**GOVERNMENT OF MIZORAM**
**OFFICE OF THE PRINCIPAL : LUNGLEI GOVT. COLLEGE**
**LUNGLEI : MIZORAM**

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# COURSE OUTCOME, PROGRAMME OUTCOME AND PROGRAMME SPECIFIC OUTCOME OF ALL SUBJECTS

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22/7/24

Principal
Lunglei Gov't College
Lunglei, Mizoram

**DEPARTMENT OF ENGLISH**

Course Outcome

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| Programme Outcome | PO1. Students are able to develop intellectual, personal and professional abilities through effective communication skills by ensuring a high standard of behavioural aptitude through literary subjects thereby shaping the students' socially responsible citizens.<br><br>PO2. Students' employability is developed through their linguistic competence and communicative skills.<br><br>PO3. Students are able to demonstrate a broad awareness of texts and their historical and cultural context in English.<br><br>PO4. They recognize how literature has served a role in social change.<br><br>PO5. They are able to appreciate the interconnectivity and inter-disciplinary aspects of all knowledge |
| . Programme Specific Outcome | PSO1. Students are familiar with representative literature and cultural texts within a significant number of historical, geographical and cultural contexts.<br><br>PSO2. They are able to apply critical and theoretical approaches to the reading and analysis of literary and cultural texts in multiple genres.<br><br>PSO3. They are able to ethically gather, understand, evaluate, and synthesize information from a variety of written and electronic sources.<br><br>PSO4. They are able to write analytically in a variety of formats- essays, reflective writing and reviews of secondary sources.<br><br>PSO5. They develop intellectual flexibility, creativity and cultural literacy so as to engage in life-long learning. |

| Course Code | Course Name | Course Outcomes |
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| ENG/I/FC/1 | English-I | This compulsory course will enable students to acquire composition and communication skills through learning fundamental grammar and its usage, as well as through various exercises in comprehension and composition; they are also equipped with theoritical and practical applications of communication skills, through mock-interviews and mock-presentations. |
| ENG/II/EC/2 | History of English Literature | By tracing the growth of English literature from the Old English Period to the Modern Era, the students will acquire a sound comprehension of the literary, societal, cultural and historical background of British |

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| | | Literature; they will also be familiarized with the history of Great Britain and its main events, conflicts and era-specific trends. |
| ENG/ II/FC/2 | English-II | This second compulsory course is aimed at introducing students to English Poetry and short stories written by Indian authors so as to familiarise them with these literary genres and the socio-cultural backgrounds that produced them |
| ENG/III/EC/3 | History of English Language and Phonetics | To trace out the history of English language and the various components of linguistic structures of the language |
| ENG/III/FC/3 | Alternative English | This course features English Poetry and short stories from North-east Indian writers in translation, and will help the students to critically analyse the historical and political movements that produces literature from different regions, as well as the challenges and issues faced by translators, and a deeper appreciation of the nuances of the vernacular languages |
| ENG/IV/EC/4 | Fiction-I | To acquire a sound comprehension of the canonical texts from various ages of British fiction. |
| ENG/V/CC/5 | Drama-I | To gain knowledge on the fundamental basics of British drama from its inception, tracing its development upto the 19th century |
| ENG/V/CC/6 | Women's Writing | To gain a deeper insight into the writings of women from different eras, races and nationalities and how their innermost thoughts, struggles and feelings are expressed in fiction. |
| ENG/V/CC/7 | Literary Theory and Criticism | To gain a deeper knowledge into how literary texts have been critically analysed and studied throughout the ages and the theoritical and critical frameworks used to analyse different literary genres |
| ENG/V/CC/8A | Fiction-II | To attain an insight into Fiction written in the post World-War era, especially pertaining to Colonialism, war, identity politics and the after-effects of trauma as expressed through literature |
| ENG/V/CC/8B | Popular Studies | To trace the development of a burgeoning popular literature within popular cultural movements, through songs written about, and during the Countercultural Movement in the West, and through novels written by Indian authors that highlight the conflict and synergy between western and eastern thoughts, practices and philosophies. This course aims at revealing the concerns of the younger generation in a society undergoing various transitional shifts. |
| ENG/VI/CC/9 | Indian Writing in English | To learn the literary, societal, cultural and historical backgrounds of the greatest English writings penned down by Indian authors writing in, or translated into, English; to better appreciate that these texts- fiction and plays- are a testament to the psyche of the Indian |

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| | | people as they grapple with social and political issues such as colonialism, racism, prejudice, and the search for identity in a society caught between the traditional and the modern, the eastern and the western. |
| ENG/VI/CC/10 | Drama-II | To trace the innovation and growth of the dramatic form of literature in the modern era, and the implementation of the experimental and the controversial into this artistic form of literature. |
| ENG/VI/CC/11 | Literary Criticism | To gain critical frameworks of texts written in English through the close examination and cross-comparison of specific works of various literary critics and thinkers through the ages |
| ENG/VI/CC/12A | American Literature | To acquire a better understanding and comprehension of American literature and the ways in which it has been shaped by, and in its turn, helped to shape the social, political, cultural and historical events of the country and its people. |
| ENG/VI/CC/12B | Commonwealth Literature | To obtain information on colonization, post-colonialization, issues of identity, race and politics through literature written in and translated into the language of the colonizer; to better understand the struggle of the colonized mind as it grapples with questions of indigeneity in terms of culture, religion and rituals, especially in juxtaposition with that of the colonizer's. |

DEPARTMENT OF MIZO
Course Outcome

| Course Code | Course Name | Course Outcome |
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| MZ/1/EC/1 | THUTLUANG (Prose & Essays) | ● Understand different ideas and concepts<br>● through their reading of essays.<br>● Use a variety of accurate sentence structures.<br>● Produce a well-organized academic essay. |
| MZ/2/EC/2 | HLA (Poetry) | ● Analyze the various elements of poetry such as diction, tone, form, genre, Imagery, symbolism, theme etc.<br>● Apply the principle of literary criticism to the analysis of poetry.<br>● Develop their critical thinking skills. |
| MZ/3/FC/3(MIL) | MIZO THU LEH HLA KAMKEUNA (Introduction to Mizo Literature) | ● Recognized and understand the meaning of targeted grammatical structures in written and spoken form<br>● Know the coherent and the beauty of language and literature.<br>● Understand the process of communicating and interpreting human experience through literary representation. In doing so, they develop reading, writing and analytical skill especially in Mizo language. |
| MZ/3/EC/3 | LEMCHAN TAWI (Short Play) | ● Understand historical contexts, psycho-social aspects and discern the various cultural and moral values associated<br>● Well acquainted with the literary genre of Drama.<br>● Understand the structure of full-length play and one act play, dramatic devices and ancient mizo culture through these short plays. |
| MZ/4/EC/4 | THAWNTHU TAWI (Short Stories) | ● Develop their critical thinking capabilities focused through the course as an important need.<br>● Exposed to a range of contexts where the language is used to meet a variety of real-life communication needs.<br>● Use appropriate organization and order of words, sentences and paragraphs within an essay. |
| MZ/5/CC/5 | THU LEH HLA SUKTHLEK. (Theory Of Literature) | ● Analyze the various elements of poetry, drama, prose. Such as diction,tone, genre, imaginary, symbol, simile etc.<br>● Understand the literary criticism and ignite critical thinking and writing.<br>● Classify all major literary genres. |

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| MZ/5/CC/6 | SELECTED ENGLISH POEMS IN ENGLISH | • Recognize poetry from a variety of cultures, languages and historic periods.<br>• Know the rhythms, metric and other musical aspect of poetry.<br>• Understand and appreciate poetry as literary art form. |
| MZ/5/CC/7 | LEMCHAN (Plays) | • It helps the student to improve their understanding of plays<br>• Develop their critical thinking skills.<br>• Apply the principles of literary criticism to the analysis of plays. |
| MZ/5/CC/8 (A) | MIZO TAWNG CHUNGCHANG | • It helps the student to improve their understanding of mizo language and grammar.<br>• It helps the student to improve knowledge in the development of mizo language.<br>• Examine the issues discussed in the text in the socio-historic and cultural context. |
| MZ/6/CC/9 | MIZO THU LEH HLA CHANCHIN (History Of Mizo Literature) | • Learn the development of mizo literature. Such as development of drama, poetry and prose writing.<br>• Apply literary terminology for narrative, poetic and dramatic genres.<br>• Explore literary elements. |
| MZ/6/CC/10 | THAWNTHU (Novel) | • Know the beauty of the coherence of language and literature especially mizo language.<br>• Examine the issues discussed in the text in the socio-historic and cultural context<br>• It helps the student to improve their understanding of mizo language and grammar. |
| MZ/6/CC/11 | HLA - II (Poetry) | • Analyze the various elements of poetry such as diction, tone, form, genre, imagery, symbolism, theme etc.<br>• Apply the principle of literary criticism to the analysis of poetry.<br>• Develop their critical thinking skills. |
| MZ/6/CC/12 (B) | SELECTED ESSAYS IN ENGLISH | • Understand various cultures and moral values associated with the text.<br>• Know the beauty of the coherence of English language and literature.<br>• It helps the student to improve their Understanding of the English language. |
| | • Students are equipped with a knowledge of literary theories and its application<br>• To acquire a knowledge of history, trends and development of Mizo literature | |

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| Programme outcome | ● To get a better comprehension of literary, societal, cultural, biographical and historical background of the writings of Mizo literature.<br>● To traced out the history of Mizo language and various components of Mizo grammar and language |
| Programme Specific Outcome | On successful completion of the course, the students will be:<br>● Enhanced with a deep knowledge of Mizo culture, language and literature.<br>● They can apply critical frameworks to analyse cultural and historical background of texts written in Mizo.<br>● They will be familiar with the conventions of diverse textual genres including fiction, poetry, prose, drama critism |

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**DEPARTMENT OF POLITICAL SCIENCE**

Course Outcome

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| PROGRAMME OUTCOME | Completion of this programme will help students acquire working knowledge of the political systems of the state, the nation and the world at large. Knowledge of various Constitutions will help students interpret, explain and critically assess events, patterns and structures of Governments. They will have a working knowledge of the greatest force at play namely, the play for power and the ideologues giving action to the play. Students will develop a critical understanding about the nature and philosophy of the subject, interprete Government policies and generate observations of relevance to policy makers, their fellow citizens and global communities. The knowledge gained from completing the course will make them valuable assets to the society, model citizens and great contributors to an ever-changing man and society. |
| PROGRAMME SPECIFIC OUTCOME | 1. This course will help them acquire specialized knowledge of the political narrative.<br>2. It will help develop general skills that will serve students for their future course of study regardless of continuity in the subject.<br>3. This course will help them reach their specific goals; in acquiring employment viz., UPSC, MPSC, Judicial Services, Politicians etc. |

COURSE OUTCOMES

| Sl No | Course Code | Name of course | Course outcome |
|---|---|---|---|
| 1 | POLS/1/EC/01 | Government and Politics of Mizoram | Understand and follow changes in patterns of political behavior, ideas and structures of Mizoram. Developed the ability to make logical inferences about social and political issues on the basis of comparative and historical knowledge. To highlight the recent development and new trends of studies. |
| 2 | POLS/II/EC/02 | Indian Government and Politics | To understand how Constitutions embody certain ideals. Understand the difference between monarchy, dictatorship and democracy. Learn why there is a need for limits on power in a democratic form of government. |
| 3 | POLS/III/EC/03 | Major Political System | The purpose is to familiarize students with the basic concepts and approaches to the study of comparative politics by studying the |

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| | | | different selected Constitution. More specifically the course will focus on examining politics in a historical framework while engaging with various themes of comparative analysis in developed and developing countries. To make students understand the basic concepts in the ideology of the Constitutions. To make students classify the different political systems and historical context of modern governments To enable students to have a comparative analysis of countries related to their political institutions and behavior. |
| 4 | POLS/IV/EC/04 | Political Theory | To highlight the Political evolution which has shaped modern political institutions and processes. After completing the course the students will be able to discuss the importance of political theory in practical reality and to classify and distinguish between various types of Power and. Authority, Rights, Justice, and Democracy |
| 5 | POLS/V/CC/05 | Western Political Thought | Western political thought concentrates principality on the history of the West and different issues confronting it.The students will therefore be able to know the importance of political philosophy in shaping and influencing the state and society at large. Students are expected to appreciate the ideas and thoughts which are relevant to the present political system. |
| 6 | POLS/V/CC/06 | International Relations | To develop knowledge of how the individual culture of a nation and its policies, economics, governance, law and security impacts and deeper understanding of current international issues such as climate change and human rights. The students will gain a comprehensive understanding of society, people, globalization and multinational markets. |
| 7 | POLS/V/CC/07 | Public Administration | Be able to know about the evolution and growth of the discipline of Public Administration, and also the basic principles and approaches of PA. The students will gain knowledge about the evolution and growth of Indian Administration Familiarity with the constitutional framework on which Indian Administration is based, role of the union executive. |
| 8 | POLS/V/CC/08(a) | Human Rights | Analyze the genesis, development and complex human rights problems and apply |

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| | | | relevant provisions of human rights law in India to a hypothetical situation/ case study and a theoretical knowledge of the underpinnings of the human rights framework in India and other countries, its operation and issues associated with the implementation under UNO. |
| 9 | POLS/VI/CC/09 | Indian Political Thought | After completion of the course, students will be able to demonstrate and familiarize with main ideas of the key Indian Political Thinkers. Analyze and compare the ideas and theories of Modern Indian Political Thinkers. Aware about the relevance of Ancient and Modern Indian Political Thought in present era. |
| 10 | POLS/VI/CC/10 | India's Foreign Policy | The course enables the students to understand the structure of foreign-policy making in India's including the nature and direction of India's foreign policy concerns. It increases the ability to understand the objectives, goals and foreign policy trends at bilateral and multilateral levels. It enriches the competency of the students applying the knowledge and predicting outcomes as well as evaluating foreign policy decisions and strategy. |
| 11 | POLS/VI/CC/11 | The United Nations | The students will gather an overview on the Nations history and structure, and accomplishments of the United Nations and learn about past and future reforms, how they function, work and their present developments. |
| 12 | POLS/VI/CC/12(a) | Political Sociology | The course equips students to grasp the essential historicity of political processes, political institutions and political change to facilitate an understanding of the dynamic nature of political phenomena. The learner will be able to understand the relationship between state and society on the basis of mutual interaction and with power as the ultimate aim of all political processes. |

DEPARTMENT OF HISTORY

COURSE OUTCOME

The three-year Bachelor's Degree in History follows the Draft Regulations Governing the Choice based Credit System and Grading in Undergraduate Programme (Constituent and Affiliated Colleges) of Mizoram University and comprises a total 140 Credits. There are twenty (20) foundation Courses (FC), eleven (11) Elective Courses, and nine (9) Major Core Courses (CC) spread over the six semesters. Students have to earn a minimum of 140 Credits for successful completion of Under-Graduate degree, with a distribution of credits for different course categories.

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| Program Outcomes | The expected Programme Outcome is to provide the students with a sense of how interconnected our present is with the past and how learning about the past provides them with the skills to understand the present. To facilitate this understanding, our courses, classroom instruction and assignments give students the ability to think and reach their own conclusions. Our tutorial discussions, written assignments, classroom presentations consolidate their ability to analyse, research and process information. |
| Program Specific Outcomes | · On completion of the course students are expected to have acquired the skills of critical thinking, rational enquiry, effective communication, and exploring the relationship between past, present and historiography.<br>· Knowledge of multiple perspectives through which significant developments in the history of the Indian subcontinent from the earliest times up to the period after independence.<br>· Ability to carefully read a complex historical narrative, evaluate its deployment of evidence, and understands its argument as well as critically analyse the same.<br>· Sensitivity to gender and social inequalities as well as acquaintance with the historical trajectories of these issues.<br>· Graduates are expected to branch out into different parts seeking spheres of knowledge and domains of professional work that they find fulfilling. They will be able to demonstrate comprehensive knowledge of scholarly research and professional literature relating to the discipline. This will establish a platform from which the student can pursue higher studies in history. |

COURSE OUTCOMES

| Sl No | Course Code | Name of Course | Course Outcomes |
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| 1 | UG/Hist/I/EC/01 | History of Mizoram (upto the 1960s) | Based on the available sources, this paper intends to familiarize students with selected themes and topics from the pre-colonial era upto the 1960s in Mizoram. |
| 2 | UG/Hist/II/EC/02 | History of India upto Post Mauryan Period | This course is designed to familiarize students with the social, economic, political and cultural developments in India from the chalcolithic period upto post Mauryan period. |

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| 3 | UG/Hist/III/EC/03 | History of India (Gupta to Sultanate Periods) | To familiarize students with social, economic, political and cultural development in India from the Gupta to the early medieval periods |
| 4 | UG/Hist/IV/EC/04 | History of Mughals | Provide an overview of the main trends and Development in India during the Mughal period (1526 1757). Students will understand the socio-economic and cultural patterns in understanding the polity and society as they took shape in the periods under study. |
| 5 | UG/Hist/IV/CC/05 | Modern India-I | Students will understand the growth and consolidation of colonial rule in India and the major socio-economic and religious developments during this period. |
| 6 | UG/Hist/IV/CC/06 | Historiography | The course introduces students to the meaning and scope of history along with the traditions of historical writing from ancient to modern times. |
| 7 | UG/Hist/IV/CC/07 | Early Modern Europe | This course introduces the political, economic, social, religious and cultural history of continental Europe till the early modern period. It also introduced the emergence of Europe as the first truly global power while at the same time the people, ideas, and forces that have shaped the character and institutions of the modern world. |
| 8 | UG/Hist/IV/CC/08 | History of North East India (1822 - 1986) | It introduced students to the major trends of political, social and economic developments in North East India from 1822 to the re-organisation of state in 1972. It also included the Memorandum of Settlement signed between the Indian Government and the MNF in 1986. |
| 9 | UG/Hist/IV/CC/09 | Modern World History | Students will understand political, social, and cultural transformations of the modern world that took place from the nineteenth century till the end of the second world war. |
| 10 | UG/Hist/IV/CC/10 | Contemporary World | Students will understand the political, social and cultural history of the world since the end of the second world war. |
| 11 | UG/Hist/IV/CC/11 | Modern India (Part-II) | This course provides the growth and development of national and anti-colonial movements. |
| 12 | UG/Hist/IV/CC/12 (c) | History of Modern China | This course imparts students the knowledge of major historical developments from the 19th to the early centuries in China. |

DEPARTMENT OF EDUCATION
Course Outcome

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| Programme Outcome | 1. Developing the higher mental processes of students such as logical reasoning, critical thinking, creative thinking and problem-solving abilities so that they can make substantial contributions to the knowledge economy and lead successful lives.<br>2. Enabling the students to have a clear understanding of the different concepts and aspects of teaching and learning and the role and impact of education in society. |
| Programme Specific Outcome | 1. On completion of the programme, students will be able to express their thoughts clearly as well as think rationally and critically.<br>2. The students will be able to understand the importance of education and its role in solving various individual and social problems.<br>3. They will develop an understanding of the process of teaching and learning and the problems associated with it as well as their solutions. |

COURSE OUTCOMES

| Sl No | Course Code | Course Name | Course outcomes |
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| 1 | UG/Edn/I/EC/01 | Psychological Foundations of Education | Learners understand the importance of the psychological factors in improving teaching and learning as well as for the development of an individual in every sphere. Personality development, Learning development, Intelligence and creativity enhancement is also acknowledged in this course. |
| 2 | UG/Edn/II/EC/02 | Philosophical and Sociological Foundations of Education | In this course, learners develop a critical understanding of the educational implications of various historical philosophies. Learners also tend to understand the role of society in uplifting the status of education and how important every individual is for standardizing the society. |
| 3 | UG/Edn/III/EC/03 | Development of Education in India | In this course, learners study and understand the standard of education in both pre Independent and post-independent India; by understanding these, learners are able to understand what type of educational theories and practices are to be used in the current Indian education system. |
| 4 | UG/Edn/IV/EC/04 | Issues and Trends in Contemporary Indian Education | Learners gain significant information on Early Childhood education up to Higher education in this course; the Commission plays a role in every level of Education and so on. Students also learn |

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| | | | what type of trends and problems Indian Education is presently facing. |
| 5 | UG/Edn/V/EC/05 | Introduction to Research methodology and Statistics in Education | This course gives considerable knowledge towards research methodology; what kinds of research are there, how research is preceded and why research is important for the development of education. Statistics in education is also studied and how statistics are to be applied in the field of research methodology. |
| 6 | UG/Edn/VI/EC/06 | Early Childhood Care and Education | In this course, all information regarding Early Childhood Care and Education (ECCE) is studied. Learners are able to understand what types and programmes of ECCE are available in India. The process of educating Children through various activities at this stage is also widely considered. |
| 7 | UG/Edn/VII/EC/07 | Educational Evaluation | This course provides information about how measurement and evaluation is done in the teaching learning process and how to standardize a test; what type of test to prepare in various circumstances and how they are to be conducted. This course also provides learners with the new trends in Evaluation such as CCE, Grading, Question banks and CBCS. |
| 8 | UG/Edn/VIII/EC/08 (A) | Educational Technology | In this course, learners are introduced to the world of Technology in education; what types of communication is required in the classroom, various educational objectives and how significant technology is in our education exploded in India. It also teaches the learners the importance of a smart classroom and its various tools such as email, ppt, what Sapp and language lab. |
| 9 | UG/Edn/IX/EC/09 | Development of Educational Thought | This course delivers knowledge on various educational thoughts in Ancient society, Medieval Europe, Indian thinkers, Western thinkers and Modern Educational thoughts and practices. Learners are able to grasp what kind of historical practices can be implied in our present education system. |
| 10 | UG/Edn/X/EC/10 | Pedagogy | This course gives the importance of Teaching and how they can be successfully delivered. Various types of audio-visual aids, methods of teaching, role of teacher in planning lessons and various diagnostic teachings are considered. Learners are able to practically apply this course with their daily learning activities. |
| 11 | UG/Edn/XI/EC/11 | Special Education | This course allows the students to understand the importance of Special education and how physically and mentally challenged individuals are also rightful to receive education. Education for |

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| | | | gifted and creative children are also studied which the learners can automatically relate with their innate abilities. |
| 12 | UG/Edn/XII/EC/12(B) | Educational Planning and Management | In this course, learners understand how education is planned at the Diagnostic stage; how these planned systems are carefully managed for a better and well-structured educational programme. Better financial management, leadership behaviour and various supervisory procedures for a better educational system is studied. Learners tend to develop interest in their rights and duties for a better education through this course. |

DEPARTMENT OF ECONOMICS.
Course Outcome

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| Programme Outcome (PO) | Understand the fundamental basic concepts of economics and the dynamic working of different economies of the world. The course is tailor-made for young aspirants in the domain of economics by drawing rich academic inputs from contemporary syllabus reflecting recent developments. Besides, the under-graduate economics programmes help students to establish an in-depth understanding of the functioning of domestic and global economies and to develop the necessary and portable skills to perform economic analysis for both public and private sector positions as well as for graduate studies in related fields. The graduate students also possess knowledge about a special bond between environment economy and sustainable development. |
| Programme Specific Outcome (PSO) | Graduates of Economics are given priority in getting employment in economic related jobs owing to having had better exposure in under graduation programme with economic curriculum. Besides, they are equipped with knowledge required for qualifying in various competitive examinations like Planning and economic service, Finance and account service, banking and insurance, real estate dealings etc. Higher education prospect is also positive. The Programme Specific Outcome (PSO) can be further summarized as follow:-<br>a) Students will learn the basic concept of economics, how markets organize core economic activities such as production, distribution, consumption and the growth of productive resources.<br>b) Students will learn about the determinants of macro-economic conditions (national output, employment and inflation), causes of business cycles, and interactions of monetary and fiscal policy.<br>c) Students will learn to apply economic theories and methodologies in analysing economic issues in various subfields of applied micro-economics and international economics. |

COURSE OUTCOME

| S/No | Course Code | Course Name | Course Outcomes |
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| 1 | Eco/1/CC/01 | Microeconomics-1 | At the end of the course, the learner will be able to understand the basic principles underlying market mechanism- how the forces of demand and supply brings equilibrium in the market for goods and services |
| 2 | Eco/2/CC/02 | Microeconomics II | The learner will understand how factor market works and the basic tools in welfare economics and trade theories |
| 3 | Eco/3/CC/03 | Macroeconomics I | At the end of the course, the learner will be able to assess the workings of the economy and the role of investment and money |
| 4 | Eco/4/CC/04 | Macroeconomics II | At the end of the course, the learner will be able to assess the workings of the economy and therole of investment and money |
| 5 | Eco/5/CC/05 | Indian Economy | At the end of the course, the learner will be able to understand fluctuations in the economy and model of economic growth |
| 6 | Eco/6/CC/06 | Environmental Economics | At the end of the course, the learners will be able to understand economy- environmental linkages |
| 7 | Eco/5/CC/06 | Public finance | The learner, at the end of the course, will be able to follow the role and significance of public expenditure, taxation and public debt in the economy |
| 8 | Eco/5/CC/07 | Quantitative Techniques | I Interpret and analyse economic data using mathematical tools 9 Eco/5/CC/08A Agriculture Economics Be able to understand the role of agrarian relation, land reforms and technological change in agriculture development |
| 9 | Eco/5/CC/08B | Industrial Economics | The learners will be able to understand the role in industrial sectors in the economy |
| 10 | Eco/5/CC/08C | Economic Development and Planning | The learners will be able to understand the dynamic interplay of various forces in understanding the development process |
| 11 | Eco/5/CC/08D | Mathematical Economics I | Interpret and analyse economic data using mathematical tools |
| 12 | Eco/6/CC/10 | Quantitative Techniques II | Define and understand applications of quantitative methods |
| 13 | Eco/6/CC/11 | Financial Institutions and Markets | Be able to understand working and performance of various segments of financial sectors |
| 14 | Eco/6/CC/12A Eco/6/CC/12B | History Economic Thought | International Trade of The learner will appreciate the historical background of various economic thoughts Be able to understand |

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| | | | impacts of protection in trade and liberalization of trade measures |
| 15 | Eco/6/CC/12C Eco/6CC/ | International Trade | The learner will appreciate the historical background of various economic thoughts Be able to understand impacts of protection in trade and liberalization of trade measures Econometrics Demonstrate an understanding of key econometric concepts and theories |
| 16 | Eco/6/CC/12E Eco/6/CC/12F | Mathematical Economics II | Interpret and analyse economic data using mathematical tools 19 Demography Understand vital demographic statistics 20 Computer and Software Applications in Economics |

DEPARTMENT OF GEOGRAPHY
Course Outcome

| Course Code | Course Name | Course Outcome |
|---|---|---|
| GEOG-101 | Physical Geography | Learners will understand the fundamental principle of Physical Geography: The functions of natural phenomena within lithosphere, Hydrosphere and atmosphere |
| GEOG-201 | Human Geography | It will impart knowledge to the learners that the human and environment relationships, determinism & possibilism, Space & Society, Population: growth & distribution, types of settlement and human adaptation to environment, etc. |
| GEOG-301 | Geography of India | Learners will have the knowledge about the physical divisions, climate, population distribution, mineral and power resources, social distribution, etc of India. And the regional geography of Mizoram will be understand |
| GEOG-401 | Cartographic Technique | At the end, the learners will acquire the knowledge of types and construction of different scales, plain & diagonal scales, contours & their profiles, classification and types of maps, thematic mapping and conventional signs & symbols |
| GEOG-501 | Geographical Thought | Develop a knowledge to the learners that the Pre-modern geographical thinking, modern trends and paradigm shift in Geography, quantitative revolution and humanistic geography, etc |
| GEOG-502 | Economic Geography | The students will know the concept and classification of economic activities, primary, secondary & tertiary activities, Industrial & location theories, etc |
| GEOG-503 | Surveying & Statistical Technique(Practical) | Develop the skills and knowledge upon the primary concept of different types of surveying like plane table, dumpy level, prismatic compass, Preparation and analysis of slope and drainage frequency and density maps, etc. |
| GEOG-504A | Population Geography | Understanding the nature of population studies, determinants and patterns of population, population dynamics and characteristics, composition and contemporary issues. etc |
| GEOG-504B | Agriculture Geography | Learners will understand the nature of agriculture, determinants and different systems of world's agriculture, Agricultural regionalization, Green revolution of India, its economic and ecological implications, etc. |
| GEOG-601 | Geomorphology | Developed the ability of learners to understand the nature, scope & fundamental concepts of Geomorphology, Understand the earth's movements, |

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| | | geomorphic processes, formation and development of different landforms. |
| GEOG-602 | Remote Sensing & GIS | Basic knowledge of Aerial photography, satellite remote sensing EMR interaction, Image processing & data analysis, Basics of Geographical Information system, its application and interpretations. |
| GEOG-603 | Remote Sensing & GIS and Project Work | It will impart knowledge in remote sensing and GIS. Research methodology, processing and analysis of data etc. Apart from this learners must acquire knowledge on research works as they pursue the project works and make a report on it which will make them excel in research works. |
| GEOG-604A | Urban Geography | Learners will get the knowledge about the study of urban and urbanization, functional classification of towns, Urban issues and problems, etc |
| GEOG-604B | Political Geography | Help the learners to understand political geography, Geopolitics theories, Electoral Geography, resource conflicts, politics of displacements, etc |

DEPARTMENT OF PHILOSOPHY
Course Outcome

The three-year Bachelor's Degree in Philosophy subject follows the Draft Regulations Governing the Choice based Credit System and Grading in Undergraduate Programme (Constituent and Affiliated Colleges) of Mizoram University and comprises a total 140 Credits. There are twenty (20) Foundations Courses (FC), eleven (11) Elective Courses, and nine (9), Major Core Courses (CC) which are spread over the six semesters. Students have to earn a minimum of 140 Credits for successful completion of Under-Graduate degree, with a distribution of credits for different course categories.

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| Programme Outcome | · The programme will help the students to cultivate critical thinking ability to identify and understand different problems of everyday life. Developing critical thinking will also help the students' intellectual, personal and professional abilities. This will ensure a high standard of behaviour in their social relation and become responsible citizens. |
| Programme Specific Outcome | ● On the successful completion of the Programme the students will be able to develop their own opinion and ideas about different issues of life, a deep social consciousness with highly developed sense of justice, equality, liberty and fraternity. They will understand human dignity, value and worth which enable them to understand themselves better and the society they live in and thereby become contributing members for the progress of the society.<br>● This programme contains a comprehensive job-oriented study. It sufficiently prepares them to face all competitive exams for civil services, teachers, lawyers, politicians, social workers, human right activists, environmental activists etc. and much other entrepreneurship. |

COURSE OUTCOMES

| Course code | Name of Course | Outcomes |
|---|---|---|
| PHIL/I/EC/01 | Epistemology and Metaphysics | · It enables students to understand the general concepts and the application of philosophical methods such as Induction, deduction, analysis, synthesis etc. to real life problems.<br>· It helps students to have adequate knowledge of different philosophical theories and metaphysical categories (Western and Indian) such as reality, truth, cause and effect relation, sources of knowledge, space and time and develop critical thinking. |
| PHIL/II/EC/02 | Ethics | · It helps students understand basic ethical concepts, ethical theories, ethical ideals, values and ethical consequences such as good, right, duty, punishment etc, how to make moral judgements, meaning of motive and intention of actions, consequences of the choices we make etc. |

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| PHIL/III/EC/03 | Logic | · It enables students to understand deductive and inductive reasoning and prepares students in facing Aptitude tests.<br>· It helps students understand the importance of using correct language in everyday discourse.<br>· It helps students understand the importance of different functions of language and the fallacies committed in everyday discourse. This helps students identify the correct and incorrect use of terms.<br>· It helps students understand the function of symbols and the behaviours of words in ordinary speech. |
| PHIL/IV/EC/04 | Modern Western Philosophy | By studying this paper, the students develop systematic and critical understanding of the basic concepts and problems in Western Philosophy, the conflict between reason and sense experience as the origin and valid knowledge, the importance of the knowing mind and how knowledge of reality becomes possible, what can and cannot be known by using different methods. |
| PHIL/V/CC/05 | Indian Philosophy | · This paper helps the students to understand the meaning of different concepts and theories in various schools (Astiks and Nastiks) of Indian Philosophy, their theories of knowledge, reality, truth, existence, causation, ethics, liberation, and human destiny. |
| PHIL/V/CC/06 | Philosophy of Religion | • Philosophy of Religion introduces the students to understand the nature and concerns of different religions, relation between religion and science, theology and philosophy of religion, the place of reason, faith, revelation, mystic experience, proofs for the existence of god, the idea of suffering and liberation in different religions.<br>• It helps the students understand some socio-religious issues such as the problem of evil, religious conversion, possibility of inter-religious dialogues etc. |
| PHIL/V/CC/07 | Social and Political Philosophy | • On the completion of this paper the students learned the meaning of the important concepts used in social and political world, different social institutions like family, marriage, education, religion, property, the place of the individual in the society.<br>• They also understand what power and authority, justice, equality, liberty, rights, duties and accountability.<br>• They are acquainted with different political actions such as reform, rebellion, revolution, Satyagraha etc. to bring about a better society. |

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| PHIL/V/CC/08(A) | Phenomenology and Existentialism | · It helps the students to explore the idea of human being, the self and its existence, theistic and atheistic existentialism, the concept of individual freedom, will and authenticity. |
| PHIL/V/CC/08(B) | Philosophy of Law | • After the completion of this paper the student understands different concepts used in the field of law and its perspectives. It acquaints students with different traditional natural law theories, constitutional laws, criminal law, contract law.<br>• It also helps students understand Legal and moral obligations, responsibilities and privacy. This helps develop a deep sense of respect for law. |
| PHIL/VI/CC/09 | Philosophical Analysis | • It enables the students to understand meanings and definitions in language.<br>• Students became aware of knowledge and its limitations (scientific knowledge), the elements of analytic truths and certain metaphysical problems. |
| PHIL/VI/CC/10 | Philosophy of Mind-1 | This paper helps the students to distinguish between scientific study of mind as in psychology from its conceptual study as in philosophy, it helps them understand the problems like mind and body relation, personal identity, knowledge of other minds, artificial intelligence, mind and science, problem of consciousness etc. |
| PHIL/VI/CC/11 | Greek and Medieval Philosophy-1 | • In this course students were introduced to early Greek Philosophies taken into consideration Thales, Pythagoras, Socrates etc. Students were taught the metaphysical and epistemological theories of Plato and Aristotle.<br>• Students became well acquainted with the problems of evil, freedom, knowledge and metaphysical problems in the philosophy of St Augustine and St Thomas Aquinas. |
| PHIL/VI/CC/12(A) | Feminist Philosophy | It helps students understand and recognize gender bias in everyday life, the low status of women in society, feminism, rationale for gender equality, perspective on feminist epistemology and metaphysics, feminist ethics, eco- feminism various theories and the new trends such as gender egalitarianism, gender politics, inter sectional feminism and empowerment of women. |
| PHIL/VI/CC/12(B) | Philosophy of Mind II | This paper helps the students to distinguish between scientific study of mind as in psychology from its conceptual study as in philosophy, it helps them understand the problems like mind and body relation, personal identity, knowledge of other minds, artificial intelligence, mind and science, problem of consciousness etc. |

DEPARTMENT OF CHEMISTRY
Course Outcome

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| Program Outcome | · Students will acquire knowledge on the fundamental concepts, principles and processes underlying the academic field of chemistry; employing critical thinking and scientific methods to design, conduct chemical experiment, record and analyse the results in a systematic way.<br><br>• Students will understand the role of chemistry as a multidisciplinary and its linkages with related disciplinary areas/subjects; also get an awareness of the role of chemistry on the environment and the society. |
| Program Specific Outcome | The ability to explain chemical nomenclature, structure, reactivity and mechanism involved in the field of chemistry with their applications in the scientific community. The design and execution of the experiment demonstrate an understanding of well-equipped laboratories and the proper handling of chemical waste streams and also explain how the applications of Chemistry relates to the everyday life. |

COURSE OUTCOME

| Course | Outcome |
|---|---|
| Paper-I(Inorganic Chemistry-I) | To enable the students to learn the basic concept of atomic structure, Periodic properties of elements, chemical bonding, coordination compounds and nuclear chemistry. |
| Paper-II(Organic Chemistry-I) | To have a good understanding of Organic reaction mechanisms, Aromaticity, organic functional groups, substitution and elimination reactions. |
| Paper-III(Physical Chemistry-I) | To acquire knowledge on liquid and Gaseous state, Colloids and surface Chemistry, dissociation equilibria and Chemical thermodynamics. |
| Paper-IV(Analytical Chemistry-I) | Enable the students to learn safety and hygiene in the laboratory, chemical separation method, volumetric and<br>Gra-vimetric analysis with method of evaluation of these experimental data. |
| Paper-V(Inorganic Chemistry-II) | Students will have a better understanding of chemical bonding with different approaches, properties of s and p block elements, acid-base concept, non-aqueous solvent, molecular symmetry, transition elements, VBT and CFT concept. |
| Paper-VI(Organic Chemistry-II) | Students can learn about Stereochemistry, conformations, heterocyclic compounds and organic synthesis named reactions along with molecular rearrangement. |
| Paper-VII(Physical Chemistry-II) | Students will have understanding on solid and gaseous state of matter, catalysis, chemical kinetics, thermodynamics concept and electrochemistry. Students will learn techniques in chemical |

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| | separation method, electro-gravimetric method, thermal method and Spectro-chemical method for qualitative and quantitative analysis. |
| Paper-VIII(A): Skill based subject: (Analytical Chemistry-II) | Students will learn techniques in chemical separation method, electro-gravimetric method, thermal method and Spectro-chemical method for qualitative and quantitative analysis. |
| Paper-VIII(B): Skill based subject: (Industrial Chemistry) | To enable the students to learn about technology in fermentation, food science, leather, explosives, polymers, Fertilizers and textile industry. |
| Paper-IX (Inorganic Chemistry-III) | Provide students with better understanding of organometallic compounds, Bio-inorganic molecules, inorganic polymers, magnetic materials with applications of chemistry |
| Paper-X(Organic Chemistry-III) | Students will acquire knowledge in organic photochemistry, Pericyclic reactions, organometallic compounds, the 12 principles of green chemistry applications of mass and NMR spectroscopy. |
| Paper-XI((Physical Chemistry-III) | Enable the students to understand quantum mechanics, statistical thermodynamics, theory of molecular spectroscopy and electrochemistry viz. EMF, concentration cells and quantitative application of potentiometric titrations. |
| Paper-XII(A): Skill based subject: (Material Chemistry) | Offers better understanding of material science viz. macromolecules, nano-materials and hybrid materials. |
| Paper-XII(B): Skill based subject:(Natural Products) | Students will have skills in extraction, biosynthesis and separation of secondary metabolites from plants and in-depth knowledge of stereochemistry and molecular rearrangement of natural products. |

DEPARTMENT OF GEOLOGY

Course Outcome

| **Sl No and Course Code** | **Course Name** | C**ourse Outcome** |
|---|---|---|
| 1 GEOL/I/EC/01 | General & Structural Geology Mineralogy | Introduction to basic geology which will impart knowledge about the various disciplines of Geology as well as the origin of the Earth, plate tectonics and its effects, earthquakes and volcanoes. Introduction to the common rock forming mineral and crystals system. |
| 2 GEOL/I/EC/O2 | General & Structural Geology Mineralogy (Practical) | Study of models of the Internal structure of the Earth and structural problems where students will learn how take dip and strike of rock beds.Study of crystal symmetry. |
| 3 GEOL/II/EC/03 | Petrology and Geochemistry | Basic study of the different rock types regarding their structure, texture and their origin. Introduction to geochemistry where students will learn about the cosmic abundance of elements. Introduction to important analytical techniques for geochemical studies. |
| 4 GEOL/II/EC/04 | Petrology and Geochemistry (Practical) | Study of rocks in hand specimen and under microscope and preparation of maps for determination of enriched horizons |
| 5 GEOL/III/EC/05 | Stratigraphy and Paleontology - I | Students will learn about fossils and their relationship with their environment. Introduction to stratigraphy where knowledge about how layers of the Earth were deposited will be explained. |
| 6 GEOL/III/EC/06 | Stratigraphy and Paleontology – I (Practical) | Study of fossils of plants and animals belonging to different ages and strata. Preparation of lithostratigraphic maps of India. |
| GEOL/IV/EC/07 | Economic and Applied Geology | Students will learn the concept of ores and their formation as well as their deposition and extraction. Students will learn the engineering properties of rocks and the hydrological cycle. |
| 8 GEOL/IV/EC/08 | Economic and Applied Geology (Practical) | Study of common minerals in hand specimens. Interpretation of geophysical data and aerial maps as as well as preparation of water table contour maps and their interpretation will be taught. |
| 9 GEOL/V/CC/09 | Applied and Engineering Geology | Students will learn about the engineering properties of rocks for construction of specific buildings.<br>They will also study field surveying methods, remote sensing and GIS and their applications in various fields. They will also learn about the magnetic properties of the Earth |
| 10 GEOL/V/CC/10 | Applied and Engineering Geology (Practical) | Students will learn interpretation of aerial photos and application of GIS in mapping. Preparation of Magneto- stratigraphic logs will also be studied. |

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| 11 GEOL/V/CC/11 | Sedimentology and sequence Stratigraphy | The students will learn about the different types of sedimentary rocks, their formation, composition, transportation, deposition classification as well as the textures and structures. Relation between tectonics and sedimentation will be taught in this chapter where students will know about facies. |
| 12 GEOL/V/CC/12 | Sedimentology and Sequence Stratigraphy (Practical) | Megascopic and microscopic studies of sedimentary rocks and grain size triangular graphs will be taught. |
| 13 GEOL/V/CC/13 | Igneous and Metamorphic Petrology | Students will learn the different types of igneous and metamorphic rocks, their genesis, composition, transportation, deposition, classification as well as the textures and structures. Phase relationship of binary and ternary systems will be taught. Students will also learn the different metamorphic zones and isograds as well as metamorphic facies. Graphical representation of mineral assemblages will also be taught. |
| 14 GEOL/V/CC/14 | Igneous and Metamorphic Petrology (Practical) | microscopic studies of igneous and metamorphic rocks. |
| 15 GEOL/V/CC/15a | Hydrogeology, Oceanography and Environmental Geology | This chapter will teach the students about the hydrological cycle where they will get in depth knowledge about water bearing properties of rocks and groundwater. They will also learn about the oceans of the world and the major currents. Environmental geology regarding impact of man on the environment and the various types of natural hazards will be covered in this chapter |
| 16 GEOL/V/CC/16a | Hydrogeology, Oceanography and Environmental Geology (Practical) | Students will learn how to plot Ocean currents of the world, hydrological maps and learn about locating the epicentre of earthquakes. |
| 17 GEOL/VI/CC/17 | Paleontology and Stratigraphy-II | Detailed study of fossils, both macro and micro will be taught and students will learn about the evolution of man, horse and elephant and also learn about the extinction of dinosaurs. Assemblages of fossils in various stratigraphic horizons will also be taught. |
| 18 GEOL/VI/CC/18 | Paleontology and Stratigraphy-II (Practical) | Students will learn the morphological characters as well as positions and age of important genera of selected groups. |
| 19 GEOL/VI/CC/19 | Economic Geology and Mineral Resources of India | Formation of ores, place of deposition, ore forming minerals and their common forms and structures will be covered in this paper. Mineral deposit classification |

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| | | will also be taught. Students will also learn about the process of mineralization of ore in relation to plate tectonics. |
| 20 GEOL/VI/CC/20 | Economic Geology and Mineral Resources of India (Practical) | Students will study ores and economic minerals in hand specimens and will learn to plot the distribution of mineral deposits and important oil and coal fields in India. |
| 21 GEOL/VI/CC/21 | Dynamics of the Earth and Structural Geology | Detailed study of the earth in terms of its dynamics (revolution, rotation etc.) will be covered along with its geochemical evolution. Weathering and erosion will also be studied. Detailed study of earthquakes and stereographic study will be taught in this paper. |
| 22 GEOL/VI/CC/22 | Dynamics of the Earth and Structural Geology (Practical) | Interpretation of seismogram and plate model studies of plate margins, MOR and trenches will be conducted. Stereographic projection will also be studied. |
| 23 GEOL/VI/CC/23a | Fuel Geology and Mineral Exploration | Detailed study of petroleum, mode of formation, composition, migration and entrapment will be taught. Coal will also be studied in detail. Methods prospecting and exploration, both geochemical and geophysical modes will be covered in detail. |
| 24 GEOL/VI/CC/24a | Fuel Geology and Mineral Exploration (Practical) | Preparation of maps showing the distribution of coal and petroleum will be worked out. Interpretation of geophysical survey data will be taught to students. |
| Programme Outcome | The following program outcomes have been identified for B.Sc Electronic.<br>PO1:To impart knowledge in fundamental aspects of all branches of Geology<br>PO2:To teach students the principles of Geology<br>PO3:To create geological map preparation skills<br>PO4:To prepare students for higher education and career in Electronics<br>PO5:To develop skills in the proper handling of apparatus and components<br>PO6:To make students apply Geology in their day to day life especially during Natural Disasters<br>PO7:To create the students a responsible citizen. | |

DEPARTMENT OF ZOOLOGY

Course Outcome

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| Programme Outcome | Students will acquire comprehensive knowledge on the nature and workings of various forms of life. Life, they will appreciate, is a network of molecular interactions between nucleic acids, proteins, amino acids, carbohydrates, and lipids, and students will embrace the overall biological principle that these interactions are the basis of diversity, intelligence, health, behaviour, and even long-term survival of species. |
| | Students will learn first-hand knowledge on biological experiments, use of scientific equipment, generation of data, and interpretation of the findings. They will be familiarised with simple dissection and microscopy to complex cellular isolation and molecular techniques. |
| | Students will develop a keen sense of scientific methods such as hypothesis, theory, experiments, empirical data and learn to employ them for personal development, day-to-day experience and understanding of nature. Students will be aware of critical issues in health and diseases that affect regional, national, and global environment and make use of that information to convey public awareness at different levels, through popular writings, campaigns and field visits |
| Programme Specific Outcome | ● The course is devised to impart the most important trends in our scientific understanding of life. On completion, the students will get an all-inclusive grasp of the fundamentals of the life system in animals, plants and microbes.<br>● Division of life into domains will be crucial for understanding the differences but relatedness of life forms as varied as viruses, bacteria, fungi, protists, plants and animals. The biological features and significance of their interactions with other organisms will be understood through the course.<br>● One major feature is cellular interactions leading to diseases and other health conditions. Students will know how pathogens invade cells, cells themselves undergo genetic errors such as cancer, and molecular anomalies cause immune diseases.<br>● The course also aims to acquaint the students with landmark and latest developments in biological techniques such as DNA sequencing, protein sequencing, cellular and molecular imaging, gene editing (CRISPR), electron microscopy, in vitro cell propagation, cell cloning, and various chromatography techniques. |

| COURSE CODE | COURSE NAME | COURSE OUTCOMES |
|---|---|---|
| **ZOO/I/EC/01** | **Biosystematics and Non Chordate Biology** | Students will be developed to understand the principles of animal classification, taxonomic relationship, Classification of non-chordates with distinctive features of invertebrates |
| **ZOO/I/EC/02** | **Practical:** | Practical Knowledge from museum specimen studies of non-chordate. Demonstration/dissection of digestive system of some selected non chordate animals with techniques of Slide preparation- mouthparts of insects etc. |
| **ZOO/III/EC/03** | **Chordate Biology and Anatomy** | Students will understand the classification of chordates and affinities of Protochordates, and Specialized features of Pisces, Amphibia, Reptiles, Mammals, including structure of bone, cartilage, modification of heart and respiratory organs. |
| **ZOO/II/EC/04** | **Practical** | Will gain knowlegde of representative of protochordates & chordates from specimen, osteology of pigeon and rabbit, filoplume feather and scales of fish, internal ear of Scoliodon and Hyoid apparatus of Frog, circulatory and reproductive system in rat/ mouse and flight muscle. |
| **ZOO/III/EC/05** | **Evolution and Ethology** | Learners will develop critical understanding of evolutionary theory of natural selection; adaptation, concept of prebiotic soup theory and Miller's experiment, RNA world hypothesis, Geological time scale and Zoogeographical realms. It will also help in understanding types of mimicry, concept of ethology, types of behaviour like innate and learned behaviours including altruism with communication skills of some selected animals. |
| **ZOO/II/EC/06** | **Practical** | Learners will gain knowledge of the extinct and existing animals by studying important vertebrate and invertebrate fossils from specimen/models and pictures, chromatography, caste system and morphological adaptations |
| **ZOO/IV/EC/07** | **Endocrinology and Reproduction Biology** | After completion of the Course in practical the learner will understand the nature of endocrine glands and their hormones, endocrine disorders: mechanism of action of hormones with receptors, biological rhythms, gametogenesis, pheromones and basic concept of contraception. |
| **ZOO/IV/EC/08** | **Practical** | Will acquired understanding of important endocrine glands and reproductive system of rat/mouse and cockroach from dissection/demonstration, surgical techniques and effects of castration/ vasectomy/ ovariectomy in rat/ mouse. |

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| **ZOO/V/CC/09** | **Cell Biology** | Students will understand cell theory, structure of cell, cell organelles, cytoskeleton, cell-cell interaction, extracellular matrix, cell cycle, cell division, cancer and carcinogens |
| **ZOO/V/CC/10** | **Practical** | Students will learn stages of mitosis and meiosis from slides/models, process of squash preparation from onion root tip and process of microtomy and slide preparation |
| **ZOO/V/CC/11** | **Physiology** | Learners at the end of the Course will understand process of digestion and absorption, mechanism and types of respiration, structure of heart, blood, structure and function of kidney, process of osmoregulation, the types of muscles and ultrastructure, muscle proteins and mechanism of muscle contraction, types and structure of neuron, neurotransmitters and transmission of nerve impulse. |
| **ZOO/V/CC/12** | **Practical** | Learners will understand slides of stomach, intestine, lung, kidney and gonads of mammals, estimation of count total R.B.C and W.B.C, haemoglobin and determine blood groups, haemin crystals, smooth and skeletal muscle and determination of salivary amylase activity with effect of pH and temperatures. |
| **ZOO/V/CC/13** | **Biochemistry** | Develop understanding on classification, types, structure, properties and action of proteins, carbohydrates and lipids, coenzyme, ribozyme, and vitamins. The learners will acquire knowledge about various metabolic pathways in human body. |
| **ZOO/V/CC/14** | **Practical** | Students will acquire knowledge about estimation and detection of proteins, lipids and carbohydrates by different methods. |
| **ZOO/V/CC/15(B)** | **Entomology** | It will help the students to understand the classification, features and physiological aspects of insects including major insect pests and their control methods. |
| **ZOO/V/CC/16(B)** | **Practical** | Students will develop knowledge and skills for collection, preservation and display of insects with identification of insects available within their vicinity. |
| **ZOO/VI/CC/17** | **Molecular Biology and Genetics** | Knowledge of DNA and RNA, chromosome organization, giant Genetics chromosomes, DNA replication, DNA repair, transcription, genetic code, translation and concept of operon will be imparted in the minds of students . They will be trained to understand basic concepts of Mendelian genetics, cytoplasmic inheritance, linkage and crossing over, sex linked inheritance, sex determination, and also genetic disorders and mutation. |
| **ZOO/VI/CC/18** | **Practical** | Will have acquired knowledge about estimation of DNA and RNA by different methods, they will observe Polytene chromosomes and chromosome aberrations from slides. |

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| **ZOO/VI/CC/19** | **Developmental Biology** | Learners will understand developmental stages, placenta and extraembryonic membranes, organizer and induction, metamorphosis, regeneration, ageing and concept of trans-genesis and stem cell. |
| **ZOO/VI/CC/20** | **Practical** | Understand cleavage, blastula and gastrula, different stages of chick embryo development, technique of whole mount of chick embryo, process of regeneration in Planaria/Hydra. |
| **ZOO/VI/CC/21** | **Parasitology and immunology** | Students will understand basics of parasitology, life history of important protozoan parasites, cestodes, trematodes and nematodes. Knowledge of basics of immune system, vaccination, antibodies and antigens, histocompatibility complex and hypersensitivity. |
| **ZOO/VI/CC/22** | **Practical** | Develop the skill of making permanent slides of protozoan and helminth parasites; learn the morphological adaptations and identification of cestodes, trematodes and nematodes. And Preparation of blood film by double staining method |
| **ZOO/VI/CC/23 (B)** | **Ecology & Wildlife** | Students will come out with knowledge of the importance of ecological balance and relationship of all trophic levels including transfer of energy through different food chains. Learners will also be acquainted with the understanding of all biogeochemical cycles and the need for conservation of natural resources with community concepts including population. |
| **ZOO/VI/CC/24 (B)** | **Practical** | The Course in Practical will enable the learners to have scientific studies of soil and water qualities in an ecosystem and functional relationship of living organisms with their physical environment. It also demanded a visit to a farm/zoo/park/sanctuary by students to inculcate in their minds the interests of studying ecology and build the love of nature in them. |

DEPARTMENT OF BOTANY
Course Outcome

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| Program Outcomes | · Knowledge and understanding about plant diversity<br>· Presentation skills (oral & writing) in life sciences<br>· Scientific knowledge in life science and fundamental metabolism of plants<br>· Knowledge about biodiversity exploration, estimation and conservation<br>· Knowledge about various plant groups from primitive to highly evolved<br>· Awareness of applications of different plants in various industries · Equipped the students with skills related to laboratory as well as field-based studies<br>· Awareness about conservation and sustainable use of plants |
| Program Specific Outcomes | · Inculcate strong fundamentals on modern and classical aspects of Botany<br>· Stewardship responsibility<br>· Hands on expertise in biological sciences<br>· Entrepreneurship skill development<br>· Will be able to clear competitive examinations like State/Central Services · Create platform for higher studies in Botany<br>· Facilitate students to take-up successful career in Botany<br>· Career opportunities and job opportunities in both Government and private sectors<br>· Become focussed to take up Research and Teaching opportunities |

COURSE OUTCOMES

| Course Code | Name of Course | Course Outcome |
|---|---|---|
| BOT/1/CC/01 | Cryptogams | The main objective of "Cryptogams" in this paper is to impart knowledge related to the living organism belonging to Division: Cryptogams(NonFlowering plants). After completing the syllabus, the students are expected to learn the general classification, life cycle and various characteristic features of Cryptogams namely, Algae, Fungi, Bryophytes and Pteridophytes. |
| BOT/I/CC/02 | Cryptogams(Practical) | To give the students the practical knowledge of structure and reproductive part by observing the selected plant samples such as of Algae, Fungi, Marchantia, Anthoceros, Funaria, Psilotum, Selaginella and Pteris using compound microscope. |

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| BOT/II/CC/03 | Phanerogams | The purpose of this paper is to teach the students the knowledge of Flowering plants (Phanerogams), their systematic position, anatomical features of different families of Angiosperm following the classification given by Bentham and Hooker. It also contains embryology and highlighting economic importance of some selected plant species(cereals, Pulses, fibres, structure of selected plant species: Cycas, Gnetum, Ephedra, and anomalous secondary growth, stem, roots by dissection. |
| BOT/III/CC/05 | Plant physiology, Biochemistry and Ecology | To understand the plant water relation and the importance of photosynthesis and electron transport in plants and gain knowledge on respiration and electron transport, and understanding on physiological role of plant growth hormones and importance and concept of Protein Synthesis and gain |
| BOT/III/CC/06 | Plant physiology, Biochemistry, and Ecology (PRACTICAL) | To study and understand the plasmolytic method and study of Biological Nitrogen Fixation and study of soil ph,temperature and practical study of plant community by quadrat method. |
| BOT/IV/CC/07 | Microbiology,Cytology, Genetics and Evolution | This paper comprises four different fields of study: Microbiology, Cytology, Genetics and Evolution. Students learn various harmful and beneficial microbes relevant to our day to daily life in Microbiology section, structure of plant cells and the cell cycle in Cytology section, importance and role of crossing over, linkage, etc in Genetics section, and the three theory of evolution given by Charles Darwin, Lamarck and de Vries at evolution topic. |
| BOT/IV/CC/08 | Microbiology, Cytology, Genetics and Evolution(PRACTICAL) | To give the students the practical knowledge of how Amino acids could be separated using paper chromatography method, meiosis from Onion Root tip, and different bacteria use permanent slide observation. |
| Bot/V/CC/09 | Fungi, Plant pathology and Biostatistics | This topic aims at bringing the knowledge related to Fungi: General features, mode of nutrition; Various plant pathogens and some common disease caused by such pathogens, mode of transmission. Also knowledge of mathematical tools relevant to biological field called Biostatistics |
| Bot/V/CC/10 | Fungi, Plant pathology and Biostatistics (PRACTICAL) | To give the students the practical knowledge of how fungal media was prepared, the sterilization process, dissection of disease plant specimens and the vegetative and reproductive structure of Fungi. |
| BOT/V/CC/11 | Algae, Lichen, and Bryophytes | To gain knowledge on the different characteristics and life cycles of Algae, Lichens and Bryophytes and to study their economic importance and learning the |

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| | | different systematic, morphological nature and life cycle of algae, lichens and bryophytes. |
| BOT/V/CC/12 | Algae, Lichen, and Bryophytes (PRACTICAL) | Practical study of the morphological and reproductive structures of Algae, Lichens and Bryophytes. |
| BOT/V/CC/13 | Cytogenetics, Plant breeding, Bioinformatics | The goal of this paper is to teach the students the knowledge of cell along with their chemical composition, chromosomal abnormalities, some important concept that can be useful for plant breeding and the knowledge of computer application in biology |
| BOT/V/CC/14 | Cytogenetics, Plant breeding, Bioinformatics (PRACTICAL) | To impart practical knowledge with practical conducting Colorimetric Estimation of RNA and DNA, study of dihybrid ratio using seed samples, polyploidy in onion root tip using colchicines treatment. |
| BOT/V/CC/15 | Environmental Biology and Ethnobotany | Protecting the environment, and taking an awareness for sustainable development is one big objective of the curriculum. The main outcome of this paper is to let the students learn the harmful effects of an imbalanced ecosystem, depletion of natural resources, and some knowledge of measures to control such social evil being practiced. It also emphasized the importance of Ethnobotany. |
| BOT/V/CC/16 | Environmental Biology and Ethnobotany(PRACTICAL) | Practical study of National Park by visiting Phawngpui Tlang national Park, determining BOD of different water samples, study of ethno botanically important species. |
| BOT/VI/CC/17 | Pteridophytes,gymnosperm, palaebotany and palynology | To study their morphological diversity, their evolution and its characteristics of these plants. And to study the fossils and its different types and study of plant pollen in both living and fossil form. |
| BOT/VI/CC/18 | Pteridophytes,gymnosperm, palaebotany and palynology (PRACTICAL) | Study the life cycle of gymnosperms and gain knowledge on fossils through permanent slides, practical studies of morphology and types of pollen grains under palynological studies. |
| BOT/VI/CC/19 | Angiosperm taxonomy, Anatomy, Embryology | The main objective of this paper “Angiosperm taxonomy, Anatomy and Embryology” is to give conceptual knowledge of Megagametogenesis, Cambium activities and how such activity controls secondary growth, the knowledge of Botanical gardens and the process involved in herbarium preparation. Classification of angiosperm and comparative study of classification given by Bentham & Hooker and Engler-Prantle, and Hutchinsonalso form a part of the syllabus. |
| BOT/VI/CC/20 | Angiosperm taxonomy, | Learning by doing goal was attained through preparation of Herbarium, anomalous secondary |

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| | Anatomy, Embryology (PRACTICAL) | growth by dissection and Endosperm, embryo through permanent slide observation. |
| BOT/VI/CC/21 | Plant Metabolism, Biochemistry and Thermodynamics | Students learn the importance of Nitrogen Fixation and the chemical involved in the process, the role of microbes in nitrogen fixation and some biosynthesis: Nucleic Acid(the building block of DNA) and Amino Acid(the building block of protein). Students also learn the action mechanism of Enzyme Five important plant hormones such as Auxins, Gibberellins, Cytokinins, Abscisic acid, and ethylene. How the sources of energy come from the light was converted into usable form by the process Photosynthesis and the flow of energy (in the form of heat) called Thermodynamics also takes part in the syllabus. |
| BOT/VI/CC/22 | Plant Metabolism, Biochemistry And Thermodynamics (PRACTICAL) | Students learn the practical knowledge of how protein standard curve was plot and estimate soluble protein by using Bradford test, study of transpiration rate in dorsiventral leaves by Garreau's Putometer, and extraction and separation of plant pigments using Paper chromatography. |
| BOT/CC/VI/23 | Plant Biotechnology, Experimental Embryology | After learning this paper, the students are expected to gain the knowledge of Biotechnological tools, method of plant tissue culture, different transgenic crops, micro propagation, enzymes used in molecular cloning, cloning vector and basic of PCR |
| BOT/CC/VI/24 | Plant Biotechnology, Experimental Embryology(PRACTICAL) | To give the students the practical knowledge of the following: Preparation of MS Media and Tissue Culture technique<br>● Demonstration of Southern, Northern and Western Blotting<br>● Submission of a report from selected topic |

DEPARTMENT OF MATHEMATICS

Course Outcome

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| **PROGRAMME OUTCOMES** | Students should have the understanding of mathematical concepts, principles and ideas by the time they graduate from the mathematics core through the discipline of mathematics. In addition, they should be familiar with basic scientific concepts, principles, and theories and their application in daily life. They should know how mathematics is used in many fields. This includes analysing data and acquiring conclusions. They are required to be able to think creatively and independently to explain numbers, facts, logics and ideas or to solve different problems. They should be able to continue their mathematics and computer courses. So, they should have worked in various scientific institutions and contribute to the progress of society. |
| **PROGRAMME SPECIFIC OUTCOMES** | Students majoring in mathematics should comprehend the limit of functions, how to verify continuous function properties and derivatives, and Riemann integrability. They should know how to treat Rings like the Euclidean domain and Principal ideal domain, and solve linear and nonlinear equations. They should be able to derive methods for numerous mathematical operations and activities such as interpolation, differentiation, and integration. They should be able to design experiments, analyse and evaluate data, and synthesise knowledge to produce valid conclusions. |

COURSE OUTCOMES

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| **MATH/1/CC/111** | **Calculus** | This course will enable the students to-<br>1. Understand basic functions of Graph.<br>2. Determine the existence of, estimate numerically and graphically, and find algebraically the limits of functions.<br>3. Determine continuity at a point or on intervals and distinguish between the types of discontinuities at a point.<br>4. Determine the derivative of a function using the limit definition. Interpret the derivative as the slope of a tangent line to a graph, the slope of a graph at a point, and the rate of change of a dependent variable with respect to an independent variable.<br>5. Determine anti-derivatives and indefinite integrals and integrate by substitution.<br>6. Use the Fundamental Theorem of Calculus to evaluate definite integrals.<br>7. Use definite integrals to find areas of planar regions. |
| **MATH/2/CC/121** | **Algebra** | This course will enable the students to- |

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| | | 8. Master basic Calculus concepts, including integration techniques, convergence of integrals and infinite series, and Taylor's theorem. |
| | | 1. Understand concepts of groups and recognize groups as mathematical objects.<br>2. Understand and link the basic notion of group and symmetry.<br>3. Review of Lagrange's and its application in Groups.<br>4. Understand theorems of group homomorphism (kernel and image), isomorphism, basic properties of Rings.<br>5. Understand properties of polynomials over integers, rational, real and complex field and their irreducibility.<br>6. Understand the importance and relations of roots of real and complex polynomials and learn Various methods of obtaining roots.<br>7. Understand the concept of De Moivre's theorem and learn its application to solve numerical problems.<br>8. Learn and enable the student to solve cubic and biquadratic equations using Cardan's method. |
| **MATH/2/CC/231** | **Differential Equation** | This course will enable the students to:<br>1. Identify and classify various types of differential equations.<br>2. Explain the meaning of the solution of a differential equation and recognise differential equations that can be solved by each of the three methods –direct integration, separation of variables and integrating factor method – and use the appropriate method to solve them.<br>3. Solve first order ordinary differential equations, exact differential equations. Convert separable and homogeneous equations to exact differential equations by integrating factors.<br>4. Find the complete solution of a differential equation with constant coefficients.<br>5. Solve linear partial differential equations of both first and second order. |
| **MATH/4/CC/241** | **Vector Calculus and Solid Geometry** | This course will enable the students to:<br>1. Acquire a working knowledge of three-dimensional geometry.<br>2. Study and acquire a working knowledge of vector differentiation and integration in three-dimensional spaces and consequently evaluate the curvature of a curve, tangential and normal component of velocity and acceleration of a moving particle along a space curve.<br>3. Study and acquire knowledge about space curves; directional derivative; gradient; multiple |

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| | | integrals; line and surface integrals, vector fields; divergence, curl and flux.<br>4. Acquire knowledge on conic section. |
| **MATH/5/CC/351** | **Computer Oriented Numerical Analysis** | Use of difference operators and acquire knowledge to solve algebraic and transcendental equations numerically.<br>1. Acquire knowledge about interpolation and extrapolation methods.<br>2. Find numerical solutions to linear equations and check the accuracy of the solution.<br>3. Solve initial and boundary value problems in differential equations using numerical methods. |
| **MATH/5/CC/352** | **Real Analysis** | 1. Learn to define sequence in terms of functions from a set of R (Real number set) to a subset of<br>2. Learn process of calculating the limit superior, limit inferior, and the limit of a convergent sequence.<br>3. Learn the process of using the ratio, root, alternating series, and limit comparison tests to check for convergence/absolute convergence of an infinite series of real numbers.<br>4. Learn and understand basic properties of open and closed sets, compact sets, Euclidean spaces and other related important theorems.<br>5. Learn conceptual variation from one variable to multivariable calculus. (continuity, differentiability, etc.)<br>6. Learn to relate concepts of partial derivatives with directional derivatives, derivability of a function.<br>7. Learn concepts of Jacobians and their properties.<br>8. Learn and acquire knowledge on the concept of reversal of order of derivation, which lead to the study of Schwarz's theorem, Young's theorem, Taylor's theorem.<br>9. Learn the concept of extreme value. |
| **MATH/5/CC/353** | **Complex Analysis** | 1. Learn and understand the polar and geometrical representation of complex number, the convergence of Power series, term by term integration and differentiation.<br>2. Learn the importance of complex function and understand the significance of differentiability and analyticity of complex function leading to the Cauchy Riemann equations.<br>3. Learn the process of evaluating a contour integral using the Cauchy Goursat theorem and the Cauchy integral formula.<br>4. Acquire knowledge on Liouville's theorem and its usage in the fundamental theory of algebra.<br>5. Understand how a power series converges, integrates term by term, and differentiates. |

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| | | 6. Learn the process of expansion of analytic functions in Taylor and Laurent series, categorise the nature of singularities, poles, and residues; the concept of zeros of analytic functions and application of Cauchy Residue Theorem. |
| **MATH/5/CC/354B** | **Probability Theory** | This course will enable the students to-<br>1. Describe a random experiment and the set of all outcomes.<br>2. Apply Classical Formula of probability.<br>3. Compute conditional probabilities directly and using Bayes' theorem and check for independence of events.<br>4. Construct random variables describing a given random experiment.<br>5. Compute Mathematical Expectation and variance.<br>6. Explain the law of total probability.<br>7. Perform probability calculations relating to probability distributions for discrete random variables.<br>8. Perform probability calculations relating to probability density functions for continuous random variables.<br>9. Determine Poisson distribution, Binomial distribution, Geometric distribution and Normal distribution. |
| **MATH/6/CC/361** | **Modern Algebra** | Learn and acquire the fundamentals of group action and how to use them.<br>1. Understand the concept of Normal subgroup, Centre of a group, Quotient group and examples. understand theorems of group homomorphism, isomorphism, automorphisms, basic properties of Rings, Finite integral domains and examples.<br>2. Acquire knowledge and learn in detail the concept of polynomial rings, finite field extensions, and finite field classification. |
| **MATH/6/CC/362** | **Advanced Calculus** | Introduce you to the conceptual change in calculus as the study progress from one variable to multiple variables.<br>1. Learn the use of multi-variable calculus to solve optimization problems.<br>2. Learn about Riemann integrability of bounded functions and algebra of R-integrable functions.<br>3. Learn the process of evaluation of line integral and double integral and the relation between repeated and double integral.<br>4. Acquire Knowledge on the relation between the concepts of pointwise and uniform convergence of sequences and series. |
| **MATH/6/CC/363** | **Mechanics** | Acquire knowledge on the principles of virtual work for a system of coplanar forces operating ona rigid body. |

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| | | 1. Learn the required conditions for the equilibrium of particles operated upon by multiple forces.<br>2. Learn the process of determining the gravitational centre of different materialistic systems and consider the equilibrium of a uniform wire suspended freely under its own weight.<br>3. Learn and study the process to handle the kinematics and kinetics of the rectilinear and planar motions of a particle including the constrained oscillatory motions of particles. |
| **MATH/6/CC/364(C)** | **Computer Programming in C** | 1. Enable the student to have a thorough understanding of the C programming Language.<br>2. To determine if a scenario would benefit from the usage of computational methods and computers. Acquire Knowledge to identify and abstract the programming work involved in a Computational challenge.<br>3. Learn the fundamentals of C language, C program structure and the process of compiling and running a C program.<br>4. Acquire knowledge on input/ output functions, decision making, types of looping, jumping, different types of functions and concepts of functions.<br>5. Acquire knowledge in storage classes, array, multidimensional array, string, different types of string functions, pointers, structure and union.<br>6. Learn the process of handling files using C programming. |
| **MATH/6/CC/364(CP)** | **Computer Programming in C (Practical)** | 1. Familiarize the student to the process Editing, Compiling, debugging, correcting, recompiling, and run a C programme on a computer.<br>2. Knowledge on Algorithms and determine which scenarios would best fit to solve the computational problem. Based on the problem's needs, select the most appropriate data representation formats. |

DEPARTMENT OF PHYSICS
Course Outcome

**1. Structure and content of the programme:** The syllabus of our undergraduate programme is part of the 10+2+3 structure, wherein students are admitted after completing the 10+2 section. It is formulated pedagogically to train students to have better understanding of the subject. Beginning with detailed treatment of Newtonian Mechanics in the first semester, application to various systems to study approximated ideal problems have been included. From small oscillations leading to simple harmonic motions to perfectly sliding problems in a frictionless surface and perfectly rolling problems. Basic concepts on thermodynamics are also part of the programme. Static and dynamical electricity and magnetism are studied in detail, appended with basic ideas on interference and diffraction of light. Introductory ideas on atomic structure and their spectra, basic nuclear structure and certain concepts that are mandatory to take up Physics further in academia are also included. These form the parts that are studied in general, even for students who do not choose to take up Physics as their core subject. In the final year, i.e. from the fifth semester, the core papers are taught. This ranges from Lagrangian and Hamiltonian formulation of Newtonian Mechanics and its connection to Quantum Mechanics through canonical transformation. A slightly detailed treatment of Nuclear Physics complemented the concepts that were taught in the earlier semester. Important special functions, complex analysis and series solution techniques of differential equations are taught. Electronics skills that help in understanding devices for measurements and circuit analysing techniques are also learned in the course. A high level programming language, C language is also introduced. This will help the students to cater to the need of certain employability skills in their career. Standard level of Quantum Mechanics, Statistical Mechanics, Electromagnetic Theory, Solid State Physics are taught at the terminating semester. Basic mathematical skills that are required to appreciate the physical laws have also been included wherever required. Moreover, numerical techniques that complement the mathematical tools are an integral part of the curriculum. This forms an essential quality in shaping students to be able to grasp a higher level of the subject and cultivate scientific thinking and intuition. On completion of the programme, students are expected to be able to pursue postgraduate programmes in physics at any central or state university, and other institues of national importance within the country. Semester-wise break-up of the course outcome is provided in the following pages:

| Course Code | Name of Course | Outcome |
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| PHY/I/EC/01(T) | Propertiesof Matter, Oscillations & Acoustics | The paper emphasises on Newtonian Mechanics, and its basics of applications to harmonic motion for different systems. This gears up students for a firm foundation to pursue a more advanced level of Physics. |
| PHY/I/EC/02(P) | Laboratory-I | Students are exposed to basic experimental techniques for foundational undergraduate programmes. Different types of bar pendula are studied. Determination of certain simple mechanical and optical properties of matter is learned. |
| PHY/II/EC/03(T) | Thermodynamics & Mathematical Physics-I | Study of gas–ideal and real, kinetic theory and the laws of thermo-dynamics are the main highlights. Important fundamental mathematical skills like vectors, matrices, tensors and some special functions are also introduced. |

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| PHY/II/EC/04(P) | Laboratory-II | This experimental course mainly deals with phenomena related to magnetism–magnetic moments, inverse square law, etc. Students have hands-on experience on devices that measure magnetic properties |
| PHY/III/EC/05(T) | Electromagnetism & Optics | Classical theory of electricity and magnetism–both static and dynamics, till Maxwell's equation, with a little treatment on alternating currents and bridges. Fundamental theories on interference and diffraction are also part of the course |
| PHY/III/EC/06(P) | Laboratory-III | Basic experiments on electricity and optics are dealt with in this course. |
| PHY/IV/EC/07(T) | Atomic, Nuclear Physics-I and Solid State Physics | Various atomic and nuclear structures with their fundamental properties were studied. Experiments that have remarkable results are also treated theoretically |
| PHY/IV/EC/08(P) | Laboratory-IV | Experiments related to basic semiconductor physics characteristics of different diodes and conventional amplifiers in different biasing and configurations are studied. |
| PHY/V/CC/09(T) | Mathematical Physics-II | Series solutions to differential equations and special functions are learned. Wide treatment of complex variables, Fourier series and integral transforms are the main features of this course. |
| PHY/V/CC/10(T) | VI Electronics-I | Main emphasis is on transistors and their use in amplifiers and oscillators. Diodes and rectifiers as building blocks. Introduction to Operational Amplifiers and their uses, and eventually to digital electronics. |
| PHY/V/CC/11(T) | Classical Mechanics and Nuclear Physics-II | Lagrangian and Hamiltonian formulations of Newtonian Mechanics, their advantages and applications to solve problems in various systems. Detailed study on structure and properties of the nucleus; introduction to cosmic rays and elementary particles are important aspects of the course. |
| PHY/V/CC/12(P) | Laboratory-V | Advanced problems on classical dynamics for more complex shapes to study mechanical properties. Exposure to electrical circuits with alternating currents for amplifiers, simplification of complex circuits, and introduction to GM counters. |
| PHY/V/CC/13(P) | Laboratory-VI | This course mainly deals with determination of thermal properties of matter. Determination of thermal conductivities by various methods, Stefan's Law and Joule's equivalent heat. |
| PHY/V/CC/14(P) | Laboratory-VII | Experiments on mainstream optics, mostly on interference and diffraction are carried out in this course. |
| PHY/V/CC/15(b)(T) | C-Language and Numerical Methods | Discretization of functions, numerical techniques on differentiation and integration, eventually amounting to solving differential equations. Basic computational skills are learned in this course using C as the main language. |
| PHY/V/CC/16(P) | Laboratory-VIII | Mainly the actual programming of techniques studied in the theory course are carried out Therefore, students are |

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| | | equipped with the required skills in numerical techniques. |
| PHY/VI/CC/17(T) | Quantum Mechanics | Basic postulates of Quantum Mechanics, Schrodinger's equation for various potentials, tunnelling effect and uses of linear algebra techniques are learned. Linear dependence, ortho-normalisation techniques, etc. |
| PHY/VI/CC/18(T) | Electromagnetic Theory | Review of basic electrodynamics, Maxwell's equations leading to wave equations in different media. Behaviour of electromagnetic waves at surfaces and interfaces of different media are studied. |
| PHY/VI/CC/19(T) | Thermal and Statistical Physics | Recapitulating thermodynamics. Energy transfer in various system configurations. Treatment of thermo-dynamical properties at the micro scale, use of statistical methods. Understanding based on classical and quantum statistics and their implications to physical reality are understood. |
| PHY/VI/CC/20(P) | Laboratory-IX | Experiments on modern physics and determination of certain universal constants like e/m ratio, Planck's constant, calibration of voltmeter and ammeter e are learned. |
| PHY/VI/CC/21(P) | Laboratory-X | Advanced level electronics dealing with different amplifiers, quantifying their frequency response and related implications. Use of operational amplifiers as integrator and subtractors are also carried out. |
| PHY/VI/CC/22(P) | Laboratory-XI | This course mainly deals with experiments on digital electronics. Starting with logic gates to building arithmetic operators. |
| PHY/VI/CC/23(a)(T) | Solid State Physics-II | From crystal structures to electric and thermal properties of solids at different temperature scales are investigated. Lattice vibrations as quantized oscillations are also studied. Brief study of magnetic properties of matter is also included, which eventually concluded with concepts on superconductivity. |
| PHY/VI/CC/24(P) | Laboratory-XII | Fortan programming to perform important mathematical operations like solving quadratic equations, matrix algebra and ordinary differential equations. |