and its practical application • More effective written communication • To sensitize students to the aesthetic, cultural and social aspects of literature.
2	BCA102/ Mathematics-I (Bridge Course)	<ul style="list-style-type: none"> • Reason mathematically about basic discrete structures such as numbers, sets, used in computer science. • Familiarity with Determinant and Matrices. • Formulate Limit, Continuity and Differentiability. • Demonstrate a working knowledge Definite and Indefinite Integrals.
3	BCA103 / Introduction to Information Technology & BCA103P (Practical)	<ul style="list-style-type: none"> • Familiarity with parts of computer . • Understand the input and output devices. • Basic ideas of storage devices, computer Networks and Operating System.
4	BCA104 / Digital Computer Fundamentals	<ul style="list-style-type: none"> • Perform conversions among different number systems, became familiar with basic logic gates and understand Boolean algebra and simplify simple Boolean functions by using basic Boolean properties & design of combinational circuits such as MUX, DEMUX, Encoder and Decoder etc. • Understand the design of sequential Circuits such as Flip-Flops, Registers, and Counters. • Obtain a basic level of Digital Electronics knowledge and set the stage to perform the analysis and design of Complex Digital electronic Circuits
5	BCA105/ Programming Language through C & BCA105P (Practical)	<ul style="list-style-type: none"> • Analyze a given problem and develop an algorithm to solve the problem . • Improve upon a solution to a problem . • Use the 'C' language constructs in the right way Design, develop and test programs written in 'C' . • Understand the basic terminology used in

		<p>computer programming Write, compile and debug programs in C language.</p> <ul style="list-style-type: none"> • Use different data types in a computer program. • Design programs involving decision structures, loops and functions. • Explain the difference between call by value and call by reference · Understand the dynamics of memory by the use of pointers and Structures.
6	BCA204 / System Analysis and Design	<ul style="list-style-type: none"> • Students will be able to understand the steps in Software • Students will be able to understand the steps in Software • Development. · Know the tools for System Analysis and Design.
7	BCA203/ Data Structure using C & 203P (Practical)	<ul style="list-style-type: none"> • Students develop knowledge of basic data structures for storage and retrieval of ordered or unordered data. Data structures include: arrays, linked lists, binary trees, heaps, and hash tables. • Students develop knowledge of applications of data structures including the ability to implement algorithms for the creation, insertion, deletion, searching, and sorting of each data structure.
8	BCA205 / Accounting and Financial Management & 205P (Practical) Tally ERP 9.0	<ul style="list-style-type: none"> • Define book keeping and accounting • Explain the general purposes and functions of accounting. • Explain the differences between management and financial accounting. • Describe the main elements of financial accounting information- assets, liabilities revenue and expenses
9	BCA301/ Management Information Systems	<ul style="list-style-type: none"> • Explain complex software within the context of business user needs through training presentation and written documentation • Distinguish relationships between programming language and information system • Determine factors influencing the strengths and weaknesses of the most common computer operating system and determine how one would be preferred over others.
		<ul style="list-style-type: none"> • To make students able to learn different types of operating systems along with

10	BCA303/ Operating Systems & BCA303P (Practical)	<p>concept of file systems and CPU scheduling algorithms used in operating system.</p> <ul style="list-style-type: none"> • To provide students knowledge of memory management and deadlock handling algorithms. • At the end of the course, students will be able to implement various algorithms required for management, scheduling, allocation and communication used in Operating System.
11	BCA304 / Object Oriented Programming in C++ & BCA304P (Practical)	<ul style="list-style-type: none"> • Be able to understand the difference between object-oriented programming and procedural oriented language and data types in C++. • Be able to program using C++ features such as composition of objects, Operator overloading, inheritance, Polymorphism etc. • At the end of the course students will be able to simulate the problem in the subjects like Operating system, Computer networks and real-world problems
12	BCA305 / Computer Organization and Architecture	<ul style="list-style-type: none"> • Understand the fundamentals of different instruction set architectures and their relationship to the CPU design. • Understand the principles and the implementation of computer arithmetic. • Knowledge about Primary and Secondary storage System. • Basic knowledge about parallel computer structure and Pipelining.
13	BCA401/ Environment and Ecology	<ul style="list-style-type: none"> • Apply the scientific method and quantitative technique to describe, monitor and understand environmental system. • Be proficient in ecological field methods such as wild life survey, biodiversity assessment, mathematical modelling and monitoring of ecological systems. • Effectively understand and convey scientific material from peer review sources.
14	BCA402	<ul style="list-style-type: none"> • Gain a good understanding of the architecture and functioning of database management systems as well as associated tools and techniques, principles of data modeling using entity relationship and develop a good database design and normalization techniques to normalize a database.

	/Database Management Systems & BCA402P (Practical) Oracle Laboratory	<ul style="list-style-type: none"> • Understand the use of structured query language and its syntax, transactions, database recovery and techniques for query optimization. • Acquire a good understanding of database systems concepts and to be in a position to use and design databases for different applications.
15	BCA403 / Computer Networking	<ul style="list-style-type: none"> • To explain how communication works in computer networks and to understand the basic terminology of computer networks • To explain the role of protocols in networking and to analyze the services and features of the various layers in the protocol stack. • To understand design issues in Network Security and to understand security threats, security services and mechanisms to counter.
16	BCA404 / Software Engineering	<ul style="list-style-type: none"> • Select and implement different software development process models. • Extract and analyze software requirements specifications for different projects. • Develop some basic level of software architecture/design. Apply standard coding practices. Define the basic concepts and importance of Software project management concepts like cost estimation, scheduling and reviewing the progress. Identify and implement of the software metrics. • Apply different testing and debugging techniques and analyzing their effectiveness.
17	BCA405 / GUI Programming & BCA405P (Practical) VB 2010 with Mini Project	<ul style="list-style-type: none"> • To learn how to take a problem, figure out the algorithm to solve it, then write the code. • Design, develop and test Java programs using classes, methods, conditionals, loops, etc. • Creating a visual program to solve a problem. Interpreting a series of instructions used in a visual program. • Identifying the basic structures of program (sequence, decision, and repetition). • Develop substantial Java programs, when appropriate reusing previously created classes, writing programs requiring three or more classes.
		<ul style="list-style-type: none"> • Understanding of the principles and practice object oriented analysis and design in the construction of robust, maintainable programs

18	BCA501/ Introduction to Java Programming & BCA501P (Practical)	<p>which satisfy their requirements;</p> <ul style="list-style-type: none"> • Ability to implement, compile, test and run Java programs comprising more than one class, to address a particular software problem. • Demonstrate the principles of object-oriented programming; Demonstrate the ability to use simple data structures like arrays in a Java program. • Understand the concept of package, interface, multithreading and Filehandling in java. • Ability to make use of members of classes found in the Java API (such as the Math class).
19	BCA502 Computer Graphics and Multimedia	<ul style="list-style-type: none"> • Understand the basics of computer graphics, different graphics systems and applications of computer graphics. • Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. • Use of geometric transformations on graphics objects and their application in composite form. • Extract scene with different clipping methods and its transformation to graphics display device.
19	BCA502 Computer Graphics and Multimedia	<ul style="list-style-type: none"> • Understand the basics of computer graphics, different graphics systems and applications of computer graphics. • Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. • Use of geometric transformations on graphics objects and their application in composite form. • Extract scene with different clipping methods and its transformation to graphics display device.
20	BCA503/ Microprocessors & BCA503P (Practical) Assembly Language Programming	<ul style="list-style-type: none"> • Introduction to the Architecture and programming of the microprocessor 8085 • Demonstrate programming using the various addressing modes and instruction set of 8085 microprocessors • Design structured, well commented, understandable assembly language programs to provide solutions to real world control problems.
21	BCA504 / Software Project Management	<ul style="list-style-type: none"> • Generate project schedule and can construct, design and develop network diagram for different type of Projects. They can also organize different activities of project as per Risk impact factor.

		<ul style="list-style-type: none">• Gain a familiarity with the basic concepts,
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22	BCA5E1/ Introduction to e-Governance	<p>terminology and technology of e-commerce/e-government.</p> <ul style="list-style-type: none"> • Develop skills to critically evaluate government web sites and e- services against current “best practice” principles and standards. • Understand the major federal and state laws and regulations impacting the evolution of e-government. • Be able to articulate the policy and social issues facing agencies in implementing e-government initiatives. • Be able to apply basic business case and government IT management concepts in preparing e-government proposals, plans or strategies.
23	BCA6E4/ IT Acts and Cyber Laws	<ul style="list-style-type: none"> • The course deals with all the aspects of Cyber law as per Indian IT Act 2008. It also covers overview of Intellectual Property Right and Trademark Related laws with respect to Cyber Space. • Demonstrate a critical understanding of the Cyber law with respect to Indian IT/Act 2008 • Describe laws governing cyberspace and analyze the role of Internet Governance in framing policies for Internet security • Discuss different types of cybercrimes and analyze legal frameworks of different countries to deal with these cybercrimes • Explain the importance of jurisdictional boundaries and identify the measures to overcome cross jurisdictional cyber crimes
24	BCA6E6/ Internet and e-Commerce	<ul style="list-style-type: none"> • Demonstrate an understanding of the foundations and importance of E-commerce. • Demonstrate an understanding of retailing in E-commerce by: analyzing branding and pricing strategies, using and determining the effectiveness of market research Analyze the impact of E-commerce on business models and strategy. Describe Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational. Describe the infrastructure for E-commerce Describe the key features of Internet, Intranets and Extranets and explain how they relate to each other. Assess electronic payment systems Recognize and discuss global E-commerce issues



25	BCA601P/ PROJECT WORK	<ul style="list-style-type: none">• Students should be able to design and construct a hardware and software system, component, or process to meet desired needs.• Students are provided to work on Multidisciplinary Problems.• Students should be able to work as professionals, with portfolio ranging from data management, network configuration, designing hardware, database and software design to management and administration of entire systems.
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