



PG DEPARTMENT OF COMMERCE
PRANANATH COLLEGE (AUTONOMOUS), KHORDHA

COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF COMMERCE (B.COM)

Sl.	Paper	Subject	Outcomes
1	CC-I	Financial Accounting	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define basic accounting concepts such as assets, liabilities, equity, income, and expenses. • Explain the purpose of financial statements (balance sheet, income statement, cash flow statement). • Prepare financial statements (income statement, balance sheet) based on given transactions and adjustments. • Evaluate the impact of different accounting methods (e.g., FIFO vs. LIFO) on financial statements. • Critique the ethical implications of accounting practices (e.g., revenue recognition, expense recognition). • Design a comprehensive financial reporting framework for a specific industry sector.
2	CC-II	Business Law	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define and explain key legal concepts and terminology relevant to business law. • Summarize the legal principles governing business organizations and contract law. • Apply legal principles to analyze and resolve case studies involving business law issues. • Analyze the legal implications of business decisions and propose legal strategies to mitigate risks. • Evaluate the ethical considerations in business law scenarios and critique legal strategies for effectiveness. • Develop a legal compliance framework and propose strategies to manage legal risks for a hypothetical business.
3	CC-III	Cost Accounting	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Able to define and recall key cost accounting terms and concepts essential for managerial decision-making. • Summarize different costing methods and explain their application in various industries. • Apply costing techniques to calculate product costs and prepare budgets for business planning. • Analyze cost variances and interpret financial statements to evaluate cost efficiency and profitability. • Evaluate different costing methods and critique their suitability for specific business scenarios.



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			<ul style="list-style-type: none"> Design a cost accounting system and develop strategies to enhance cost efficiency and profitability for a hypothetical business.
4	CC-IV	Corporate Law	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> able to define and recall key concepts and principles of corporate law relevant to corporate governance and operations. summarize the legal framework governing corporations and explain the roles and responsibilities of key stakeholders. apply corporate law principles to analyze and resolve legal issues in hypothetical corporate scenarios. analyze corporate governance structures and evaluate their effectiveness in ensuring ethical conduct and legal compliance. evaluate the impact of legal precedents and regulatory changes on corporate practices and governance. design a corporate compliance program and develop strategies to enhance corporate governance and mitigate legal risks.
5	CC-V	Corporate Accounting	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define and recall key accounting concepts and regulatory requirements relevant to corporate accounting. Explain the structure and content of corporate financial statements and summarize the principles of consolidated financial reporting. Apply accounting principles to record and consolidate complex corporate transactions and prepare consolidated financial statements. Analyze corporate financial statements and financial ratios to evaluate performance and financial health. Evaluate the impact of accounting policies and ethical considerations on corporate financial reporting. Design a financial reporting framework and develop strategies to optimize corporate financial performance based on financial analysis.
6	CC-VI	Income-tax Law and Practice	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define and recall key income tax concepts, terminology, and types of income under income tax laws. Explain the fundamental principles and procedural aspects of income tax laws and their application. Apply income tax laws to compute taxable income and prepare income tax returns for individuals and businesses. Analyze tax planning strategies and interpret tax laws to address complex tax issues effectively. Evaluate the impact of tax reforms and critique tax planning strategies based on legality, effectiveness, and ethical considerations. Design tax-efficient investment and business structures and develop comprehensive tax planning strategies to optimize tax outcomes.
7	CC-VII	Management Principles and Application	<p>After completion of this paper student will be able to</p>



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			<ul style="list-style-type: none"> • Define and recall key management concepts and theories essential for understanding organizational behavior and performance. • Explain the functions of management and summarize different management styles and their impact on organizational effectiveness. • Apply management principles and techniques to analyze organizational problems and implement solutions effectively. • Analyze management case studies to identify issues and evaluate the effectiveness of management strategies and practices. • Evaluate the ethical implications of managerial decisions and critique management practices based on their impact on stakeholders and organizational goals. • Design a management plan and develop strategies for organizational change management to address specific challenges or opportunities.
8	CC-VIII	GST and Indirect Taxes	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define and recall key concepts and terminology related to GST and indirect taxes. • Explain the structure of GST and summarize the compliance requirements for businesses. • Apply GST provisions to compute tax liabilities and utilize input tax credit mechanisms effectively. • Analyze the implications of GST on business operations and interpret GST laws to resolve complex tax issues. • Evaluate the impact of GST on the economy and critique GST compliance strategies for effectiveness. • Design a GST compliance framework and develop strategies for effective GST planning and optimization in business scenarios.
9	CC-IX	Fundamentals of Data Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define key terms and concepts related to data management and databases. • Explain the importance of data management in business and summarize the data lifecycle. • Apply data normalization principles and use database query languages to manipulate and analyze data. • Analyze data quality issues and interpret database schema to optimize database performance. • Evaluate data storage and retrieval strategies and critique data management practices for compliance and security. • Design a data management plan and develop strategies for data integration and interoperability in a business scenario.
10	CC-X	Management Accounting	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define and recall key concepts in management accounting and costing methods. • Explain the role of management accounting in decision-making and summarize budgeting principles. • Apply costing methods and cvp analysis to analyze costs and assess pricing decisions.



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			<ul style="list-style-type: none"> Analyze cost variances, interpret financial statements, and evaluate performance using management reports. Evaluate performance measurement techniques and critique management accounting techniques for decision-making. Design a management accounting system and develop strategies to improve cost management and profitability in a business scenario.
11	CC-XI	Computerized Accounting & E-filing of Tax Returns	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define and recall key concepts and terminology related to computerized accounting systems and electronic filing of tax returns. Explain the functionalities of computerized accounting software and summarize legal requirements for e-filing tax returns. Use computerized accounting software to record transactions and prepare tax returns electronically. Analyze financial data from computerized accounting systems and evaluate its accuracy for financial reporting purposes. Evaluate the benefits and risks of using computerized accounting systems and electronic filing for tax compliance. Design a system for integrating computerized accounting processes with tax compliance requirements and develop strategies to enhance data security.
12	CC-XII	Fundamentals of Financial Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define and recall key financial management terms and concepts essential for effective decision-making. Explain the role of financial management and summarize the components and purposes of financial statements. Apply financial analysis techniques and time value of money concepts to evaluate investment decisions and assess project profitability. Analyze financial statements and evaluate investment opportunities and risks associated with different projects. Evaluate financial performance using ratios and benchmarks and critique financial management strategies for their impact on organizational goals. Design a financial management plan and develop strategies to optimize financial performance and manage risks effectively in business scenarios.
13	CC-XIII	Auditing and Corporate Governance	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define and recall key auditing and corporate governance concepts, principles, and regulatory frameworks. Explain the roles of auditors and corporate governance structures and summarize audit planning and reporting processes. Apply auditing standards to assess internal controls and use corporate governance principles to evaluate organizational practices. Analyze audit findings and evaluate corporate governance practices to identify weaknesses and recommend improvements.



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			<ul style="list-style-type: none"> • Evaluate the effectiveness of auditing procedures in detecting financial irregularities and critique corporate governance mechanisms for their impact on organizational ethics and risk management. • Design an audit plan and develop strategies to enhance corporate governance practices in promoting organizational transparency and accountability.
14	CC-XIV	Business Mathematics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • define and recall key mathematical concepts and principles relevant to business mathematics. • explain the relevance of mathematical concepts in business decision-making and summarize financial mathematics principles. • apply mathematical techniques to analyze business problems and make informed decisions in areas such as pricing and financial forecasting. • analyze financial data using mathematical tools and evaluate the impact of mathematical decisions on business outcomes. • evaluate the reliability of mathematical models and critique their effectiveness in solving business challenges. • design mathematical models and develop strategies to integrate mathematical analysis into business processes for optimizing efficiency and profitability.
15	DSE-I	Financial Markets, Institutions & Services	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • define key terms and concepts related to financial markets, institutions, and services. • explain the structure of financial markets and summarize the types and characteristics of financial instruments traded. • apply financial market theories to analyze the behavior of financial instruments and use financial services to achieve financial goals. • analyze the impact of regulations on financial markets and evaluate risk-return trade-offs in investment decisions. • evaluate the effectiveness of financial institutions and critique financial services based on their suitability for different investor profiles. • design a financial portfolio and develop strategies for financial institutions to enhance customer service and regulatory compliance.
16	DSE-II	Financial Statement Analysis and Reporting	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • define key financial statement terms and recall GAAP and IFRS principles related to financial reporting. • explain the purpose of financial statement analysis and summarize the components and structure of financial statements. • apply financial ratios and analysis techniques to interpret financial statements and assess company performance. • analyze financial statements to evaluate financial health, interpret accounting policies' impact, and benchmark against industry standards.



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			<ul style="list-style-type: none"> • evaluate the reliability of financial statements and critique financial reporting practices for transparency and adherence to standards. • design a financial analysis report and develop recommendations for improving financial performance and reporting transparency.
17	DSE-III	Fundamentals of Corporate Tax Planning	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • define key terms and concepts related to corporate taxation and recall principles of corporate tax law. • explain the objectives of corporate tax planning and summarize the types of business entities and their tax implications. • apply tax planning strategies and utilize tools to minimize corporate tax liabilities and optimize after-tax profits. • analyze case studies to identify tax planning opportunities and evaluate their impact on financial statements and cash flows. • evaluate the effectiveness of tax planning strategies and critique ethical implications associated with aggressive tax planning practices. • design a corporate tax planning strategy and develop recommendations for tax-efficient structures to support business sustainability.
18	DSE-IV	Business Research Methods and Project work	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • define key terms and concepts related to business research methods and recall various research methodologies used in business contexts. • explain the importance of research in business decision-making and summarize the steps involved in conducting a research study. • apply research design principles to formulate research questions and utilize appropriate sampling and data collection techniques. • analyze research data using statistical tools to draw conclusions and evaluate the validity and reliability of research findings. • evaluate the strengths and limitations of different research methodologies and critique research studies based on methodological rigor and practical implications. • design and execute a business research project, develop actionable recommendations based on findings, and present their research outcomes effectively.
19	GE-III	Business Statistics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • define key statistical terms and recall types of data and levels of measurement relevant to business statistics. • explain the importance of statistics in business decision-making and summarize basic probability concepts and distributions. • apply descriptive and inferential statistics to analyze data sets and draw conclusions in business contexts. • analyze relationships between variables using correlation and regression analysis and evaluate the reliability of statistical findings.



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			<ul style="list-style-type: none">• evaluate the appropriateness of statistical methods in addressing business problems and critique statistical studies based on methodological rigor.• design and conduct a statistical analysis project, develop recommendations based on findings, and effectively communicate results to stakeholders.
20	GE-IV	Principles of Marketing	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• define key marketing terms and recall fundamental principles of marketing strategy.• explain the importance of marketing in business and summarize factors influencing the marketing environment.• apply market segmentation and use the marketing mix to develop marketing strategies for products or services.• analyze consumer behavior and evaluate the effectiveness of marketing strategies based on market research and sales data.• evaluate the impact of marketing decisions on business performance and critique marketing campaigns based on strategic alignment and consumer response.• design a comprehensive marketing plan and develop innovative strategies to address market challenges and achieve competitive advantage.



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COURSE OUTCOMES – BACHELOR OF ARTS IN ENGLISH

Sl.	Paper	Subject	Outcomes
1	CC-I	British Poetry and Drama: 14 th to 17 th Centuries	After completion of this paper student will be able to <ul style="list-style-type: none">Recall major literary works, authors, and historical contexts from the 14th to 17th centuries in British poetry and drama.Interpret the themes, styles, and literary techniques employed in selected works of British poetry and drama from the specified centuries.Apply literary analysis skills to critically examine and compare different works from the 14th to 17th centuries, identifying their cultural and historical significance.Analyze the development of literary forms and genres within British poetry and drama during the specified period, including the impact of socio-political events.Evaluate the effectiveness of literary devices and themes used by authors in conveying their ideas in selected works from the 14th to 17th centuries.Synthesize insights gained from the study of British poetry and drama to develop original interpretations and perspectives on the cultural and literary movements of the period.
2	CC-II	British Poetry and Drama: 17 th and 18 th Century	After completion of this paper student will be able to <ul style="list-style-type: none">Recall key poets, playwrights, and literary works from the 17th and 18th centuries in British poetry and drama.Interpret the themes, motifs, and literary techniques characteristic of British poetry and drama in the 17th and 18th centuries.Apply literary analysis skills to analyze specific poems and plays from the period, examining their stylistic features and thematic development.Analyze the evolution of literary forms and genres (e.g., metaphysical poetry, Restoration comedy, sentimentalism) in British literature during the 17th and 18th centuries.Critique the societal and ethical implications conveyed in selected works of British poetry and drama from the 17th and 18th centuries.Synthesize knowledge of historical contexts, literary techniques, and thematic elements to formulate original interpretations of selected poems or plays from the period.
3	CC-III	British Prose: 18th Century	After completion of this paper student will be able to <ul style="list-style-type: none">list major prose writers of the 18th century in Britain, such as Daniel Defoe, Jonathan Swift, and Samuel Johnson, and summarize their contributions to the development of English prose.



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			<ul style="list-style-type: none"> • explain the role of reason and rationality in Enlightenment thought as reflected in the prose works of Locke, Hume, and other essayists of the period. • analyze its rhetorical strategies and assess its impact on public opinion during that time by giving a political pamphlet from the 18th century • analyze the portrayal of gender roles in 18th-century novels, comparing the works of Defoe and Richardson in their treatment of female characters and societal expectations. • evaluate the ethical implications of satire in Swift's "A Modest Proposal," considering both its historical context and its reception by contemporary readers. • create an original comparative analysis of how these themes are presented in the prose works of different authors like Addison and Steele by Using knowledge of the Enlightenment ideals of liberty and progress,
4	CC-IV	Indian Writing in English	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • list major authors and poets of Indian Writing in English, such as Salman Rushdie, Arundhati Roy, and Vikram Seth, and summarize their contributions to the literary world. • explain the use of magical realism in the novels of Rushdie and Roy, citing examples to illustrate how it reflects post-colonial themes. • Apply literary analysis skills to critically examine and compare different works of IWE, analyzing their stylistic features and thematic concerns. • Analyze the evolution of genres within IWE, including novels, short stories, poetry, and drama, and their thematic preoccupations. • Critique the portrayal of cultural identity and representation in selected works of IWE, considering both internal diversity and external perceptions. • Synthesize insights gained from the study of IWE to develop original interpretations or analyses of selected texts.
5	CC-V	British Romantic Literature	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • list major Romantic poets and novelists in Britain, such as William Wordsworth, Samuel Taylor Coleridge, and Mary Shelley, and summarize their contributions to the Romantic literary movement. • explain the concept of the Romantic imagination as articulated by Wordsworth and Coleridge, citing specific poems and critical essays. • apply literary theory to analyze its treatment of nature and the sublime within the context of Romanticism. • analyze the role of the supernatural in the works of Coleridge and Shelley, comparing their approaches to the theme in "Kubla Khan" and "Frankenstein." • evaluate the impact of Byron's poetry on political and social reform movements of the Romantic era, considering its reception and legacy. • create an original comparative analysis of how nature is depicted in the poetry of Wordsworth and the novels of Austen by Using knowledge of Romantic aesthetics and philosophy.
6	CC-VI	British Literature 19th Century	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • list major authors and poets of 19th-century British literature, such as Jane Austen, Charles Dickens, Emily Brontë, and Alfred Lord



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			<p>Tennyson, and summarize their contributions to literary movements of the time.</p> <ul style="list-style-type: none"> • explain the role of social realism in the novels of Dickens and Eliot, citing specific examples to illustrate their portrayal of Victorian society. • apply literary theory to analyze its treatment of love and morality within the context of 19th-century British literature. • analyze the representation of industrialization and its impact on society in novels like "Hard Times" by Dickens and "North and South" by Elizabeth Gaskell, comparing their approaches to social critique. • evaluate the portrayal of women and issues of gender in the works of Jane Austen and the Brontë sisters, considering their depiction of female characters and societal expectations. • create an original comparative analysis of how these themes are addressed in the poetry of Christina Rossetti and the novels of Bram Stoker by Using knowledge of Victorian morality and Gothic elements.
7	CC-VII	British Literature: Early 20 th Century	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • list major authors and poets of early 20th-century British literature, such as Virginia Woolf, James Joyce, and T.S. Eliot, and summarize their contributions to literary modernism. • explain the stream-of-consciousness technique in Woolf's "Mrs. Dalloway" and its impact on the portrayal of inner life and time consciousness. • apply literary theory to analyze its representation of Irish identity and cultural nationalism within the context of early 20th-century British literature. • analyze the representation of urban alienation and the effects of industrialization in the novels of E.M. Forster and D.H. Lawrence, comparing their approaches to social critique. • evaluate the portrayal of gender and sexuality in the works of Katherine Mansfield and Jean Rhys, considering their depiction of female characters and societal expectations. • Synthesize insights gained from the study of early 20th-century British literature to develop original interpretations or analyses of selected texts.
8	CC-VIII	American Literature	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall major authors, poets, and playwrights across different periods of American literature, from colonial times to contemporary works. • Interpret the major themes and ideas in American literature, such as individualism, identity, freedom, the American Dream, and social justice. • Utilize historical and contextual knowledge to analyze how literature reflects and responds to major events and social issues in American history, such as slavery, the Civil War, the Great Depression, and the Civil Rights Movement. • Analyze the development of literary movements and traditions in American literature, including Romanticism, Naturalism, Modernism, Harlem Renaissance, and contemporary literature. • Evaluate the impact of major authors such as Ralph Waldo Emerson, Emily Dickinson, Mark Twain, F. Scott Fitzgerald, Toni Morrison, and contemporary writers on American literary traditions and cultural discourse.



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			<ul style="list-style-type: none"> • Synthesize insights gained from the study of American literature to develop original interpretations or analyses of selected texts.
9	CC-IX	European Classical Literature	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall major authors, poets, and playwrights from different periods of European classical literature, such as ancient Greek tragedy, Roman epic poetry, medieval romance, and Renaissance drama. • Interpret the major themes and literary characteristics of classical literature in Europe, such as heroism, fate, love, morality, and the relationship between gods and mortals. • Apply close reading and critical analysis skills to examine the representation of ethical dilemmas, political conflicts, and social norms in selected works of classical literature. • Analyze the development of literary genres and conventions within classical literature, such as the evolution of tragedy from Aeschylus to Euripides, or the development of satire from Horace to Juvenal. • Critique the representation of gender roles, social hierarchy, and morality in classical literature, considering both historical context and contemporary interpretations. • Synthesize insights gained from the study of classical literature to develop original interpretations or analyses of selected texts.
10	CC-X	Women's Writing	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify key themes, genres, and literary movements associated with women's writing, such as feminist literature, autobiographical writing, speculative fiction, and postcolonial literature. • Explain the diverse literary techniques, styles, and forms used by women writers to convey their experiences and perspectives. • Utilize feminist literary theory and intersectional approaches to analyze the representation of race, class, ethnicity, and sexuality in selected works of women's writing. • Analyze the development of literary genres and themes within women's writing, including the evolution of feminist theory and its impact on literary production. • Evaluate the impact of major women authors and works on feminist movements, literary canons, and cultural discourse. • Synthesize insights gained from the study of women's writing to develop original interpretations or analyses of selected texts.
11	CC-XI	Modern European Drama	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall major playwrights, plays, and theatrical movements in modern European drama, spanning from the late 19th century to the 20th century. • Interpret the major themes and ideas in modern European drama, such as alienation, existential angst, societal critique, and the human condition. • Apply close reading and performance analysis skills to analyze the representation of social issues, psychological conflicts, and moral dilemmas in selected works of modern European drama. • Compare and contrast the treatment of common themes (e.g., war and its aftermath, identity crisis, the nature of reality) across different works of modern European drama and cultural contexts. • Evaluate the impact of major playwrights such as Henrik Ibsen, Anton Chekhov, Bertolt Brecht, Samuel Beckett, and Sarah Kane on theatrical traditions, innovation, and cultural discourse.



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			<ul style="list-style-type: none"> • Create performance critiques, scholarly essays, or presentations that integrate knowledge of dramatic theory, historical context, and thematic elements in modern European drama.
12	CC-XII	Indian Classical Literature	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify key historical, religious, and cultural influences that shaped classical Indian literature, including Hindu mythology, Buddhist teachings, and the impact of Persian and Arabic traditions. • Interpret the major themes and philosophical ideas in Indian classical literature, such as dharma (duty/righteousness), karma (action and consequence), bhakti (devotion), and moksha (liberation). • Utilize historical and cultural knowledge to analyze how literature reflects and critiques social norms, political structures, and religious beliefs in ancient and medieval India. • Compare and contrast the treatment of common themes (e.g., love and devotion in Bhakti poetry, heroism and divine intervention in epics) across different works and cultural contexts. • Critique the representation of gender roles, caste hierarchy, and spiritual ideals in selected texts from Indian classical literature, considering both historical context and contemporary interpretations. • Synthesize insights gained from the study of Indian classical literature to develop original interpretations or analyses of selected texts.
13	CC-XIII	Postcolonial Literatures	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall major authors, poets, and playwrights from different regions of postcolonial literature, including Africa, Asia, the Caribbean, and Latin America. • Interpret the major themes and ideas in postcolonial literatures, such as identity formation, cultural hybridity, resistance to oppression, memory and trauma, and the legacy of colonialism. • Apply close reading and critical analysis skills to examine how postcolonial literatures engage with issues of power, representation, and marginalization. • Analyze the development of literary movements and genres within postcolonial literatures, such as the development of African literature, Caribbean literature, Indigenous literature, and diasporic literature. • Critique the representation of gender, race, class, and ethnicity in selected works of postcolonial literature, considering both historical context and contemporary debates. • Synthesize insights gained from the study of postcolonial literatures to develop original interpretations or analyses of selected texts.
14	CC-XIV	Popular Literature	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall major genres and subgenres of popular literature, such as mystery, romance, science fiction, fantasy, thriller, young adult fiction, and horror. • Interpret the appeal and significance of popular literature within contemporary culture, considering its role in entertainment, escapism, social commentary, and cultural reflection. • Apply genre analysis and critical reading skills to analyze how popular literature reflects and responds to societal values, anxieties, and aspirations.



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			<ul style="list-style-type: none"> Analyze the evolution of popular literary genres over time, including the influence of technological advancements, social movements, and cultural shifts. Critique the representation of diversity, representation, and inclusivity in popular literature, considering issues of race, gender, sexuality, and social class. Synthesize insights gained from the study of popular literature to develop original interpretations or analyses of selected texts.
15	DSE-I	Literary Theory	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall major literary theorists and their contributions to the field of literary theory, such as Structuralism, Poststructuralism, Marxism, Feminism, Psychoanalysis, Postcolonialism, Queer Theory, and Ecocriticism. Interpret the main principles and methodologies of different literary theories, including how they analyze texts, authors, readers, and cultural contexts. Apply different literary theories to analyze specific texts or literary phenomena, demonstrating an understanding of how theoretical concepts can illuminate different aspects of a work. Analyze the relationships between literary texts and their socio-political contexts through the lens of various literary theories, considering how literature reflects and critiques cultural norms and ideologies. Synthesize insights gained from the study of literary theory to develop original interpretations or critical analyses of literary texts.
16	DSE-II	World Literature	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall major literary works, authors, poets, and playwrights from different regions and periods of world literature, spanning ancient, classical, medieval, modern, and contemporary eras. Interpret the major themes and ideas in world literature, including but not limited to identity, migration, diaspora, social justice, love, war, and the human condition. Utilize comparative approaches to analyze similarities and differences in narrative techniques, stylistic innovations, and thematic concerns across different works of world literature. Analyze the development of literary genres and forms within world literature, tracing their evolution and adaptation across cultures and historical periods. Critique the representation of cultural identities, gender roles, and socio-economic disparities in selected works of world literature, considering both local perspectives and global implications. Synthesize insights gained from the study of world literature to develop original interpretations or analyses of selected texts.
17	DSE-III	Partition Literature	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall major literary works, authors, poets, and playwrights who have depicted the Partition of British India in their writings, including both fiction and non-fiction genres. Interpret the major themes and narratives in Partition literature, such as displacement, trauma, identity crisis, communal violence, nostalgia, and the search for belonging. Apply close reading and critical analysis skills to examine how Partition literature represents individual and collective memories, emotions, and cultural transformations. Analyze the portrayal of communal tensions, human resilience, and the quest for reconciliation in selected works of Partition



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			<p>literature, considering the perspectives of different communities and individuals.</p> <ul style="list-style-type: none"> • Critique the representation of gender roles, class disparities, and ethnic identities in Partition literature, examining how these themes intersect with broader political and cultural narratives. • Synthesize insights gained from the study of Partition literature to develop original interpretations or analyses of selected texts.
18	GE-I	Academic Writing and Composition	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall the key principles of academic writing, including clarity, coherence, precision, and academic integrity. • Interpret the conventions and expectations of academic writing across disciplines, including audience awareness, formal language use, and adherence to disciplinary norms. • Apply critical reading and analysis skills to evaluate academic sources and integrate them effectively into written arguments. • Analyze different types of academic writing tasks, such as literature reviews, argumentative essays, research proposals, and annotated bibliographies, to understand their purposes and conventions. • Critique the effectiveness of scholarly arguments and research methodologies presented in academic texts, considering their relevance, credibility, and contribution to knowledge. • Synthesize research findings, critical analysis, and scholarly sources to develop original arguments and hypotheses in academic writing.
19	GE-II	Gender and Human Rights	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts related to gender equality and human rights, including definitions of gender, discrimination, equality, and human dignity. • Interpret the intersections of gender and human rights, including how gender-based discrimination affects access to rights and opportunities across different cultural, social, and economic contexts. • Apply critical analysis and comparative approaches to evaluate gender equality policies, laws, and practices in different countries and regions. • Analyze the impact of gender-based violence, stereotypes, and cultural norms on the realization of human rights for individuals and communities. • Critique the role of international organizations, governments, and civil society in advancing gender equality and protecting human rights, considering challenges and opportunities for progress. • Synthesize insights gained from the study of gender and human rights to propose policy recommendations, advocacy strategies, or research projects aimed at advancing gender equality and human rights.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF ARTS IN HISTORY

Sl.	Paper	Subject	Outcomes
1	CC-I	History of India-I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall and identify key events and figures in ancient Indian history. • demonstrate an understanding of the cultural, social, and economic dynamics of ancient Indian societies through written analyses and discussions. • apply historical knowledge to analyze primary sources from ancient Indian texts and artifacts. • analyze the impact of geographical factors on the development of ancient Indian civilizations. • critically evaluate scholarly interpretations of the Harappan Civilization and its decline using evidence-based reasoning. • create a historical timeline of major political changes and cultural developments in early Indian civilizations, integrating primary and secondary sources.
2	CC-II	Social Formations and Cultural Patterns of the Ancient World	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key social structures and cultural practices of ancient civilizations & memorize significant events and milestones in the development of ancient societies. • Explain the socio-economic systems prevalent in different ancient societies & describe the cultural beliefs, values, and norms that shaped ancient civilizations. • Utilize theoretical frameworks to understand the roles of gender, class, and ethnicity in ancient societies. • Analyze the causes and effects of cultural exchanges and interactions among ancient civilizations. • Critique scholarly interpretations of social formations and cultural patterns in light of new archaeological discoveries. • Develop a research project exploring a specific aspect of social organization or cultural expression in an ancient civilization.
3	CC-III	History of India-II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key events, dates, and figures in ancient Indian history from 300 BCE to 750 CE & Memorize the chronology of major dynasties, kingdoms, and empires during this period. • Explain the political, social, economic, and cultural developments in ancient India between 300 BCE and 750 CE. • Utilize historical evidence to reconstruct the socio-economic conditions and everyday life in ancient Indian societies.



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			<ul style="list-style-type: none"> Analyze the causes and consequences of major historical events such as the Mauryan Empire, Gupta Empire, and the rise of regional kingdoms. Critique scholarly theories and interpretations regarding the decline of major empires and the fragmentation of political authority in late antiquity. Develop a research project or essay exploring a specific aspect of ancient Indian history between 300 BCE and 750 CE.
4	CC-IV	Social Formations and Cultural Patterns of the Medieval World	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key social structures, political systems, and cultural practices of medieval societies & memorize significant events, dates, and figures in medieval history across different regions. Explain the socio-economic systems and political hierarchies prevalent in medieval societies. Utilize theoretical frameworks to understand the roles of religion, feudalism, and urbanization in shaping medieval societies. Analyze the impact of technological advancements (e.g., agricultural innovations, architectural developments) on medieval social structures and cultural patterns. Critique scholarly interpretations of the causes and consequences of major historical events in medieval history. Design a presentation or multimedia project that synthesizes diverse sources to illustrate the complexity and diversity of medieval societies.
5	CC-V	History of India-III (c.750-1206)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures in Indian history from approximately 750 to 1206 CE. Explain the political transformations and regional dynamics in India from the late classical to the early medieval period. Apply historical knowledge to analyze primary sources (inscriptions, coins, manuscripts) and secondary texts related to Indian history between 750 and 1206 CE. Analyze the causes and consequences of major political events such as the rise of the Rashtrakutas, Cholas, and the Delhi Sultanate. Evaluate the cultural achievements (e.g., literature, architecture, art) of medieval India and their significance in regional and transregional contexts. Develop a research project or essay exploring a specific aspect of medieval Indian history (e.g., trade and commerce, urban centers, religious movements).
6	CC-VI	Rise of Modern West-I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures during the Renaissance and Reformation periods. Explain the political, social, economic, and cultural changes that characterized the Renaissance and Reformation. Utilize theoretical frameworks to understand the transition from feudalism to early capitalism and the emergence of nation-states. Analyze the causes and consequences of major events such as the Protestant Reformation, Scientific Revolution, and Age of Exploration. Evaluate the impact of intellectual movements (e.g., humanism, Enlightenment) on political thought and governance in early modern Europe.



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			<ul style="list-style-type: none"> Develop a research project or essay exploring a specific aspect of early modern Western history (e.g., cultural exchanges, gender roles, colonialism).
7	CC-VII	History of India-IV (c.1206-1526)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures in Indian history from approximately 1206 to 1526 CE & memorize the chronology of major dynasties, rulers, and empires that shaped medieval India during this period. Explain the political transformations and regional dynamics in India from the Delhi Sultanate to the early Mughal period. Apply historical knowledge to analyze primary sources (inscriptions, coins, court chronicles) and secondary texts related to Indian history between 1206 and 1526 CE. Analyze the causes and consequences of major political events such as the establishment of the Delhi Sultanate, the decline of the Sultanate period, and the rise of regional kingdoms. Evaluate the cultural achievements (e.g., architecture, literature, music) of medieval India and their significance in regional and transregional contexts. Develop a research project or essay exploring a specific aspect of medieval Indian history (e.g., cultural syncretism, economic developments, religious movements).
8	CC-VIII	Rise of Modern West-II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures during the Enlightenment and Industrial Revolution in Europe. Explain the political ideologies and philosophical principles that emerged during the Enlightenment. Apply knowledge of the Enlightenment and Industrial Revolution to analyze primary sources (texts, political pamphlets, scientific papers) and secondary texts. Analyze the causes and consequences of major social changes, such as urbanization, class formation, and labor movements. Evaluate the impact of scientific advancements and technological innovations on European society, economy, and culture. Develop a research project or essay exploring a specific aspect of modern Western history (e.g., women's rights movements, colonialism, cultural responses to industrialization).
9	CC-IX	History of India-V (c.1526-1750)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures in Indian history from approximately 1526 to 1750 CE & Memorize the chronology of major rulers, battles, and cultural developments during the Mughal period and beyond. Explain the political dynamics and regional fragmentation in India under the Mughal Empire and subsequent regional powers. Apply historical knowledge to analyze primary sources (court chronicles, paintings, architectural remains) and secondary texts related to Indian history between 1526 and 1750 CE. Analyze the causes and consequences of major political events such as the Battle of Panipat, the expansion and decline of the Mughal Empire, and the rise of regional powers. Evaluate the cultural achievements (e.g., architecture, literature, music) of the Mughal Empire and regional kingdoms and their significance in shaping Indian culture and identity.



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			<ul style="list-style-type: none"> Develop a research project or essay exploring a specific aspect of early modern Indian history (e.g., cultural syncretism, economic innovations, political rivalries).
10	CC-X	Historical Theories and Methods	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Explain different historical theories and approaches (e.g., Marxist, Annales School, postcolonial) used to interpret historical events and processes & Identify key proponents and critiques of each historical theory. Evaluate the strengths and limitations of various historical theories in explaining different historical contexts. Demonstrate proficiency in historical research methods, including archival research, textual analysis, and oral history techniques. Identify major shifts and debates within historiography over time & Compare and contrast different historiographical perspectives on specific historical events or periods. Discuss ethical issues related to historical research, including the use of sources, representation of marginalized voices, and the responsibilities of historians. Synthesize findings from historical research using theoretical frameworks and methodologies.
11	CC-XI	History of Modern Europe-I (c.1780-1880)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures in European history from approximately 1780 to 1880. Explain the political ideologies (e.g., liberalism, conservatism, nationalism) and revolutions (e.g., French Revolution, Revolutions of 1848) that shaped modern Europe. Apply historical knowledge to analyze primary sources (political documents, literature, artworks) and secondary texts related to European history between 1780 and 1880. Analyze the causes and consequences of major events such as the Napoleonic Wars, the Industrial Revolution, and the unification of Germany and Italy. Evaluate the impact of technological advancements, scientific discoveries, and cultural movements (e.g., Romanticism) on European society and culture. Develop a research project or essay exploring a specific aspect of modern European history (e.g., social reform movements, artistic trends, diplomatic relations).
12	CC-XII	History of India-VII (1750-1857)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures in Indian history from approximately 1750 to 1857 CE. Explain the political dynamics in India under various Indian states, regional powers, and the emerging influence of European colonial powers. Apply historical knowledge to analyze primary sources (letters, treaties, administrative records) and secondary texts related to Indian history between 1750 and 1857 CE. Analyze the causes and consequences of major political events such as the Battle of Plassey, the establishment of British rule, and the rise of Indian resistance movements. Evaluate the cultural and intellectual achievements (e.g., literature, art, religious reforms) of Indian societies during this transformative period.



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			<ul style="list-style-type: none"> Develop a research project or essay exploring a specific aspect of Indian history (e.g., social reform movements, economic impact of colonialism, cultural responses to British rule).
13	CC-XIII	History of India-VIII (C.1857-1950)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Memorize the chronology of major political movements, leaders, and events during this period, including the Revolt of 1857, the Indian National Congress sessions, and key legislative acts. Explain the political developments, including the growth of nationalism, the partition of Bengal, and the emergence of various political ideologies and movements. Apply historical knowledge to analyze primary sources (speeches, letters, official documents) and secondary texts related to Indian history between 1857 and 1950 CE. Analyze the causes and consequences of major political events such as the Partition of India, the Non-Cooperation Movement, and the Quit India Movement. Evaluate the impact of cultural movements (e.g., literature, art, music) on shaping Indian identity and fostering nationalist sentiments. Develop a research project or essay exploring a specific aspect of modern Indian history (e.g., role of women in the freedom struggle, impact of Gandhi's philosophy).
14	CC-XIV	History of Modern Europe-II(1880-1939)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures in European history from approximately 1880 to 1939. Explain the political ideologies and movements (e.g., imperialism, socialism, fascism) that shaped European politics in the late 19th and early 20th centuries. Apply historical knowledge to analyze primary sources (political speeches, propaganda posters, diplomatic correspondence) and secondary texts related to European history between 1880 and 1939. Analyze the causes and consequences of major political events such as World War I, the Russian Revolution, the Great Depression, and the rise of totalitarian regimes. Evaluate the impact of cultural movements (e.g., modernism, avant-garde art, literary movements) on European society and intellectual thought. Develop a research project or essay exploring a specific aspect of modern European history (e.g., impact of World War I on European society, cultural responses to political upheavals).
15	DSE-I	History and Culture of Odisha - I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures in the early history of Odisha, from ancient times to the medieval period. Explain the geographical, political, and socio-economic factors that influenced the development of early Odisha. Apply historical knowledge to analyze primary sources (inscriptions, archaeological findings, literary texts) and secondary texts related to the history and culture of Odisha. Analyze the causes and consequences of major historical events such as the Kalinga War, the rule of the Kalinga Empire, and the impact of Buddhism and Jainism in Odisha. Evaluate the significance of Odisha's cultural contributions to Indian civilization, including its maritime trade, temple architecture, and religious syncretism.



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			<ul style="list-style-type: none"> Develop a research project or essay exploring a specific aspect of Odisha's history and culture (e.g., maritime trade routes, temple architecture, literary traditions).
16	DSE-II	History and Culture of Odisha - II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures in the medieval and modern history of Odisha, from the medieval period to the present day. Explain the political dynamics, including the rule of the Gajapati dynasty, the Mughal influence, and the impact of British colonialism on Odisha. Apply historical knowledge to analyze primary sources (historical documents, colonial records, literary works) and secondary texts related to the history and culture of Odisha during the medieval to modern periods. Analyze the causes and consequences of major historical events such as the decline of the Gajapati dynasty, the Paika Rebellion, and the socio-religious reform movements in Odisha. Evaluate the significance of Odisha's cultural resilience and artistic expressions during the medieval to modern periods, including temple architecture, folk traditions, and literature. Develop a research project or essay exploring a specific aspect of Odisha's medieval to modern history (e.g., impact of colonialism on tribal communities, emergence of Odia literature).
17	DSE-III	History and Culture of Odisha- III	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key concepts, beliefs, and practices of Buddhism, Jainism, Saivism, Saktism, Tantricism, and Vaishnavism as they manifested in Odisha. Explain the historical contexts and socio-cultural factors that facilitated the spread and adoption of Buddhism, Jainism, Saivism, Saktism, Tantricism, and Vaishnavism in Odisha. Apply historical knowledge to analyze primary sources (inscriptions, temple architecture, religious texts) and secondary texts related to the religious history of Odisha. Analyze the similarities and differences between Buddhism, Jainism, Saivism, Saktism, Tantricism, and Vaishnavism as practiced in Odisha, including their impact on society, art, and governance. Evaluate the significance of Odisha as a center for religious pilgrimage and cultural exchange due to the presence of these diverse religious traditions. Develop a research project or essay exploring a specific aspect of the religious history of Odisha (e.g., impact of Tantricism on temple architecture, cultural syncretism in religious festivals).
18	GE-I	History of India-I (Early Times to 1750)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures in Indian history from ancient times to 1750 CE. Explain the socio-political and economic structures of ancient Indian civilizations, such as the Indus Valley Civilization, Vedic period, Mauryan Empire, Gupta Empire, and medieval kingdoms. Apply historical knowledge to analyze primary sources (inscriptions, archaeological findings, literary texts) and secondary texts related to Indian history from ancient times to 1750 CE.



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			<ul style="list-style-type: none"> Analyze the causes and consequences of major historical events such as the decline of the Indus Valley Civilization, Ashoka's Dhamma, the Delhi Sultanate, and the Mughal Empire. Evaluate the impact of religious and cultural movements (e.g., Buddhism, Jainism, Bhakti movement) on Indian society and governance. Develop a research project or essay exploring a specific aspect of Indian history (e.g., role of women in ancient Indian society, technological advancements in medieval India).
19	GE-II	History of India – II (1750-1950)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall key events, dates, and figures in Indian history from 1750 to 1950 CE, including colonial policies, revolts, and movements for independence. Explain the political, economic, and social impact of British colonial rule on Indian society, including the administrative changes, land revenue systems, and economic exploitation. Apply historical knowledge to analyze primary sources (colonial documents, nationalist writings, speeches) and secondary texts related to Indian history from 1750 to 1950 CE. Analyze the causes and consequences of major events such as the Revolt of 1857, Partition of Bengal, the formation of the Indian National Congress, and the impact of World War I and II on India. Evaluate the effectiveness of various strategies and movements employed by Indian nationalists in their struggle for independence, including non-cooperation, civil disobedience, and revolutionary activities. Develop a research project or essay exploring a specific aspect of Indian nationalist movements (e.g., role of women, impact on rural India, influence of literature and art).



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COURSE OUTCOMES

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COURSE OUTCOMES – BACHELOR OF ARTS IN PHILOSOPHY

Sl.	Paper	Subject	Outcomes
1	CC-I	General Philosophy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • list and describe key concepts, theories, and terminology in philosophy. • demonstrate understanding by explaining major philosophical theories and ideas. • apply philosophical concepts and theories to real-world situations or hypothetical scenarios. • analyze and critically evaluate philosophical arguments and texts. • evaluate and critique different philosophical positions, providing reasoned judgments. • create and formulate original philosophical questions and hypotheses.
2	CC-II	Logic and Scientific Method	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and define key principles, terminology, and methods in logic and the scientific method. • demonstrate understanding by explaining how logical reasoning and the scientific method are used in different contexts. • apply logical principles and the scientific method to analyze problems and construct arguments. • critically analyze logical arguments and assess scientific theories. • evaluate the soundness of logical arguments and the credibility of scientific claims. • create and formulate original arguments and hypotheses based on logical and scientific reasoning.
3	CC-III	Systems of Indian Philosophy –I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and describe the major systems of Indian philosophy covered in the course. • demonstrate an understanding of the core concepts and principles of each philosophical system. • apply the concepts from these philosophical systems to various contexts and scenarios. • analyze and compare the different systems of Indian philosophy. • evaluate and critique the philosophical positions and arguments within these systems. • create and formulate original philosophical questions and hypotheses based on the studied systems.
4	CC-IV	Symbolic Logic	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and define key terms, symbols, and principles used in symbolic logic.



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			<ul style="list-style-type: none"> • demonstrate understanding by explaining the fundamental concepts and methods of symbolic logic. • apply symbolic logic techniques to analyze arguments and solve logical problems. • analyze the structure of logical arguments and proofs. • evaluate the validity and soundness of logical arguments using symbolic techniques. • create and formulate original logical problems and puzzles.
5	CC-V	Ethics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and define key terms, theories, and concepts in ethics. • demonstrate understanding by explaining the fundamental principles and arguments of various ethical theories. • apply ethical theories and principles to analyze and address real-world moral issues. • critically analyze ethical arguments and assess their strengths and weaknesses. • evaluate and critique different ethical theories and their applications. • create and formulate original ethical questions and hypotheses.
6	CC-VI	History of Greek Philosophy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and define key philosophers, schools of thought, and concepts in Greek philosophy. • demonstrate understanding by explaining the fundamental ideas and movements of Greek philosophy. • apply the ideas of Greek philosophers to analyze contemporary issues and problems. • analyze and interpret primary philosophical texts and arguments from the Greek tradition. • evaluate and critique the theories and arguments put forth by Greek philosophers. • create and formulate original philosophical questions and arguments inspired by Greek philosophy.
7	CC-VII	Systems of Indian Philosophy (II)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define terms such as Brahman, Atman, Pramana, Padartha, Maya, and identify philosophers like Sankara and Ramanuja. • demonstrate understanding by explaining the core ideas and theories of the Upanishadic view, Nyaya theory, Vaishesika, and the views of Sankara and Ramanuja on Maya. • apply concepts from these philosophical systems to analyze contemporary issues or philosophical problems. • analyze and compare the arguments and theories within these systems of Indian philosophy. • evaluate and critique the strengths and weaknesses of the theories and arguments in these systems. • create and formulate original philosophical questions and hypotheses based on the studied systems.
8	CC-VIII	Contemporary Indian Philosophy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and define key figures, concepts, and movements in contemporary Indian philosophy. • demonstrate understanding by explaining the fundamental ideas and contributions of contemporary Indian philosophers. • apply ideas from contemporary Indian philosophy to analyze and address current social, political, and ethical issues. • analyze and compare the arguments and ideas of different contemporary Indian philosophers.



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			<ul style="list-style-type: none"> • evaluate and critique the contributions and theories of contemporary Indian philosophers. • synthesize ideas from various contemporary Indian philosophers to develop a comprehensive understanding of modern Indian philosophical thought.
9	CC-IX	History of Modern European Philosophy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and describe key philosophers, movements, and developments in Modern European philosophy. • demonstrate understanding by explaining the fundamental concepts, theories, and arguments of Modern European philosophers. • apply philosophical theories and concepts to analyze texts, historical events, and contemporary issues. • analyze primary texts and arguments from Modern European philosophy. • evaluate and critique the theories, debates, and contributions of Modern European philosophers. • synthesize ideas from different Modern European philosophers to develop a coherent understanding of the evolution of European philosophical thought.
10	CC-X	Philosophy of Language	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and define key concepts, theories, and terminology in the philosophy of language. • demonstrate understanding by explaining the fundamental theories and debates in the philosophy of language. • apply theories of language to analyze and interpret examples of language use and communication. • critically analyze linguistic phenomena and arguments within the philosophy of language. • evaluate and critique the strengths and weaknesses of philosophical theories and approaches in the philosophy of language. • synthesize different philosophical perspectives on language to develop a comprehensive understanding of the philosophy of language.
11	CC-XI	Western Classics: Meditations of Rene Descartes	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and recall key themes, concepts, and arguments presented in Descartes' "Meditations." • demonstrate understanding by explaining Descartes' method of doubt and his approach to achieving certainty in knowledge. • apply Descartes' philosophical ideas to analyze contemporary philosophical problems or scenarios. • critically analyze Descartes' arguments and reasoning presented in the "Meditations." • evaluate the strengths, weaknesses, and impact of Descartes' philosophical contributions on subsequent philosophical thought. • create and formulate original philosophical questions and arguments inspired by Descartes' "Meditations."
12	CC-XII	Indian Text: Isa Upanishad	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and recall key philosophical themes, concepts, and teachings presented in the Isa Upanishad. • demonstrate understanding by explaining the fundamental concepts and teachings found in the Isa Upanishad. • apply the teachings of the Isa Upanishad to analyze ethical dilemmas and spiritual questions.



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			<ul style="list-style-type: none"> analyze passages and arguments from the Isa Upanishad. evaluate the relevance and applicability of Upanishadic teachings in contemporary contexts. create and formulate original philosophical questions and arguments inspired by the teachings of the Isa Upanishad.
13	CC-XIII	Social & Political Philosophy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> identify and recall key concepts, theories, and historical developments in social and political philosophy. identify and recall key concepts, theories, and historical developments in social and political philosophy. apply theories from social and political philosophy to analyze contemporary social issues and political problems. analyze arguments and positions within social and political philosophy. evaluate the strengths, weaknesses, and implications of social and political theories. create and formulate original social and political questions and propose solutions based on philosophical theories.
14	CC-XIV	Applied Ethics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> identify and recall key ethical theories, concepts, and principles relevant to applied ethics. demonstrate understanding by explaining how ethical theories can be applied to analyze and evaluate real-world ethical dilemmas. apply ethical theories and principles to analyze and propose solutions to specific ethical issues in various fields. critically analyze ethical arguments and case studies from applied ethics. evaluate ethical practices, policies, and guidelines in various professional and societal contexts. create and formulate original ethical questions and propose innovative solutions based on ethical theories and principles.
15	DSE-I	Philosophy Of Bhagavad Gita	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> identify and recall key philosophical themes, concepts, and teachings presented in the Bhagavad Gita. demonstrate understanding by explaining the fundamental concepts and teachings found in the Bhagavad Gita. apply the teachings of the Bhagavad Gita to analyze ethical dilemmas and spiritual questions. analyze passages and arguments from the Bhagavad Gita. evaluate the relevance and applicability of Bhagavad Gita teachings in contemporary contexts. synthesize insights from the Bhagavad Gita with other philosophical perspectives to develop a deeper understanding of Hindu philosophy.
16	DSE-II	Philosophy Of Religion	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> identify and recall key concepts, theories, and historical developments in the philosophy of religion. demonstrate understanding by explaining the fundamental ideas, arguments, and positions within the philosophy of religion. apply theories from the philosophy of religion to analyze religious phenomena, practices, and beliefs. critically analyze arguments and texts from religious traditions and philosophical perspectives. evaluate the strengths, weaknesses, and implications of philosophical and religious theories.



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			<ul style="list-style-type: none"> • create and formulate original philosophical questions and arguments inspired by the philosophy of religion.
17	DSE-III	Gandhian Studies	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and recall key events, principles, and philosophical foundations of Mahatma Gandhi's life and thought. • demonstrate understanding by explaining the fundamental philosophical and political ideas espoused by Mahatma Gandhi. • apply Gandhian principles and methods to analyze and propose solutions to contemporary social, political, and ethical challenges. • critically analyze Gandhi's writings, speeches, and methods of activism. • relevance and applicability of Gandhian ideas and methods in addressing present-day global challenges. • create and formulate original ideas, projects, or proposals inspired by Gandhian philosophy and methods.
18	GE-I	Symbolic Logic	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • identify and recall key concepts, symbols, and terminology used in symbolic logic. • demonstrate understanding by explaining the fundamental principles and rules of symbolic logic. • apply symbolic logic to construct logical arguments and analyze their validity. • critically analyze complex logical statements and arguments using symbolic notation. • evaluate the strengths, weaknesses, and applicability of different logical systems and formal methods. • synthesize insights from symbolic logic with philosophical theories and real-world applications.
19	GE-II	Indian Philosophy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recognize the reality of the world with a view to transforming and spiritualizing human life. • demonstrate understanding by explaining the core ideas & theories of the Upanishadic view, Naya theories, vaishasika & to the views of Sankara & Ramanuja on Maya Brahman. • apply philosophical theories and concepts to analyze texts, historical events, and contemporary issues. • analyze primary texts and arguments from Indian philosophy. • evaluate and critique the strengths and weaknesses of the theories & arguments in theses • synthesize ideas from different Indian philosophers to develop a coherent understanding of the evolution of Indian philosophical thought.



DEPARTMENT OF POLITICAL SCIENCE
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COURSE OUTCOMES

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COURSE OUTCOMES – BACHELOR OF ARTS IN POLITICAL SCIENCE

Sl.	Paper	Subject	Outcomes
1	CC-I	Understanding Political Theory	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, terminologies, and foundational theories of political science. • Explain the historical context and significance of various political theories and ideologies. • Use political theories to interpret contemporary political events and issues. • Able to differentiate between and critically compare various political ideologies and theories. • Able to assess the strengths and weaknesses of different political theories and their applicability to current political scenarios. • Able to develop their own theoretical frameworks or critiques based on their understanding of political theory.
2	CC-II	Constitutional Government and Democracy in India	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key facts and foundational principles of the Indian Constitution and democratic framework. • Explain the structure, functions, and roles of various organs of the Indian government. • Use their knowledge to interpret and analyze current political events and legal issues in India within the constitutional framework. • Critically examine the functioning of democracy and constitutional governance in India. • Assess the strengths and weaknesses of India's democratic and constitutional processes. • Propose reforms or innovations to strengthen democratic governance and constitutional adherence in India.
3	CC-III	Political Theory- Concepts and Debates	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key political concepts and major theoretical debates in political theory. • explain the significance and implications of various political theories and debates. • use political concepts and theories to analyze contemporary political issues and debates. • critically compare different political theories and their approaches to key concepts.



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			<ul style="list-style-type: none"> • assess the strengths and weaknesses of various political arguments and positions within theoretical debates. • develop their own arguments and contribute to ongoing debates in political theory.
4	CC-IV	Political Process in India	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key elements and institutions of the Indian political process. • explain the functioning and roles of various political institutions and processes in India. • use their knowledge to interpret and analyze current political developments and trends in India. • critically examine the functioning and effectiveness of political institutions and processes in India. • assess the strengths and weaknesses of various aspects of the political process in India. • propose reforms or initiatives to improve the political process and governance in India.
5	CC-V	Introduction to Comparative Government and Politics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key concepts, theories, and terms in comparative government and politics. • explain the significance and characteristics of various political systems and structures. • use comparative methods to analyze political systems and institutions in different countries. • critically examine and compare the political processes and policies of different countries. • assess the effectiveness and implications of different political systems and policies. • develop their own comparative research projects or proposals based on their understanding of different political systems.
6	CC-VI	Introduction to Public Administration	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall foundational concepts, theories, and key terms in public administration. • explain the roles, functions, and structures of public administration. • apply principles of public administration to real-world scenarios and case studies. • critically analyze the effectiveness of public administration practices and policies. • evaluate the strengths and weaknesses of different public administration approaches and reforms. • develop recommendations for improving public administration practices and policies.
7	CC-VII	Perspectives on International Relations	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key theories, concepts, and historical events in international relations. • explain the foundational principles and viewpoints of different international relations theories. • use international relations theories to interpret current global events and policies.



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			<ul style="list-style-type: none"> critically examine and compare the assumptions and implications of various international relations theories. assess the strengths and limitations of different theoretical approaches to understanding international relations. develop their own theoretical perspectives or critiques based on their understanding of international relations.
8	CC-VIII	Political Processes and Institutions in Comparative Perspective	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> recall key concepts, theories, and terminology related to political processes and institutions. explain the functioning and significance of various political institutions and processes in different countries. use comparative methods to analyze political institutions and processes across different countries. critically examine the similarities and differences in political processes and institutions across various countries. assess the effectiveness and implications of political processes and institutions in different political contexts. propose new models or reforms to improve political processes and institutions based on comparative analysis.
9	CC-IX	Public Policy and Administration in India	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> recall key concepts, terminologies, and historical developments in public policy and administration in India. explain the structure, roles, and functions of public administration in India. use theoretical frameworks to analyze current public policies and administrative practices in India. critically examine the formulation, implementation, and outcomes of public policies in India. assess the effectiveness and efficiency of public policies and administrative practices in India. propose recommendations for policy reforms and improvements in public administration in India.
10	CC-X	Global Politics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> recall key concepts, events, and theories in global politics. explain the significance and impact of global political events and theories. use theoretical frameworks to analyze current global political issues. critically examine the interactions between different actors in global politics, including states, international organizations, and non-state actors. assess the effectiveness and implications of international policies and agreements. develop policy recommendations or strategic frameworks to address global political challenges.
11	CC-XI	Western Political Philosophy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> recall key philosophers, texts, and ideas in Western political philosophy. explain the fundamental concepts and principles of Western political philosophy.



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			<ul style="list-style-type: none"> • apply theories from Western political philosophy to analyze contemporary political issues and debates. • critically analyze and compare different philosophical perspectives within Western political thought. • assess the strengths and weaknesses of various Western political philosophies and their relevance to contemporary political challenges. • develop their own philosophical arguments or critiques based on Western political philosophy.
12	CC-XII	Indian Political Thought (Ancient & Medieval)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key thinkers, texts, and concepts in ancient and medieval Indian political thought. • explain the foundational principles and concepts of Indian political thought from ancient and medieval periods. • apply principles of Indian political thought to analyze historical and contemporary political issues. • critically analyze the similarities and differences between various schools of Indian political thought. • assess the relevance and applicability of ancient and medieval Indian political thought to contemporary political challenges. • develop their own interpretations or syntheses of Indian political thought concepts for addressing modern political issues.
13	CC-XIII	Contemporary Political Philosophy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key contemporary political philosophers, texts, and theories. • explain the foundational principles and concepts of contemporary political philosophy. • apply contemporary political theories to analyze current political issues and debates. • critically analyze and compare different contemporary political theories and perspectives. • assess the strengths and weaknesses of various contemporary political theories. • develop their own philosophical arguments or critiques based on contemporary political philosophy.
14	CC-XIV	Modern Indian Political Thought	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key thinkers, texts, and movements in modern Indian political thought. • explain the foundational principles and concepts of modern Indian political thought. • apply principles of modern Indian political thought to analyze historical and contemporary political issues in India. • critically analyze and compare the political philosophies and ideologies of different modern Indian thinkers. • assess the impact and relevance of modern Indian political thought on Indian politics and society. • develop their own interpretations or critiques based on modern Indian political thought.
15	DSE-I	Introduction to Human Rights	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key definitions, documents, and historical events related to human rights.



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			<ul style="list-style-type: none"> • explain the foundational principles and concepts of human rights. • apply human rights principles to analyze contemporary human rights issues and cases. • critically analyze human rights violations and their causes, effects, and implications. • evaluate the effectiveness of international human rights mechanisms and institutions. • propose strategies or initiatives to address human rights challenges and promote human rights protections.
16	DSE-II	Development Process and Social Movements in Contemporary India	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key historical events, social movements, and policies related to development in contemporary India. • explain the processes and dynamics of development in contemporary India. • apply theoretical frameworks to analyze the impact of development policies and social movements on Indian society. • critically analyze the role and impact of social movements in shaping development policies and outcomes in India. • evaluate the successes and challenges of development processes and social movements in contemporary India. • propose recommendations or solutions to address development challenges based on their understanding of social movements and development processes in India.
17	DSE-III	India's Foreign Policy in a Changing world	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key historical events, treaties, and diplomatic relations shaping India's foreign policy. • explain the foundational principles and objectives of India's foreign policy. • apply theoretical frameworks to analyze India's responses to contemporary global challenges. • critically analyze India's foreign policy decisions and their impact on regional and global dynamics. • evaluate the effectiveness of India's foreign policy strategies in achieving national interests and global influence. • propose recommendations for enhancing India's foreign policy effectiveness in response to emerging global trends.
18	DSE-IV	Women, Power and Politics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall key historical events, movements, and figures related to women's involvement in politics. • explain the theoretical frameworks and concepts related to women's participation in politics and power dynamics. • apply theoretical perspectives to analyze the challenges and opportunities faced by women in politics. • critically analyze the impact of policies, institutions, and societal norms on women's political participation. • evaluate the role of women in shaping political agendas and policies at local, national, and global levels. • propose strategies and recommendations to promote gender equality and women's empowerment in politics.



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19	GE-I	Feminism: Theory and Practice	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• recall key historical events, figures, and texts in the development of feminist theory and practice.• explain the foundational principles and concepts of feminist theory.• apply feminist theories to analyze social, cultural, political, and economic phenomena.• critically analyze feminist perspectives on various issues such as gender inequality, reproductive rights, violence against women, and representation in media and politics.• evaluate the effectiveness of feminist strategies and movements in achieving social change and gender equality.• propose strategies or actions to advance feminist goals in various contexts.
20	GE-II	Governance: Issues and Challenges	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• identify different forms of governance such as democratic governance, authoritarian governance, and participatory governance.• describe the principles of transparency, accountability, legitimacy, and efficiency in governance processes.• apply governance theories to analyze contemporary issues and challenges.• Analyze the impact of globalization on governance structures and decision-making processes.• evaluate the effectiveness of governance mechanisms in addressing societal problems.• propose recommendations or strategies to improve governance practices and address governance challenges.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF ARTS IN PSYCHOLOGY

Sl.	Paper	Subject	Outcomes
1	CC-I	Introductory Psychology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define key concepts in psychology, such as cognition, behaviorism, and perception & recall major theories in different areas of psychology. • Summarize the principles of various psychological perspectives (e.g., biological, cognitive, sociocultural) & explain the ethical considerations involved in psychological research. • Apply psychological concepts to analyze real-world scenarios & utilize psychological research methods to design a basic research study. • Compare and contrast different psychological theories and their implications & critique research studies in terms of their methodology, validity, and conclusions. • Evaluate the strengths and weaknesses of various psychological interventions & assess the ethical implications of psychological research on individuals and society. • Develop a psychological intervention or treatment plan based on theoretical principles & create a research proposal addressing a gap in current psychological knowledge.
2	CC-II	Basic Developmental Processes	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define key terms related to developmental psychology, such as maturation, critical periods, and developmental milestones. • Explain the principles of developmental theories and how they influence behavior across the lifespan. • Use developmental principles to propose strategies for promoting positive development in children or adolescents. • Compare and contrast different theories of development in terms of their explanatory power and empirical support. • Assess the strengths and limitations of various developmental interventions or educational approaches. • Create a proposal for a community-based program aimed at supporting development in a specific age group.
3	CC-III	Basic Psychological Processes	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define and recall basic terms and concepts in psychology related to cognitive, emotional, and behavioral processes (e.g., perception, memory, learning, motivation). • Explain the theories and models that describe cognitive processes (e.g., information processing model, cognitive-behavioral theories). • Apply principles of learning theories (e.g., classical conditioning, operant conditioning) to real-life situations.



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			<ul style="list-style-type: none"> Analyze experimental studies in psychology to evaluate how different variables affect behavior or cognitive processes. Evaluate the effectiveness of therapeutic interventions based on psychological theories (e.g., cognitive-behavioral therapy, humanistic approaches). Create a plan for applying psychological principles to enhance well-being in a specific population (e.g., workplace, educational setting).
4	CC-IV	Processes of Human Empowerment	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define the concept of empowerment and its significance in psychological and social contexts. Describe the differences between individual empowerment, social empowerment, and systemic empowerment. Use psychological principles to design interventions aimed at promoting empowerment in specific contexts (e.g., educational settings, community organizations). Analyze research studies on empowerment to evaluate effective strategies and factors that contribute to successful outcomes. Evaluate the ethical considerations involved in empowerment initiatives, including issues of power dynamics and cultural sensitivity. Develop a comprehensive empowerment plan for a specific target group, integrating psychological theories and evidence-based practices.
5	CC-V	Statistics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define basic statistical terms and concepts & recall different types of data and their characteristics. Explain the principles of descriptive statistics & describe the importance of inferential statistics in psychological research and practice. Apply descriptive statistical techniques to analyze and summarize data from psychological studies. Analyze research studies to interpret statistical findings and their implications for psychological theories. Assess the ethical considerations related to the use and interpretation of statistical analyses in psychological research. Design a research study in psychology that includes a comprehensive statistical analysis plan & integrate statistical findings with psychological theories to generate new insights or hypotheses.
6	CC-VI	Social Psychology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define key concepts in social psychology, such as social influence, attitudes, stereotypes, and conformity & recall major theories in social psychology. Explain how social psychological theories apply to real-world social behaviors and interactions. Apply social psychological principles to analyze and interpret behaviors observed in everyday social situations. Analyze research studies in social psychology to evaluate the methodologies, findings, and implications for understanding human behavior. Critique popular media representations of social psychological phenomena for accuracy and ethical implications.



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			<ul style="list-style-type: none"> • Synthesize social psychological theories and research findings to propose innovative approaches to addressing social issues (e.g., prejudice reduction, promoting prosocial behavior).
7	CC-VII	Environmental Psychology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts such as environmental perception, environmental cognition, and environmental stressors. • Explain theories and models that describe how individuals perceive and evaluate their physical environments. • Use environmental psychology concepts to propose design recommendations for creating more supportive and sustainable environments. • Use environmental psychology concepts to propose design recommendations for creating more supportive and sustainable environments. • Assess the effectiveness of psychological strategies in promoting pro-environmental behaviors and attitudes. • Synthesize environmental psychology theories and empirical evidence to develop strategies for promoting environmental sustainability in communities or organizations.
8	CC-VIII	Psychopathology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define psychopathology and distinguish between normal and abnormal behavior & recall key diagnostic categories and criteria from the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders). • Explain the biological, psychological, and social factors that contribute to the development of mental disorders. • Apply diagnostic criteria to analyze case studies or vignettes depicting various mental disorders. • Analyze research studies on the etiology and treatment of mental disorders to evaluate methodologies, findings, and implications. • Evaluate the effectiveness of different therapeutic approaches (e.g., pharmacological, psychotherapy) in treating specific mental disorders. • Synthesize knowledge of psychopathology theories and research to develop a treatment plan for a hypothetical client with a specific mental disorder.
9	CC-IX	Educational Psychology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define educational psychology and its scope within the field of psychology & recall key theories in educational psychology. • Explain how psychological theories apply to educational contexts, such as learning environments and instructional strategies & describe the developmental stages and theories relevant to educational psychology. • Apply principles of educational psychology to analyze and evaluate teaching methods and curriculum design. • Analyze case studies or research studies in educational psychology to evaluate the effectiveness of educational interventions. • Evaluate the impact of individual differences (e.g., cognitive abilities, socio-economic status) on learning outcomes. • Synthesize educational psychology theories and research findings to develop innovative teaching strategies or educational programs.
10	CC-X	Psychological Assessment	<p>After completion of this paper student will be able to</p>



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			<ul style="list-style-type: none"> • Define psychological assessment and its importance in clinical and educational settings & recall different types of psychological tests. • Explain the principles and ethical guidelines underlying psychological assessment & prescribe the psychometric properties of tests, including reliability, validity, and standardization. • Apply knowledge of psychological assessment to select appropriate tests for different purposes & administer and score psychological tests following standardized procedures. • Analyze assessment results to interpret individuals' psychological functioning and characteristics & critique the strengths and limitations of different assessment methods and tools. • Assess the ethical considerations in the use of psychological tests, including issues of confidentiality and informed consent. • Synthesize assessment data to formulate comprehensive psychological reports and recommendations.
11	CC-XI	Organizational Behavior	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define organizational behavior and its scope within psychology and business & recall key theories and models in organizational behavior. • Explain how psychological theories apply to individual and group behavior within organizations. • Use psychological principles to propose strategies for enhancing job satisfaction, motivation, and performance. • Analyze organizational behavior research to evaluate factors influencing employee engagement, satisfaction, and productivity. • Assess the ethical considerations in organizational behavior research and practice, including issues of fairness, diversity, and corporate social responsibility. • Synthesize organizational behavior theories and empirical evidence to develop recommendations for enhancing organizational effectiveness.
12	CC-XII	Health Psychology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define health psychology and its role in understanding the interaction between psychological factors and health outcomes & recall key theories and models in health psychology. • Explain how psychological factors (e.g., stress, personality, social support) influence health behaviors and outcomes & describe the impact of chronic illness, pain, and disability on psychological well-being. • Apply theories of health behavior change to analyze case studies or scenarios involving health promotion or disease prevention. • Critique the methodologies used in health psychology research and their implications for understanding health behavior. • Evaluate the ethical considerations in conducting research and interventions in health psychology, including issues of confidentiality, consent, and cultural sensitivity. • Synthesize health psychology theories and research findings to develop a comprehensive health promotion program for a specific population or community.
13	CC-XIII	Counseling Psychology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define counseling psychology and its scope within the field of psychology & recall key counseling theories.



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			<ul style="list-style-type: none"> • Explain the goals and techniques used in various counseling approaches & describe the ethical guidelines and professional standards relevant to counseling practice. • Apply counseling skills, such as active listening and empathy, in simulated counseling sessions. • Critique case formulations and treatment plans based on psychological theories and evidence-based practices. • Evaluate the ethical considerations in the counseling relationship, including issues of confidentiality, boundaries, and informed consent. • Design a research proposal that investigates a specific aspect of counseling psychology, such as the effectiveness of a new intervention or the adaptation of counseling techniques to diverse populations.
14	CC-XIV	Positive Psychology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define positive psychology and its fundamental principles & recall key concepts such as happiness, subjective well-being, resilience, strengths, and flourishing. • Explain theories and models that describe factors contributing to positive psychological functioning. • Apply positive psychology principles to analyze case studies or scenarios involving individuals' strengths and well-being. • Critique the methodologies used in positive psychology research and their implications for understanding human flourishing. • Evaluate the ethical considerations in applying positive psychology interventions, including issues of informed consent and cultural sensitivity. • Synthesize knowledge of positive psychology theories and research findings to develop a comprehensive well-being enhancement program.
15	DSE-I	Psychological Research and Measurement	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define psychological research methods and measurement techniques used in psychology & recall key concepts in research design, such as variables, hypotheses, and sampling methods. • Explain the principles of research ethics and the importance of ethical considerations in psychological research. • Apply knowledge of research methods to design a research study or experiment in psychology. • Analyze research findings from peer-reviewed journal articles to evaluate research methodologies, results, and interpretations. • Evaluate the ethical considerations in conducting psychological research, including issues of confidentiality, consent, and participant well-being. • Synthesize knowledge of research methods and measurement techniques to develop a comprehensive research proposal in psychology.
16	DSE-II	Ethics, Integrity and Aptitude	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Define ethics, integrity, and aptitude within the context of psychology and professional practice & recall ethical principles and codes of conduct relevant to psychologists. • Explain the importance of ethics and integrity in maintaining trust and credibility in psychological practice. • Apply ethical principles to analyze case studies or scenarios involving ethical issues in psychological practice (e.g., confidentiality, boundaries, informed consent).



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			<ul style="list-style-type: none"> Analyze ethical guidelines and regulations governing psychological practice to evaluate their impact on professional conduct and client well-being. Evaluate the role of integrity and ethical behavior in establishing and maintaining effective therapeutic relationships. Synthesize ethical principles, integrity, and professional aptitude to develop a personal code of ethics for ethical practice in psychology.
17	DSE-III	Psychology of the Disability	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define disability from psychological and social perspectives & recall key psychological theories and models relevant to understanding disability. Explain the psychological impact of disability on individuals, families, and communities & describe the role of stigma, prejudice, and discrimination in shaping experiences of disability. Use psychological principles to propose strategies for promoting psychological well-being and social inclusion among individuals with disabilities. Analyze research studies in the psychology of disability to evaluate the effectiveness of interventions aimed at improving quality of life and reducing barriers. Assess the impact of public policies and legislation on the psychological well-being and rights of individuals with disabilities. Design a research proposal that investigates a specific aspect of the psychology of disability, such as the effectiveness of psychological interventions in enhancing independence and social participation.
18	GE-I	Introductory Psychology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define psychology and its scope as a scientific discipline & recall key concepts and terminology in various domains of psychology. Explain major theoretical perspectives in psychology & Describe basic research methods used in psychology. Apply psychological principles to analyze everyday behaviors and experiences & use basic psychological concepts to interpret psychological research findings reported in popular media or academic journals. Analyze research studies in psychology to identify variables, research designs, and conclusions drawn. Evaluate the strengths and limitations of psychological research methods and ethical considerations in conducting research. Synthesize knowledge from different areas of psychology to propose explanations for complex human behaviors or phenomena.
19	GE-II	Basic Developmental Processes	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define developmental psychology and its scope within the field of psychology & recall key concepts and theories in developmental psychology. Explain the principles of biological, cognitive, and socio-emotional development across the lifespan. Apply developmental theories to analyze case studies or scenarios depicting typical and atypical development. Analyze research studies in developmental psychology to evaluate methodologies, findings, and implications.



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			<ul style="list-style-type: none">• Evaluate the ethical considerations in conducting research with vulnerable populations (e.g., children, older adults) in developmental psychology.• Synthesize developmental theories and research findings to develop evidence-based recommendations for interventions or programs aimed at promoting healthy development.
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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF SCIENCE IN BOTANY

Sl.	Paper	Subject	Outcomes
1	CC-I	Microbiology and Phycology	After completion of this paper student will be able to <ul style="list-style-type: none">• define key terms related to microbiology and phycology, such as bacteria, algae, cyanobacteria, mycology, etc. & recall the fundamental characteristics of various microorganisms and algae.• explain the basic concepts and principles of microbiology and phycology, including the role of microorganisms and algae in ecosystems.• demonstrate basic microbiological techniques, such as staining, culturing, and microscopy.• compare and contrast the different types of microorganisms and algae based on their structural and functional characteristics.• critically evaluate the results of microbiological and phycological experiments, identifying sources of error and suggesting improvements.• design and conduct experiments to investigate microbiological and phycological phenomena.
2	CC-II	Biomolecules and Cell Biology	After completion of this paper student will be able to <ul style="list-style-type: none">• identify the major classes of biomolecules, including carbohydrates, proteins, lipids, and nucleic acids & able to recall the structures and functions of various cell organelles.• describe key cellular processes such as protein synthesis, cellular respiration, and photosynthesis.• demonstrate laboratory techniques used in studying biomolecules and cells, such as chromatography, electrophoresis, and microscopy.• examine the interactions between different cellular components and how these interactions contribute to cellular functions.• evaluate experimental data related to biomolecule analysis and cell biology experiments, interpreting results accurately.• design experiments to investigate the properties and functions of biomolecules and cellular processes.
3	CC-III	Mycology and Phytopathology	After completion of this paper student will be able to <ul style="list-style-type: none">• identify major types of fungi, including molds, yeasts, and mushrooms.• Explain fungal life cycles, describe disease mechanisms, and understand host-pathogen interactions.• Demonstrate diagnostic techniques and apply control methods for fungal diseases.• Analyze fungal infections and examine environmental factors affecting disease development.



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			<ul style="list-style-type: none"> Evaluate management strategies and assess plant resistance to fungal infections. Design experiments and develop integrated management plans for fungal diseases.
4	CC-IV	Archegoniate	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Identify major groups of archegoniate (e.g., bryophytes, pteridophytes, gymnosperms) and recall their key characteristics. Explain the life cycles and reproductive strategies of archegoniate and describe their ecological significance. Demonstrate techniques for studying archegoniate, such as microscopic examination and field identification. Compare and contrast the structures and functions of different archegoniate and analyze their evolutionary relationships. Evaluate the adaptive features of archegoniate in various environments and assess their roles in ecosystems. Design experiments to investigate archegoniate biology and develop conservation strategies for endangered species.
5	CC-V	Anatomy of Angiosperms	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Identify the major tissues and organs of angiosperms, such as roots, stems, leaves, flowers, fruits, and seeds. Explain the structure and function of different tissues (e.g., epidermal, ground, vascular) and describe the processes of secondary growth and tissue differentiation. Demonstrate techniques for preparing and observing plant anatomical sections using microscopy. Compare and contrast the anatomical features of different angiosperm species and analyze the relationships between structure and function. Evaluate the adaptations of various anatomical structures to different environmental conditions and assess their significance in plant physiology and ecology. Design experiments to study plant anatomy and develop models to predict how anatomical changes impact plant growth and development.
6	CC-VI	Economic Botany	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Identify economically important plants and their primary uses in various industries such as agriculture, medicine, and textiles. Explain the significance of plant-derived products and describe the roles of plants in traditional and modern economies. Demonstrate knowledge of cultivation practices and processing techniques for key economic plants. Compare and contrast the economic value of different plant species and analyze the factors influencing their market demand and supply. Evaluate the sustainability of different agricultural practices and assess the environmental impact of plant-based industries. Design sustainable agricultural practices and develop strategies for improving the economic potential of underutilized plant species.
7	CC-VII	Genetics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Identify key genetic concepts, such as DNA, genes, chromosomes, and mutations, and recall fundamental genetic laws and principles.



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			<ul style="list-style-type: none"> • Explain the mechanisms of genetic inheritance, the structure and function of nucleic acids, and the processes of replication, transcription, and translation. • Demonstrate techniques used in genetic analysis, such as PCR, gel electrophoresis, and genetic crosses. • Compare patterns of inheritance, analyze genetic data to determine genotypes and phenotypes, and explore genetic linkage and mapping. • Evaluate the impact of genetic variation and mutations on populations, and assess the ethical implications of genetic research and biotechnology. • Design experiments to investigate genetic phenomena, and develop genetic models to predict outcomes of genetic crosses and mutations.
8	CC-VIII	Molecular Biology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify key molecules involved in molecular biology, such as DNA, RNA, and proteins, and recall the central dogma of molecular biology. • Explain the processes of DNA replication, transcription, and translation, and describe the regulation of gene expression. • Demonstrate techniques such as PCR, gel electrophoresis, and DNA sequencing, and apply them to molecular biology experiments. • Analyze molecular data to understand gene function and expression patterns, and compare molecular mechanisms across different organisms. • Evaluate experimental results, assess the significance of molecular findings, and consider the implications of molecular biology in biotechnology and medicine. • Design molecular biology experiments to investigate gene function and expression, and develop molecular models to predict the behavior of biological systems.
9	CC-IX	Plant Ecology & Phytogeography	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify key concepts and terminology in plant ecology and phytogeography, such as ecosystems, biomes, and ecological niches. • Explain the principles of plant ecology, including interactions between plants and their environment, and describe the distribution patterns of plants globally. • Demonstrate field techniques for studying plant communities and ecological interactions, such as vegetation sampling and environmental monitoring. • Analyze the factors influencing plant distribution and abundance, and compare different plant communities and ecosystems. • Evaluate the impact of environmental changes and human activities on plant ecosystems, and assess conservation strategies for protecting plant diversity. • Design ecological studies to investigate plant-environment interactions and develop models to predict the effects of climate change on plant distribution.
10	CC-X	Plant Systematics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify major plant families and key characteristics used in plant classification and nomenclature. • Explain the principles and methods of plant taxonomy, including morphological, anatomical, and molecular approaches.



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			<ul style="list-style-type: none"> • Demonstrate the use of identification keys and taxonomic tools to classify and identify plant species. • Compare and contrast the phylogenetic relationships among different plant groups and analyze the evolutionary significance of various traits. • Evaluate different classification systems and assess the reliability and limitations of taxonomic evidence. • Design taxonomic studies to investigate plant diversity and develop classification schemes that reflect evolutionary relationships.
11	CC-XI	Reproductive Biology of Angiosperms	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify the structures and processes involved in the reproduction of angiosperms, including flowers, pollination mechanisms, and seed development. • Explain the mechanisms of pollination and fertilization in angiosperms, including the role of pollen grains, ovules, and gametes. • Demonstrate techniques for studying reproductive structures and processes in angiosperms, such as flower dissection and pollen analysis. • Compare and contrast reproductive strategies among different angiosperm species, and analyze adaptations for reproductive success in diverse environments. • Evaluate the ecological and evolutionary significance of reproductive strategies in angiosperms, and assess the impact of pollination mechanisms on plant diversity. • Design experiments to investigate aspects of angiosperm reproduction, and develop strategies for conservation and enhancement of plant reproductive success.
12	CC-XII	Plant Physiology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify key concepts and processes in plant physiology, such as photosynthesis, respiration, transpiration, and mineral nutrition. • Explain the mechanisms and biochemical pathways involved in photosynthesis, respiration, transpiration, and nutrient uptake in plants. • Demonstrate laboratory techniques used in studying plant physiological processes, such as leaf gas exchange measurements, enzyme assays, and nutrient analysis. • Analyze the factors influencing plant growth and development, including environmental factors (light, temperature, water) and hormonal regulation. • Evaluate the physiological responses of plants to abiotic and biotic stresses, and assess the implications for agriculture and ecosystem health. • Design experiments to investigate plant physiological responses under varying conditions, and develop strategies for optimizing plant growth and productivity.
13	CC-XIII	Plant Metabolism	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify key metabolic pathways in plants, such as photosynthesis, respiration, glycolysis, and the citric acid cycle. • Explain the biochemical reactions and regulatory mechanisms involved in plant metabolism, including enzyme catalysis and metabolic regulation. • Demonstrate laboratory techniques used to study plant metabolic processes, such as spectrophotometry, chromatography, and metabolic flux analysis.



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			<ul style="list-style-type: none"> Analyze the interconnections between different metabolic pathways and their roles in plant growth, development, and adaptation to environmental conditions. Evaluate the metabolic responses of plants to environmental stresses, and assess the implications for plant productivity and resilience. Design experiments to investigate specific aspects of plant metabolism, and develop strategies for enhancing metabolic pathways to improve crop yield and quality.
14	CC-XIV	Plant Biotechnology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Identify key concepts and techniques in plant biotechnology, such as genetic engineering, tissue culture, and molecular markers. Explain the principles and methods of genetic modification in plants, including gene transfer techniques and transgenic plant production. Demonstrate laboratory techniques used in plant biotechnology, such as tissue culture methods, PCR, gene cloning, and transformation assays. Analyze the ethical, environmental, and regulatory issues associated with genetically modified organisms (GMOs) in agriculture. Evaluate the applications of biotechnology in crop improvement, including disease resistance, abiotic stress tolerance, and nutrient enhancement. Design experiments to manipulate plant genes for specific traits, and develop strategies for sustainable agriculture using biotechnological approaches.
15	DSE-I	Analytical Techniques in Plants Sciences	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Identify key analytical techniques used in plant sciences, such as spectroscopy, chromatography, microscopy, and molecular techniques. Explain the principles and applications of various analytical methods in plant sciences, including their advantages and limitations. Demonstrate proficiency in using analytical instruments and techniques, such as spectrophotometers, HPLC (High Performance Liquid Chromatography), SEM (Scanning Electron Microscopy), and PCR (Polymerase Chain Reaction). Analyze experimental data obtained from analytical techniques to interpret plant physiological processes, biochemical compositions, and molecular structures. Evaluate the reliability and accuracy of analytical results, and assess their relevance to plant research and applications in agriculture, ecology, and biotechnology. Design experiments using advanced analytical techniques to investigate specific aspects of plant physiology, biochemistry, and genetics, and develop innovative approaches for solving plant-related scientific challenges.
16	DSE-II	Natural Resource Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Identify key natural resources and ecosystems, such as forests, wetlands, and marine environments, and recall their ecological importance. Explain the principles and practices of natural resource management, including sustainable development, conservation strategies, and ecosystem services.



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			<ul style="list-style-type: none"> • Demonstrate knowledge of tools and techniques used in natural resource assessment and monitoring, such as GIS (Geographic Information Systems) and remote sensing. • Analyze the interactions between human activities and natural ecosystems, and assess the impacts on biodiversity, water resources, and soil quality. • Evaluate the effectiveness of natural resource management policies and practices in promoting conservation and sustainable use of resources. • Design integrated management plans for natural resources, incorporating principles of conservation, restoration, and sustainable utilization.
17	DSE-III	Horticulture Practices & Post Harvest Technology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify key horticultural practices, including propagation methods, crop management techniques, and pest and disease control measures. • Explain the principles underlying plant growth and development in horticulture, including factors affecting crop productivity and quality. • Demonstrate practical skills in horticultural techniques such as grafting, pruning, irrigation management, and greenhouse operation. • Analyze the factors influencing post-harvest losses and deterioration of horticultural products, and assess methods for prolonging shelf life and maintaining quality. • Evaluate the economic significance of horticulture in local and global markets, and assess sustainable practices for efficient resource use and environmental stewardship. • Design horticultural production systems and post-harvest handling protocols to optimize crop yield, quality, and marketability.
18	GE-I	Biodiversity (Microbes, Algae, Fungi & Archegoniate)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify and classify major groups of microbes (bacteria, archaea), algae, fungi, and archegoniate (bryophytes, pteridophytes, gymnosperms). • Explain the diversity of morphological, physiological, and ecological characteristics within each group, and describe their roles in ecosystems. • Demonstrate techniques for studying microbial, algal, fungal, and archegoniate diversity, such as microscopy, culturing, and molecular identification methods. • Compare and contrast the adaptations and evolutionary relationships among different microbial, algal, fungal, and archegoniate taxa. • Evaluate the ecological functions and ecosystem services provided by microbes, algae, fungi, and archegoniate, and assess their importance in biodiversity conservation. • Design research projects to investigate specific aspects of microbial, algal, fungal, and archegoniate biodiversity, and develop conservation strategies to protect endangered species and habitats.
19	GE-II	Plant Physiology & Metabolism	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify key physiological processes in plants, including photosynthesis, respiration, transpiration, and nutrient uptake.



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			<ul style="list-style-type: none">• Explain the biochemical and molecular mechanisms underlying plant physiological processes, including enzyme kinetics, metabolic pathways, and signal transduction.• Demonstrate proficiency in using laboratory techniques to study plant physiology and metabolism, such as gas exchange measurements, spectrophotometry, and molecular biology methods.• Analyze the factors influencing plant growth, development, and responses to environmental stresses, and interpret experimental data to understand physiological adaptations.• Evaluate the implications of plant physiological processes for agriculture, ecosystem health, and global carbon and nutrient cycles.• Design experiments to investigate specific aspects of plant physiology and metabolism, and develop strategies for optimizing plant performance, enhancing crop yields, and mitigating environmental impacts.
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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF SCIENCE IN CHEMISTRY

Sl.	Paper	Subject	Outcomes
1	CC-I	Inorganic Chemistry-I	After completion of this paper student will be able to <ul style="list-style-type: none">Recall principles of atomic structure, periodicity of elements, types of chemical bonds, and oxidation-reduction reactions.Understand electron arrangement, periodic trends, bonding characteristics, and principles of oxidation-reduction.Apply knowledge to predict chemical behavior, periodic properties, bonding types, and solve oxidation-reduction problems.Analyze atomic spectra, compare periodic trends, critique bonding patterns, and analyze oxidation-reduction mechanisms.Develop models for periodic behavior, explain bonding patterns, design experiments for oxidation-reduction, and formulate hypotheses.Assess validity of atomic models, evaluate bonding model effectiveness, judge redox equation methods, and critique applications of periodic trends.
2	CC-II	Physical Chemistry-I	After completion of this paper student will be able to <ul style="list-style-type: none">Recall principles of gaseous state, liquid state, ionic equilibria, and solid state.Explain gas laws, liquid and solid structures, and ionic equilibria concepts.Apply gas laws, use phase diagrams, and calculate pH, pKa, and solubility.Analyze gas behavior, compare properties of liquids and solids, and evaluate factors affecting ionic equilibria.Develop models for gas behavior, construct phase diagrams, and design experiments.Assess gas law predictions, critique models of liquid and solid structures, and evaluate experimental data on ionic equilibria.
3	CC-III	Organic Chemistry-I	After completion of this paper student will be able to <ul style="list-style-type: none">Recall principles of organic chemistry, including types of reactions, stereochemistry, carbon-carbon pi bonds, and aromatic hydrocarbons.Explain basic concepts, describe stereochemistry and isomerism, and interpret the structure and reactivity of carbon-carbon pi bonds and aromatic hydrocarbons.Apply principles to identify organic compounds, use stereochemical concepts, and predict reactivity.Analyze reaction mechanisms, compare types of isomerism, and evaluate stability and reactivity of aromatic compounds.



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			<ul style="list-style-type: none">• Develop synthesis strategies, design experiments, and construct reaction mechanisms.• Assess reaction mechanisms, critique synthetic strategies, and evaluate experimental data on stereochemistry and aromatic hydrocarbons.
4	CC-IV	Physical Chemistry-II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• Recall principles of chemical thermodynamics, Carnot theorem, variable composition systems, and colligative properties.• Explain thermodynamic laws, describe the Carnot cycle, interpret variable composition systems, and understand colligative properties.• Apply thermodynamic laws, use the Carnot theorem, calculate properties of variable composition systems, and determine colligative properties.• Analyze thermodynamic cycles, compare different systems, and evaluate the impact of solute concentration on colligative properties.• Develop models for thermodynamic phenomena, construct frameworks for variable composition systems, and design experiments for colligative properties.• Assess thermodynamic models, critique the Carnot theorem, and evaluate experimental data on solutions and colligative properties.
5	CC-V	Inorganic Chemistry-II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• Recall principles of metallurgy, types of acids and bases, properties of s and p block elements, noble gases, and inorganic polymers.• Explain metallurgy processes, describe acid-base theories, interpret chemical behavior of s and p block elements, and understand noble gases and inorganic polymers.• Apply metallurgy principles, use acid-base theories, predict properties and reactivity of s and p block elements, and determine uses of noble gases and inorganic polymers.• Analyze metallurgical processes, compare acid-base theories, evaluate behavior of s and p block elements, and examine properties of noble gases and inorganic polymers.• Develop metal extraction methods, construct acid-base mechanisms, design compounds using s and p block elements, and innovate applications for noble gases and inorganic polymers.• Assess metallurgical techniques, critique acid-base theories, evaluate data on s and p block elements, and judge applications of noble gases and inorganic polymers.
6	CC-VI	Organic Chemistry-II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• Recall structures, nomenclature, and properties of halogenated hydrocarbons, alcohols, phenols, ethers, epoxides, carbonyl compounds, carboxylic acids, and their derivatives.• Explain reaction mechanisms and describe the physical and chemical properties of these compounds.• Apply reaction mechanisms to predict outcomes, use functional group transformations for synthesis, and determine appropriate reagents and conditions.• Analyze reaction pathways, compare reactivity and stability, and evaluate substituent effects.• Develop synthetic routes, design multi-step synthesis pathways, and construct new compounds.• Assess reaction efficiency and yield, critique synthetic methods, and evaluate experimental data for structure and purity.



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7	CC-VII	Physical Chemistry-III	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">Recall concepts of phase equilibria, chemical kinetics, catalysis, and surface chemistry.Explain phase diagrams, reaction rates, catalysis principles, and surface phenomena.Apply phase rules, use rate laws, employ catalytic principles, and determine surface effects on processes.Analyze phase equilibria, evaluate reaction mechanisms, compare types of catalysis, and examine surface interactions.Develop phase diagrams, design experiments for kinetics and catalysis, create models for surface interactions, and construct catalytic systems.Assess phase diagrams and kinetic models, critique experimental methods, evaluate catalytic processes, and judge theoretical models of surface phenomena.
8	CC-VIII	Inorganic Chemistry-III	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">Recall principles of coordination chemistry, transition elements, and bioinorganic chemistry.Explain bonding theories in coordination complexes, describe properties of transition metal compounds, and interpret metal interactions in biological systems.Apply coordination chemistry to predict complex structures, use spectroscopic methods for analysis, and discuss metal roles in biological processes.Analyze coordination geometries, evaluate stability of transition metal complexes, and examine mechanisms in bioinorganic systems.Develop synthetic strategies for coordination compounds, design experiments for transition metal properties, and construct models for metal functions in biology.Assess predictive accuracy of coordination theories, critique experimental techniques in transition metal studies, and evaluate applications of bioinorganic chemistry.
9	CC-IX	Organic Chemistry-III	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">Recall structures, nomenclature, and properties of nitrogen-containing functional groups, diazonium salts, polynuclear hydrocarbons, heterocyclic compounds, alkaloids, and terpenes.Explain reaction mechanisms, describe physical and chemical properties, and understand the significance of each compound group.Apply reaction mechanisms to predict outcomes, use functional group transformations for synthesis, and predict properties and reactivity.Analyze reaction pathways, compare reactivity and stability of functional groups, and evaluate structural effects on properties.Develop synthetic routes, design multi-step synthesis pathways, and create compounds with specific properties.Assess reaction efficiency and yield, critique synthetic methods, and evaluate experimental data for compound structure and purity.
10	CC-X	Physical Chemistry-IV	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">Recall principles of conductance and electrochemistry, including definitions, laws, and concepts like conductivity and electrode potentials.Explain factors affecting conductance, describe types of electrochemical cells, and understand interactions in electrolyte solutions.



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			<ul style="list-style-type: none"> • Apply conductance principles to analyze solutions, use electrochemical concepts in predicting redox reactions. • Analyze conductance data, evaluate electrode potentials, and compare electrochemical cell efficiencies. • Develop experimental setups for conductance and electrochemical measurements, design electrochemical cells for specific applications. • Assess reliability of conductance measurements, critique electrochemical methods, and evaluate practical applications in industry and research.
11	CC-XI	Organic Chemistry-IV	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall principles and techniques of organic spectroscopy (UV-Vis, IR, NMR, mass spectrometry) and characteristics of carbohydrates. • Explain spectroscopic principles and interpret spectra to determine organic compound structures; understand the role of carbohydrates in biochemistry. • Apply spectroscopic techniques to identify unknown compounds, predict reactivity, and confirm structures; apply knowledge of carbohydrates in practical contexts. • Apply spectroscopic techniques to identify unknown compounds, predict reactivity, and confirm structures; apply knowledge of carbohydrates in practical contexts. • Develop strategies using spectroscopic data to propose synthetic routes and design experiments for effective spectroscopic analysis. • Assess reliability of spectroscopic data, critique methods in organic spectroscopy, and evaluate applications of spectroscopy in research and industry.
12	CC-XII	Physical Chemistry-V	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall principles of quantum chemistry, chemical bonding theories, and molecular spectroscopy concepts. • Explain quantum mechanical principles, describe bonding theories' applications, and interpret molecular spectroscopy data. • Apply quantum principles to calculate molecular properties, use bonding theories to predict molecular structures, and utilize spectroscopy for molecular analysis. • Analyze quantum calculations, evaluate bonding models with experimental data, and compare spectroscopic results with theoretical predictions. • Develop theoretical models for molecular properties, design experiments for bonding theories and spectroscopic validation, and construct molecular models. • Assess accuracy of quantum calculations, critique bonding theories, and evaluate practical applications of molecular spectroscopy.
13	CC-XIII	Inorganic Chemistry-IV	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall principles of organometallic compounds, catalysis by organometallics, and thermodynamic and kinetic aspects of metal complexes. • Explain bonding theories, describe catalytic mechanisms, and interpret thermodynamic and kinetic data in metal complex reactions. • Apply organometallic principles to design catalysts, use kinetic and thermodynamic principles to predict reactions, and implement experimental techniques in catalytic studies.



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			<ul style="list-style-type: none"> Analyze structures and bonding in organometallic complexes, evaluate catalytic efficiencies, and examine reaction pathways. Develop synthetic strategies for organometallic compounds, design experiments for catalytic studies, and construct theoretical models. Assess catalyst effectiveness, critique models based on experimental data, and evaluate applications in industry and research.
14	CC-XIV	Organic Chemistry-V	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall structures, properties, and classifications of amino acids, peptides, proteins, enzymes, nucleic acids, lipids, and pharmaceutical compounds. Explain biochemical processes, describe mechanisms of action, and understand structural interactions of these compounds. Apply knowledge to understand protein structure, enzymatic reactions, and predict properties of pharmaceutical compounds and lipids. Analyze biochemical pathways, evaluate enzyme kinetics, and examine structural diversity and functional roles of lipids. Develop strategies for peptide and pharmaceutical synthesis, design experiments, and construct models to explain structure-function relationships. Assess roles in biological systems, critique experimental methods, and evaluate therapeutic and pharmacological properties.
15	DSE-I	Polymer Chemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Understand polymer structure, classification, and polymerization mechanisms. Recognize properties of polymers and their characterization techniques. Explain polymerization processes, analyze structure-property relationships, and interpret polymer characterization data. Apply knowledge to synthesize polymers with desired properties, understand processing techniques, and explore diverse industrial applications. Analyze polymer performance, evaluate degradation mechanisms, and assess environmental impacts. Design polymers for specific applications, develop experimental protocols, and select materials based on performance criteria. Evaluate polymer quality, consider safety measures, and assess sustainability in polymer use.
16	DSE-II	Green Chemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Understand principles of green chemistry, alternative solvents, catalysis, renewable feedstocks, and life cycle assessment. Explain environmental impacts of traditional versus green chemistry processes, describe green techniques and regulatory frameworks. Apply green chemistry principles to design processes, develop eco-friendly products, and explore industrial applications. Analyze economic viability, assess risks, and evaluate case studies of green chemistry implementations. Design green synthesis routes, develop experimental protocols, and innovate new green technologies. Evaluate environmental and social impacts, advocate for green practices, and promote sustainability awareness.
17	DSE-III	Industrial Chemicals and Environment	<p>After completion of this paper student will be able to</p>



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			<ul style="list-style-type: none"> • Understand industrial chemical processes, environmental impacts, and regulatory frameworks. • Apply knowledge to develop environmental management plans, ensure regulatory compliance, and implement technological solutions. • Analyze environmental monitoring methods, evaluate case studies of industrial processes, and conduct cost-benefit analyses for environmental controls. • Design environmental impact assessments, optimize chemical processes for sustainability, and innovate new technologies. • Evaluate environmental performance metrics, promote continuous improvement in sustainability practices, and engage stakeholders in sustainable chemical practices.
18	GE-I	Inorganic Chemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Gain foundational knowledge in atomic structure, periodic trends, chemical bonding, and properties of main group and transition metals. • Understand chemical reactions, structure-property relationships, and practical applications of inorganic chemistry. • Apply laboratory techniques, problem-solving skills, and data analysis methods in the study of inorganic compounds. • Analyze complex inorganic systems, compare properties of different groups of compounds, and examine case studies. • Develop synthetic methods, design experiments, and construct theoretical models for inorganic compounds. • Evaluate experimental data, consider ethical implications, and discuss future trends in inorganic chemistry research and applications.
19	GE-II	Physical Chemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Gain advanced knowledge in thermodynamics, statistical mechanics, quantum chemistry, kinetics, spectroscopy, and surface chemistry. • Understand complex concepts such as reaction dynamics, advanced spectroscopic techniques, and surface phenomena. • Apply computational methods, experimental techniques, and problem-solving skills in physical chemistry. • Analyze experimental data, perform quantitative analysis, and correlate theoretical models with experimental results. • Develop computational models, design experiments, and integrate knowledge to address scientific challenges. • Evaluate experimental techniques and theoretical models critically, explore interdisciplinary connections, and discuss current research trends in physical chemistry.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Sl.	Paper	Subject	Outcomes
1	CC-I	Programming using C	After completion of this paper student will be able to <ul style="list-style-type: none">Recall basic C syntax, data types, and control structures.Explain variables, compiling processes, and basic C constructs.Write simple programs and use control structures and functions.Design solutions for problems, debug errors, and compare algorithms.Assess the efficiency and readability of C programs.Develop complex programs and projects, collaborating with peers.
2	CC-II	Digital Logic	After completion of this paper student will be able to <ul style="list-style-type: none">Recall fundamental concepts, logic gates, and digital components and set up digital circuit simulation software and hardware.Explain the operation of logic gates, combinational and sequential circuits, and interpret timing diagrams.Simplify logical expressions, design basic combinational and sequential circuits.Analyze digital circuits using truth tables and Karnaugh maps, and distinguish between different types of circuits.Evaluate circuit performance and efficiency, and critique designs based on specific criteria.Design complex digital systems, develop and simulate circuits, and collaborate on projects.
3	CC-III	Programming using C++	After completion of this paper student will be able to <ul style="list-style-type: none">Recall C++ syntax, data types, and control structures.Explain variables, OOP principles, loops, functions, and arrays.Write basic C++ programs, use control structures, and apply OOP principles.Design solutions, debug errors, and compare implementation approaches.Assess algorithm efficiency, code readability, and design patterns.Develop complex programs, mini-projects, and collaborative software solutions.
4	CC-IV	Data Structures	After completion of this paper student will be able to <ul style="list-style-type: none">Recall concepts and operations of various data structures like arrays, linked lists, stacks, queues, trees, graphs, and hash tables.Explain the characteristics, applications, and algorithms of different data structures.Implement and use data structures to solve problems.Analyze time and space complexity, and compare the efficiency of data structures.



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			<ul style="list-style-type: none"> • Evaluate the performance and appropriateness of data structures in different scenarios. • Design custom data structures and develop complex applications integrating multiple data structures.
5	CC-V	JAVA Programming	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall Java syntax, data types, and control structures. • Explain OOP principles, Java runtime environment, and collections framework. • Write Java programs, use control structures, and apply OOP concepts. • Design solutions, debug errors, and compare implementation approaches. • Assess algorithm efficiency, code readability, and design patterns in Java. • Develop complex Java programs and projects, collaborating with peers.
6	CC-VI	Database Systems	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental database concepts and components. • Explain relational data model, SQL syntax, and database design principles. • Design and implement databases, write SQL queries, and enforce constraints. • Analyze database requirements, normalize data, and optimize query performance. • Evaluate database designs, integrity, and security measures. • Design and develop complex databases, implement transactions, views, and stored procedures.
7	CC-VII	Discrete Mathematical Structures	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental concepts of discrete mathematics, including sets, relations, functions, and logic. • Explain proofs, reasoning methods, graph theory, and combinatorics. • Apply set theory, logic, and graph theory to solve problems; construct mathematical proofs. • Analyze properties of discrete structures, evaluate algorithms and complexity. • Evaluate correctness of proofs, assess feasibility of applying discrete mathematics in computing. • Design solutions to complex problems, collaborate on projects using discrete mathematical principles.
8	CC-VIII	Operating Systems	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental concepts of operating systems such as processes, memory management, file systems, and scheduling algorithms. • Explain process management, memory techniques, file system structures, and scheduling algorithms. • Apply OS concepts to implement process synchronization, memory management, file system operations, and scheduling algorithms. • Analyze OS behaviors, performance metrics, scheduling efficiency, and memory utilization. • Evaluate OS design decisions, security measures, and reliability aspects. • Design and develop OS components, simulate OS behaviors, and optimize system performance.



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9	CC-IX	Computer Networks	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental concepts of computer networks, including protocols, OSI model layers, and network device functions. • Explain data transmission principles, network protocols (TCP/IP, HTTP, FTP, DNS), and network topologies. • Configure, troubleshoot, and analyze network devices and protocols; design basic network setups. • Analyze network performance metrics, diagnose network issues, and evaluate protocol efficiency. • Evaluate network security, scalability, and reliability; critique network configurations based on performance and security. • Design and implement network solutions, simulate network scenarios, and optimize network performance and security.
10	CC-X	Computer Graphics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall foundational concepts of computer graphics such as raster vs. vector graphics and image processing techniques. • Explain 2D and 3D graphics rendering techniques, geometric transformations, and algorithms for line drawing and polygon filling. • Implement graphics algorithms using APIs like OpenGL or DirectX, develop graphical applications, and apply shading and lighting techniques. • Analyze performance and efficiency of graphics algorithms, evaluate rendering approaches, and compare graphics APIs. • Evaluate visual quality and realism of rendered graphics, assess hardware impact on performance, and critique algorithm design. • Design and develop complex graphical applications, integrate advanced techniques like texture mapping and shadowing, and optimize graphical performance.
11	CC-XI	Web Technology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental concepts of web technologies such as HTML, CSS, JavaScript, and HTTP protocols. • Explain HTML5 structure, CSS3 styling techniques, JavaScript fundamentals, and client-server communication via HTTP. • Apply HTML5 for semantic web page creation, CSS3 for responsive design, and JavaScript for interactive web applications and AJAX for asynchronous data exchange. • Analyze web page and application performance, evaluate optimization techniques, and compare web development frameworks. • Evaluate web interface accessibility, usability, and security measures, and critique web solution designs based on user experience. • Design and develop complex web applications integrating APIs, databases, and authentication, collaborate on scalable web solutions, and enhance performance and security.
12	CC-XII	Software Engineering	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall software engineering concepts like SDLC phases, methodologies, and software testing principles. • Explain SDLC phases in detail, software requirements engineering, design patterns, and project management principles. • Apply software engineering methodologies to develop projects, use development tools, conduct testing, and create documentation. • Analyze software requirements and designs for scalability and quality metrics, assess software quality assurance practices.



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			<ul style="list-style-type: none"> • Evaluate software engineering processes' effectiveness, software reliability, security, and adherence to standards. • Design and develop complex software systems, apply agile methodologies, and optimize software performance and maintainability.
13	CC-XIII	Artificial Intelligence	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental AI concepts such as machine learning algorithms, neural networks, NLP techniques, and expert systems. • Explain machine learning principles (supervised, unsupervised, reinforcement learning), NLP fundamentals (text processing, sentiment analysis), and neural network architectures. • Apply machine learning algorithms to real-world datasets, implement NLP techniques for text analysis, and develop neural networks using frameworks like TensorFlow or PyTorch. • Analyze AI model performance, evaluate parameter impacts, and compare AI techniques for specific applications. • Evaluate ethical implications, societal impacts, and reliability of AI technologies and systems. • Design and develop AI applications for complex problem-solving, collaborate on projects integrating multiple AI techniques, and optimize AI model performance and scalability.
14	CC-XIV	Algorithm Design Techniques	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental algorithm design techniques and essential data structures. • Explain strategies like divide and conquer, dynamic programming, greedy algorithms, and backtracking. Understand their applications in solving various computational problems. • Apply these techniques to solve problems such as sorting, searching, optimization, and constraint satisfaction. Implement algorithms using appropriate data structures. • Analyze algorithm complexity (time and space), evaluate efficiency, and compare different algorithmic approaches. • Evaluate algorithm correctness, optimality, and robustness under different scenarios. Critique algorithm implementations based on performance metrics. • Design and develop efficient algorithms integrating multiple techniques, collaborate on projects, and optimize algorithm performance and scalability.
15	DSE-I	Numerical Techniques	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental numerical methods and types of numerical errors. • Explain principles and algorithms of numerical techniques, including iterative methods and approximation methods. Understand their advantages and limitations compared to analytical solutions. • Apply numerical methods to solve mathematical problems like linear systems, differential equations, and optimization. Implement algorithms for root finding, interpolation, and numerical integration. • Analyze accuracy, convergence, stability, and computational efficiency of numerical algorithms. Compare numerical results with analytical solutions and assess error propagation. • Evaluate appropriateness, reliability, and robustness of numerical solutions. Critique selection and implementation of numerical methods based on problem complexity.



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			<ul style="list-style-type: none"> Design algorithms for complex numerical problems, collaborate on projects using numerical techniques in various applications, and optimize algorithms for accuracy and efficiency.
16	DSE-II	Unix Shell Programming	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall basic Unix commands, shell scripting syntax, and types of Unix shells. Explain shell variables, control structures, and input/output redirection techniques in shell scripting. Develop shell scripts to automate tasks, utilize Unix utilities for file manipulation and text processing, and implement error handling. Analyze script performance, efficiency, and execution flow in shell programming contexts. Evaluate script effectiveness, security implications, and reliability across Unix-like operating systems. Design and develop complex shell scripts for system automation and data processing, applying advanced Unix features.
17	DSE-III	Data Science	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall fundamental statistics, probability theory, and data science concepts. Explain the data science project lifecycle, types of data, and key principles in data analysis. Apply statistical methods, machine learning algorithms, and programming languages for data manipulation and modeling. Analyze data sets using exploratory data analysis techniques and evaluate model performance. Evaluate data quality, preprocessing steps, modeling techniques, and ethical considerations in data science. Design and develop data-driven solutions for real-world problems using advanced data science methodologies.
18	GE-I	Computer Fundamentals	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall basic computer components and functions, including hardware and software distinctions. Explain computer system architecture, memory hierarchy, input/output operations, and types of software. Apply knowledge to configure and troubleshoot computer systems, and use common software applications effectively. Analyze the role of computer networks, operating systems, and evaluate their impact and functionalities. Evaluate ethical and security considerations in computing, and assess implications of emerging technologies. Design simple algorithms and apply computer fundamentals in practical projects and applications.
19	GE-II	C and Data Structures	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall the syntax and basic concepts of C programming and fundamental data structures (arrays, linked lists, stacks, queues, trees, graphs). Explain procedural programming principles, modular design in C, and the implementation and operations of various data structures. Apply C programming techniques to solve problems, implement algorithms, and manipulate data structures. Implement common algorithms like searching, sorting, and tree traversal. Analyze the efficiency and performance of algorithms and data structures using asymptotic analysis. Evaluate trade-offs between different data structures and algorithms.



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			<ul style="list-style-type: none">• Evaluate the correctness, reliability, and scalability of C programs, algorithms, and data structures through testing and debugging.• Design and develop complex C programs integrating multiple data structures and algorithms. Collaborate on projects applying C programming and data structure concepts in practical applications.
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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF SCIENCE IN ELECTRONICS

Sl.	Paper	Subject	Outcomes
1	CC-I	Basic Circuit Theory and Network Analysis	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and recognize fundamental concepts of circuit theory and network analysis. • Explain the principles and theorems of circuit theory and network analysis. • Apply the basic concepts and techniques to solve circuit problems. • Analyze electrical circuits to determine their behavior. • Evaluate and validate circuit performance and behavior through testing and simulations. • Design and construct circuits to meet specific requirements.
2	CC-II	Mathematics Foundation for Electronics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and recognize essential mathematical concepts and methods used in electronics. • Explain the principles and applications of algebra, trigonometry, calculus, linear algebra, and differential equations in electronics. • Apply mathematical techniques to solve real-world electronic problems. • Analyze complex electronic circuits and systems using advanced mathematical tools. • Evaluate the suitability and effectiveness of various mathematical approaches in electronics. • Create innovative solutions and models to address challenges in the field of electronics through advanced mathematical techniques.
3	CC-III	Semiconductor Devices	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts and terminologies related to semiconductor devices. • Explain the operating principles, characteristics, and behaviors of various semiconductor devices. • Apply knowledge of semiconductor device operation to solve practical circuit problems. • Analyze the performance and behavior of semiconductor devices in various electronic circuits. • Evaluate the suitability and performance of different semiconductor devices for specific applications. • Design and optimize electronic circuits and systems using semiconductor devices to meet desired specifications.
4	CC-IV	Applied Physics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts and principles of applied physics relevant to electronics.



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			<ul style="list-style-type: none"> • Explain the physical principles underlying electronic phenomena and devices. • Apply physical principles to solve practical problems in electronics. • Analyze physical systems and phenomena relevant to electronics. • Evaluate the implications of physical principles in the design and operation of electronic devices. • Design and conduct experiments to investigate physical principles and their applications in electronics.
5	CC-V	Electronics Circuits	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and components related to electronic circuits. • Explain the principles and behaviors of various electronic components and circuits. • Apply theoretical knowledge to design and analyze basic electronic circuits. • Analyze the behavior and performance of electronic circuits under various conditions. • Evaluate the performance, efficiency, and effectiveness of electronic circuits and systems. • Design and construct complex electronic circuits to meet specific requirements.
6	CC-VI	Digital Electronics and Verilog	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and constructs related to digital electronics and Verilog. • Explain the principles and operation of digital electronic circuits and the Verilog hardware description language. • Apply digital electronics principles and Verilog to design and implement basic digital circuits. • Analyze the behavior and performance of digital circuits using simulation tools and Verilog. • Evaluate the design choices and performance of digital circuits and systems implemented in Verilog. • Design and implement complex digital systems using Verilog, ensuring correct functionality through testing and validation.
7	CC-VII	C Programming and Data Structures	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and constructs related to C programming and data structures. • Explain the principles and operation of C programming constructs and various data structures. • Apply C programming constructs and data structures to develop solutions to practical problems. • Analyze the performance and behavior of C programs and data structures. • Evaluate different programming approaches and data structures for specific problems. • Design and implement complex programs and data structures to solve real-world problems.
8	CC-VIII	Operational Amplifiers and Applications	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and characteristics related to operational amplifiers and their applications. • Explain the principles and operation of operational amplifiers, including different configurations and feedback mechanisms.



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			<ul style="list-style-type: none"> Apply knowledge of operational amplifiers to design and analyze basic and advanced circuits. Analyze the behavior and performance of op-amp circuits under various operating conditions. Evaluate the design choices and performance of op-amp circuits for specific applications based on specifications and requirements. Design and implement advanced op-amp circuits and systems to meet specified performance and functionality requirements.
9	CC-IX	Signals & Systems	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental concepts, terminologies, and classifications related to signals and systems. Explain the principles and theories of signals and systems, including their properties and classifications. Apply knowledge of signals and systems to analyze and solve problems in both time and frequency domains. Analyze the behavior and characteristics of signals and systems using mathematical techniques and tools. Evaluate the performance and properties of signals and systems in various applications. Design and implement systems using signals and systems principles to achieve specific functionality and performance.
10	CC-X	Electronic Instrumentation	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental concepts, terminologies, and components related to electronic instrumentation. Explain the principles and operation of electronic instruments, sensors, and signal conditioning techniques. Apply knowledge of electronic instrumentation to design and implement measurement systems for various applications. Analyze the performance and accuracy of electronic measurement systems under different operating conditions. Evaluate the suitability and effectiveness of different measurement techniques, instruments, and data acquisition methods. Design and develop advanced electronic measurement systems to meet specific performance and functionality requirements.
11	CC-XI	Microprocessor And Microcontrollers	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental concepts, terminologies, and components related to microprocessors and microcontrollers. Explain the principles and operation of microprocessors and microcontrollers, including their architectures and components. Apply knowledge of microprocessors and microcontrollers to program and interface with external devices and peripherals. Analyze the behavior and performance of microprocessor-based and microcontroller-based systems. Evaluate the suitability and effectiveness of different microprocessors and microcontrollers for specific embedded system applications. Design and develop embedded systems using microprocessors and microcontrollers to achieve specific functionality and performance requirements.
12	CC-XII	Electromagnetics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental concepts, terminologies, and principles related to electromagnetics. Explain the principles and theories of electromagnetics, including Maxwell's equations and wave propagation.



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			<ul style="list-style-type: none"> • Apply electromagnetics principles to analyze and solve problems in fields and waves. • Analyze electromagnetic phenomena and systems using mathematical techniques and models. • Evaluate the performance and characteristics of electromagnetic systems and devices in various applications. • Design and develop electromagnetic systems and devices to meet specific functional requirements.
13	CC-XIII	Communication Electronics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and components related to communication electronics. • Explain the principles and operation of communication electronics, including modulation techniques and system components. • Apply knowledge of communication electronics to design and analyze communication systems. • Analyze the performance and characteristics of communication systems using mathematical and simulation tools. • Evaluate the effectiveness and efficiency of communication techniques and systems for specific applications. • Design and develop communication systems and circuits to achieve specific functional requirements and performance criteria.
14	CC-XIV	Photonics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and principles related to photonics. • Explain the principles and theories of photonics, including the behavior of light and optical phenomena. • Apply knowledge of photonics to design and analyze optical systems and devices. • Analyze the behavior and performance of optical systems using mathematical modeling and simulation tools. • Evaluate the efficiency and effectiveness of photonics technologies and systems for specific applications. • Design and develop photonics systems and devices to achieve specific functional requirements and performance criteria.
15	DSE-I	Control Systems	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and types of control systems. • Explain the principles and theories of control systems, including feedback and stability concepts. • Apply knowledge of control systems to design and analyze controllers using classical and modern control techniques. • Analyze the behavior and performance of control systems using mathematical tools and simulation methods. • Evaluate the performance and characteristics of control systems under different operating conditions. • Design and develop control systems to meet specific performance requirements and application needs.
16	DSE-II	Digital Signal Processing	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and techniques related to digital signal processing. • Explain the principles and theories of digital signal processing, including sampling, quantization, and Fourier analysis.



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			<ul style="list-style-type: none"> • Apply knowledge of digital signal processing techniques to analyze and manipulate signals effectively. • Analyze the behavior and performance of digital signal processing systems using mathematical models and simulation tools. • Evaluate the effectiveness and efficiency of digital signal processing techniques and algorithms for specific applications. • Design and develop digital signal processing systems to meet specific performance requirements and application needs.
17	DSE-III	Transmission Lines, Antenna and Wave Propagation	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and principles related to transmission lines, antennas, and wave propagation. • Explain the principles and theories of transmission lines, antennas, and wave propagation, including electromagnetic wave behavior and antenna characteristics. • Apply knowledge of transmission lines, antennas, and wave propagation to analyze and design systems for effective signal transmission and reception. • Analyze the behavior and performance of transmission lines, antennas, and wave propagation using mathematical models and simulation tools. • Evaluate the effectiveness and efficiency of transmission lines, antennas, and wave propagation techniques for specific applications. • Design and develop transmission lines, antennas, and wave propagation systems to meet specific performance requirements and application needs.
18	GE-I	Electronic Circuits and PCB Designing	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and components related to electronic circuits and PCB designing. • Explain the principles and theories of electronic circuits, including component operation and circuit analysis techniques. • Apply knowledge of electronic circuits and PCB designing to design, simulate, and prototype circuits effectively. • Analyze the behavior and performance of electronic circuits using mathematical models and simulation tools. • Evaluate the performance and characteristics of electronic circuits and PCB designs for functionality, reliability, and manufacturability. • Design and develop electronic circuits and PCB layouts to meet specific performance requirements, design constraints, and application needs.
19	GE-II	Digital System Design	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and components related to digital system design. • Explain the principles and theories of digital system design, including logic design techniques and sequential circuit operation. • Apply knowledge of digital system design to analyze, simulate, and implement digital circuits effectively. • Analyze the behavior and performance of digital systems using simulation tools and timing analysis methods. • Evaluate the efficiency and effectiveness of digital system design techniques and implementations. • Design and develop digital systems to meet specific performance requirements, design constraints, and application needs.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF SCIENCE IN GEOGRAPHY

Sl.	Paper	Subject	Outcomes
1	CC-I	Geomorphology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and recognize geomorphological concepts and terminology, identify landforms, and categorize erosional and depositional processes. • Explain geomorphological principles, interpret topographic maps and aerial photographs, and summarize natural processes' impact on landscapes. • Apply geomorphological knowledge to analyze landforms, conduct fieldwork, and solve problems in landform evolution and environmental management. • Analyze theories and models of landform development, compare landform characteristics, and evaluate human impacts on geomorphological processes. • Design research projects, develop strategies for land use planning and hazard mitigation, and create geomorphological maps and models. • Critique research papers and theories in geomorphology, assess methodological effectiveness, and evaluate sustainability in land management practices.
2	CC-II	Cartography	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall cartographic principles, map types, and data sources used in cartography. • Explain map design principles, interpret different types of maps, and summarize technological impacts on cartography. • Apply cartographic principles and software skills to create effective maps and solve map-related problems. • Analyze map design effectiveness, compare map projections, and evaluate maps for accuracy and suitability. • Design various cartographic products, innovate visualizations, and create integrated and interactive maps. • Critique cartographic products for adherence to standards, assess map effectiveness in decision-making, and evaluate ethical considerations in map representation.
3	CC-III	Human Geography	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, terms, theories, major themes, and notable scholars in human geography. • Explain relationships between human activities and spatial patterns, interpret demographic data, and summarize economic impacts on regions.



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			<ul style="list-style-type: none"> • Apply theories to real-world scenarios, use GIS for mapping human geography data, and conduct fieldwork for data analysis. • Analyze spatial distributions of population and culture, compare urbanization patterns, and evaluate globalization effects. • Develop research projects, design models of human-environment interactions, and create visual presentations of findings. • Critique human geography theories, assess urban planning and economic policies, and evaluate the impacts of human activities on society and the environment.
4	CC-IV	Climatology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, terms, climate zones, and notable climatologists. • Explain climate systems, interpret climatic data, and summarize natural and human impacts on climate change. • Apply principles to analyze climate data and forecasts, use remote sensing and GIS, and solve climate-related problems. • Analyze climatic trends and patterns, compare different climatic regions, and evaluate climate change effects on ecosystems and human activities. • Develop climate models, design research projects, and create visualizations and reports of climatic findings. • Critique climate models, assess climate change mitigation strategies, and evaluate the impacts of climate-related policies.
5	CC-V	Oceanography	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, terms, ocean basins, currents, marine organisms, and notable oceanographers. • Explain ocean circulation, waves, tides, interpret oceanic data, and summarize human impacts on marine environments. • Apply principles to analyze marine data, use remote sensing and GIS, and solve marine resource management and pollution problems. • Analyze oceanographic data patterns, compare marine ecosystems, and evaluate climate change effects on oceans and marine life. • Develop models for oceanographic phenomena, design research projects, and create visualizations and reports of oceanographic findings. • Critique oceanographic models, assess marine conservation strategies, and evaluate the impacts of ocean-related policies.
6	CC-VI	Statistical Methods in Geography	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key statistical concepts, data types, and tools used in geography. • Explain principles of descriptive and inferential statistics, interpret statistical results, and summarize the role of statistics in spatial analysis. • Apply statistical methods to analyze geographic data, use statistical software, and solve geographic problems using techniques like correlation and regression. • Analyze spatial patterns and relationships, compare statistical methods, and evaluate statistical results for accuracy and reliability. • Develop new statistical approaches for geographic questions, design research projects with statistical methods, and create reports and presentations with statistical findings.



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			<ul style="list-style-type: none"> • Critique statistical methods in geographic studies, assess the effectiveness of statistical analyses, and evaluate ethical considerations in geographic research.
7	CC-VII	Geography of Odisha	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key geographical features, major rivers, mountain ranges, cities, cultural sites, and natural resources of Odisha. • Explain climatic patterns, interpret demographic and socio-economic data, and summarize the historical, cultural, and economic significance of Odisha's geography. • Apply geographical theories to analyze spatial patterns, use GIS and remote sensing for land use and environmental studies, and solve regional planning and development problems. • Analyze the impact of physical geography on socio-economic development, compare geographical features within Odisha, and evaluate human activities' effects on the environment. • Develop projects addressing resource management and urban planning, design maps and reports showcasing geographical diversity, and create strategies for sustainable development. • Critique policies related to geographical management, assess development programs' effectiveness, and evaluate climate change impacts on Odisha's geography.
8	CC-VIII	Evolution of Geographical Thought	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, thinkers, paradigms, and methodologies in the history of geographical thought. • Explain the historical development of geographical ideas, interpret their evolution in different contexts, and summarize influential debates in geography. • Apply historical geographical theories to analyze case studies, evaluate their relevance to contemporary issues, and solve theoretical problems in geography. • Analyze the impact of geographical thought on research practices, compare different paradigms, and evaluate theories' strengths and limitations. • Develop conceptual frameworks integrating historical and contemporary theories, design research projects applying historical insights, and create new perspectives on geographical thought. • Critique the contributions of geographical thought to understanding human-environment interactions, assess theories' relevance today, and evaluate ethical implications in geographical perspectives.
9	CC-IX	Economic Geography	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall economic geography concepts, theories, sectors, and influential scholars. • Explain economic spatial organization principles, interpret patterns of economic development and urbanization, and summarize economic activities' relationship with land use and transportation. • Apply economic geography theories to analyze regional economic case studies, use GIS for economic mapping, and solve economic problems using geographic approaches. • Analyze spatial patterns of economic activities, compare economic regions, and evaluate impacts of globalization and policy interventions.



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			<ul style="list-style-type: none"> • Develop economic models, design interdisciplinary research projects, and propose development strategies based on economic geography insights. • Critique economic theories' applicability, assess policy effectiveness in regional development, and evaluate ethical and sustainability implications of economic activities.
10	CC-X	Environmental Geography	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall environmental geography concepts, theories, major issues, and influential scholars. • Explain human-nature interactions, interpret spatial patterns of environmental phenomena, and summarize the role of policy in environmental governance. • Apply environmental theories to analyze case studies, use GIS and remote sensing for environmental monitoring, and solve environmental problems through spatial planning. • Analyze spatial patterns of environmental degradation, compare management strategies, and evaluate socio-economic and ecological impacts. • Develop environmental models, design interdisciplinary research projects, and propose sustainable management strategies based on geographic insights. • Critique environmental theories' applicability, assess policy effectiveness, and evaluate ethical and social justice implications in environmental decision-making.
11	CC-XI	Regional Planning and Development	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall regional planning concepts, theories, factors influencing development, and notable planners. • Explain regional development processes, interpret spatial patterns of development and demographic trends, and summarize the role of policy in regional governance. • Apply regional planning theories to analyze case studies, use GIS for spatial analysis, and solve planning problems like land use and infrastructure development. • Analyze spatial disparities within regions, compare development strategies, and evaluate policy impacts on urban-rural dynamics. • Develop regional development plans integrating economic, social, and environmental goals, design research projects addressing planning challenges, and propose infrastructure enhancements based on geographic insights. • Critique planning theories' applicability, assess outcomes of planning initiatives on community well-being and sustainability, and evaluate ethical implications in regional decision-making.
12	CC-XII	Remote Sensing & GIS	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, technologies, and principles of remote sensing and GIS. • Explain electromagnetic radiation principles, interpret remote sensing imagery, and summarize GIS capabilities and limitations. • Apply remote sensing techniques for environmental monitoring and land cover analysis, use GIS for spatial analysis and map creation, and solve spatial problems in various applications. • Analyze remote sensing data to detect spatial patterns, compare sensor capabilities, and evaluate GIS-based spatial analysis accuracy.



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			<ul style="list-style-type: none"> • Develop remote sensing models, design GIS-based decision support systems, and create reports integrating remote sensing and GIS findings. • Critique methodologies in remote sensing and GIS, assess their effectiveness in spatial decision-making, and evaluate ethical considerations in their application.
13	CC-XIII	Geography of India	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall India's key geographical features, political divisions, natural resources, and cultural diversity. • Explain India's geographical diversity, demographic trends, and socio-economic indicators, and interpret the historical and economic significance of its regions. • Apply geographical theories to analyze regional disparities, use GIS for spatial analysis, and solve problems in resource management and regional planning. • Analyze spatial patterns of economic activities, urbanization, and environmental issues across India, and compare regional development trajectories. • Develop regional development plans, design research projects on specific geographical issues, and propose policy interventions based on geographic insights. • Critique geographical theories' applicability, assess policy effectiveness, and evaluate ethical considerations in geographical decision-making in India.
14	CC-XIV	Disaster management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall types of disasters, risk factors, resilience strategies, and international frameworks in disaster management. • Explain disaster processes, interpret risk maps and vulnerability assessments, and summarize disaster response strategies. • Apply disaster management theories to analyze case studies, use GIS for risk mapping, and solve challenges in disaster preparedness and response. • Analyze spatial patterns of disasters, compare management strategies, and evaluate impacts of climate change and urbanization on disaster risk. • Develop disaster preparedness plans, design interdisciplinary research projects, and create policy recommendations for disaster risk reduction. • Critique disaster management frameworks, assess effectiveness of response plans, and evaluate ethical considerations in disaster management.
15	DSE-I	Population Geography	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall population geography concepts, demographic factors, theories, and key indicators. • Explain population distribution patterns, interpret demographic indicators, and summarize factors influencing population dynamics. • Apply population theories to analyze demographic case studies, use GIS for mapping population data, and solve population geography challenges. • Apply population theories to analyze demographic case studies, use GIS for mapping population data, and solve population geography challenges. • Develop population forecasts, design interdisciplinary research projects, and create strategies for sustainable population management.



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			<ul style="list-style-type: none"> • Critique population theories' applicability, assess policy effectiveness, and evaluate ethical considerations in population planning.
16	DSE-II	Resource Geography	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall resource geography concepts, types of resources, factors influencing resource availability, and major theories. • Explain global and regional patterns of resource distribution, interpret impacts of resource exploitation, and summarize roles of technology and policy in resource management. • Apply resource geography theories to analyze case studies of resource exploitation and sustainability, use GIS for mapping resources, and solve resource management challenges. • Analyze spatial patterns of resource utilization, compare management strategies, and evaluate sustainability of resource practices. • Develop integrated resource management plans, design research projects on resource issues, and create policy recommendations for sustainable resource governance. • Critique theories' applicability in resource contexts, assess policy effectiveness, and evaluate ethical considerations in resource allocation.
17	DSE-III	Urban Geography	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall urban geography concepts, theories of urban development, and influential urban theorists. • Explain urban spatial organization, interpret demographic trends and socio-economic disparities, and summarize impacts of global forces on cities. • Apply urban geography theories to analyze case studies of urban development and gentrification, use GIS for mapping urban patterns, and solve urban planning challenges. • Analyze spatial patterns of urban growth, compare development models and policies, and evaluate socio-economic and environmental impacts of urbanization. • Develop urban development plans integrating economic, social, and environmental factors, design research projects on urban issues, and propose policy recommendations for sustainable urban governance. • Critique theories' applicability in diverse urban contexts, assess policy effectiveness, and evaluate ethical considerations in urban decision-making.
18	GE-I	Geography of India	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall India's key geographical features, political divisions, natural resources, and cultural diversity. • Explain India's geographical diversity, interpret demographic trends and socio-economic indicators, and summarize the historical and economic significance of i • Apply geographical theories to analyze regional disparities, use GIS for mapping and analyzing spatial data, and solve geographical problems related to resource management and regional planning in India. • Analyze spatial patterns of economic activities, urbanization, and environmental issues across India, and compare development trajectories among different regions. • Develop integrated regional development plans addressing socio-economic disparities, design research projects on specific



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			<p>geographical issues, and propose policy interventions based on geographic insights.</p> <ul style="list-style-type: none"> • Critique geographical theories' applicability, assess policy effectiveness in achieving socio-economic objectives, and evaluate ethical considerations in geographical decision-making and resource management in India.
19	GE-II	Geography of Odisha	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key geographical features, political subdivisions, natural resources, and cultural diversity of Odisha. • Explain geographical diversity, interpret demographic trends, urbanization patterns, and summarize historical, cultural, and economic significance within Odisha. • Apply geographical theories to analyze regional development disparities, use GIS for mapping and analyzing spatial data, and solve geographical problems specific to Odisha. • Analyze spatial patterns of economic activities, urban growth, and environmental issues across Odisha's districts and regions, and compare development trajectories. • Develop integrated regional development plans addressing socio-economic disparities, design research projects on Odisha's geographical issues, and propose policy interventions based on regional planning principles. • Critique geographical theories' applicability, assess policy effectiveness in achieving socio-economic objectives, and evaluate ethical considerations in geographical decision-making specific to Odisha.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF SCIENCE IN GEOLOGY

Sl.	Paper	Subject	Outcomes
1	CC-I	General geology and Quaternary geology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to general geology and Quaternary geology. • Explain the principles and theories of geological processes, stratigraphy, and Quaternary geology. • Apply knowledge of geology to analyze geological formations, processes, and environmental changes. • Analyze geological data, formations, and historical changes to interpret Earth's geological history and landscape evolution. • Evaluate geological theories, hypotheses, and research findings to assess validity and implications. • Design and propose research projects or applications based on geological principles to advance scientific understanding or address practical challenges in environmental science, natural resource management, or geotechnical engineering.
2	CC-II	Tectonics and Remote sensing	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to tectonics and remote sensing. • Explain the principles and theories of plate tectonics, seismicity, fault mechanics, and remote sensing applications in geology. • Apply knowledge of tectonics and remote sensing to analyze geological processes, hazards, and environmental changes. • Analyze tectonic processes, geological data, and remote sensing imagery to interpret Earth's geological history and hazard potential. • Evaluate research findings, methodologies, and technological advancements in tectonics and remote sensing to assess validity and implications. • Design and propose research projects or applications based on tectonics and remote sensing principles to advance scientific understanding or address practical challenges in geology, environmental science, or disaster management.
3	CC-III	Crystallography and Mineralogy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to crystallography and mineralogy. • Explain the principles and theories of crystal structures, symmetry, mineral properties, and geological processes.



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			<ul style="list-style-type: none"> Apply knowledge of crystallography and mineralogy to identify minerals, interpret their properties, and analyze geological contexts. Analyze crystal structures, mineral compositions, and geological data to interpret mineral formation processes and geological history. Evaluate mineralogical theories, classifications, and research findings to assess validity and implications for geological and materials sciences. Design and propose research projects or applications based on crystallography and mineralogy principles to advance scientific understanding or address practical challenges in geology, materials science, or environmental science.
4	CC-IV	Optics and Geochemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to optics and geochemistry. Explain the principles and theories of light behavior, spectroscopic techniques, elemental analysis, and isotopic analysis in geological contexts. Apply knowledge of optics and geochemistry to analyze geological materials, interpret their properties, and investigate geological processes. Analyze optical and geochemical data to interpret mineral composition, geological processes, and environmental changes. Evaluate research findings, methodologies, and applications in optics and geochemistry to assess validity and implications for geological sciences. Design and propose research projects or applications based on optics and geochemistry principles to advance scientific understanding or address practical challenges in geology, environmental science, or materials research.
5	CC-V	Igneous petrology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to igneous petrology and rock classification. Explain the principles and theories of magma generation, differentiation, crystallization, and igneous rock formation. Apply knowledge of igneous petrology to analyze and interpret igneous rock compositions, textures, and geological settings. Analyze igneous processes, rock compositions, and geological data to reconstruct magma evolution and geological history. Evaluate research findings, methodologies, and interpretations in igneous petrology to assess validity and implications for geological sciences. Design and propose research projects or applications based on igneous petrology principles to advance scientific understanding or address practical challenges in geology, mineralogy, or environmental science.
6	CC-VI	Sedimentary petrology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to sedimentary petrology and sedimentary rock classification. Explain the principles and theories of sediment transport, deposition, lithification, and sedimentary rock formation. Apply knowledge of sedimentary petrology to analyze and interpret sedimentary rock compositions, textures, and depositional environments.



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			<ul style="list-style-type: none"> Analyze sedimentary processes, rock compositions, and geological data to reconstruct depositional sequences, paleoenvironments, and geological history. Evaluate research findings, methodologies, and interpretations in sedimentary petrology to assess validity and implications for geological sciences. Design and propose research projects or applications based on sedimentary petrology principles to advance scientific understanding or address practical challenges in geology, petroleum geology, or environmental science.
7	CC-VII	Metamorphic petrology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to metamorphic petrology and rock classification. Explain the principles and theories of metamorphic recrystallization, mineral reactions, metamorphic grade, and facies. Apply knowledge of metamorphic petrology to analyze and interpret metamorphic rock compositions, textures, and geological contexts. Analyze metamorphic processes, rock compositions, and geological data to reconstruct metamorphic conditions, geological events, and crustal evolution. Evaluate research findings, methodologies, and interpretations in metamorphic petrology to assess validity and implications for geological sciences. Design and propose research projects or applications based on metamorphic petrology principles to advance scientific understanding or address practical challenges in geology, resource exploration, or environmental science.
8	CC-VIII	Palaeontology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to paleontology and fossil classification. Explain the principles and theories of fossilization, biostratigraphy, evolutionary mechanisms, and paleoecology. Apply knowledge of paleontology to analyze and interpret fossil assemblages, evolutionary trends, and paleoenvironments. Analyze fossil morphology, diversity, and ecological roles to infer evolutionary relationships and paleoecological patterns. Evaluate research findings, methodologies, and interpretations in paleontology to assess validity and implications for evolutionary biology and earth sciences. Design and propose research projects or applications based on paleontological principles to advance scientific understanding or address practical challenges in geology, biology, or environmental science.
9	CC-IX	Stratigraphy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to stratigraphy and geological time scales. Explain the principles and theories of sediment deposition, stratigraphic correlation, lithostratigraphy, chronostratigraphy, biostratigraphy, and sequence stratigraphy. Apply knowledge of stratigraphy to analyze and interpret geological sequences, stratigraphic boundaries, and depositional environments.



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			<ul style="list-style-type: none"> Analyze stratigraphic relationships, sedimentary facies, and geological data to reconstruct past geological events and environmental changes. Evaluate research findings, methodologies, and interpretations in stratigraphy to assess validity and implications for geological sciences. Design and propose research projects or applications based on stratigraphic principles to advance scientific understanding or address practical challenges in geology, resource exploration, or environmental science.
10	CC-X	Structural geology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to structural geology and geological structures. Explain the principles and theories of rock deformation, structural analysis, stress and strain, and tectonic processes. Apply knowledge of structural geology to analyze and interpret geological structures, deformation histories, and tectonic settings. Analyze structural relationships, deformation patterns, and geological data to reconstruct crustal movements and tectonic histories. Evaluate research findings, methodologies, and interpretations in structural geology to assess validity and implications for geological sciences. Design and propose research projects or applications based on structural geology principles to advance scientific understanding or address practical challenges in geology, engineering, or natural hazard assessment.
11	CC-XI	Processes of formation and Mineral economics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to mineral economics and mineral resource management. Explain the principles and theories of mineral exploration, extraction, processing, and resource economics. Apply knowledge of mineral economics to analyze and evaluate mineral projects, economic feasibility, and investment decisions. Analyze mineral market dynamics, economic impacts, and policy frameworks affecting mineral resource management. Evaluate research findings, methodologies, and policy implications in mineral economics to assess sustainability and socio-economic impacts. Design and propose strategies for sustainable mineral resource development and management based on economic, environmental, and social considerations.
12	CC-XII	Economic geology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to economic geology and mineral deposit classification. Explain the principles and theories of mineral deposit formation, geological controls, and exploration methods. Apply knowledge of economic geology to identify, evaluate, and interpret mineral deposits and exploration data. Analyze mineral deposit models, economic factors, and sustainability considerations in mineral resource assessment. Evaluate research findings, methodologies, and interpretations in economic geology to assess validity and implications for mineral exploration and development.



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			<ul style="list-style-type: none"> Design and propose strategies for sustainable mineral resource management and responsible mineral development based on geological, economic, and social considerations.
13	CC-XIII	Groundwater and Engineering geology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to groundwater hydrology, aquifer properties, and engineering geology. Explain the principles and theories of groundwater flow, aquifer dynamics, groundwater exploration, and engineering geological assessments. Apply knowledge of groundwater and engineering geology to assess, manage, and optimize groundwater resources and engineering projects. Analyze hydrogeological and engineering geological data to solve practical problems related to groundwater contamination, geological hazards, and infrastructure design. Evaluate research findings, methodologies, and interpretations in groundwater and engineering geology to assess validity and implications for water resource management and engineering practices. Design and propose strategies for sustainable groundwater management, geological hazard mitigation, and engineering geology applications based on hydrogeological and geological principles.
14	CC-XIV	Mining and Environmental geology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to mining operations, environmental geology, and sustainability. Explain the principles and theories of mineral exploration, mining methods, ore processing, and environmental impacts. Apply knowledge of mining and environmental geology to assess, manage, and mitigate environmental impacts associated with mining activities. Analyze mining practices, environmental data, and regulatory frameworks to evaluate their effectiveness and sustainability. Evaluate research findings, methodologies, and policy implications in mining and environmental geology to assess socio-economic and environmental sustainability. Design and propose strategies for sustainable mining practices, environmental management, and post-mining land reclamation based on geological and environmental principles.
15	DSE-I	Fuel Geology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to fuel geology, petroleum systems, and reservoir geology. Explain the principles and theories of hydrocarbon formation, migration, reservoir characterization, and petroleum exploration. Apply knowledge of fuel geology to evaluate and interpret geological data, assess petroleum prospects, and make informed exploration decisions. Analyze petroleum systems, reservoir properties, and exploration strategies to optimize hydrocarbon recovery and production efficiency. Evaluate research findings, methodologies, and interpretations in fuel geology to assess technological advancements, environmental impacts, and economic viability.



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			<ul style="list-style-type: none"> • Design and propose strategies for sustainable hydrocarbon exploration, reservoir management, and environmental stewardship based on geological, engineering, and economic considerations.
16	DSE-II	Climate Change and Disaster Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to climate change, disaster management, and resilience building. • Explain the principles and theories of climate science, climate change impacts, disaster risk management, and resilience strategies. • Apply knowledge of climate change and disaster management to assess risks, develop adaptation strategies, and enhance disaster preparedness. • Analyze climate change impacts, disaster scenarios, and response strategies to optimize resilience building and disaster management efforts. • Evaluate research findings, methodologies, and policy implications in climate change and disaster management to enhance effectiveness and sustainability. • Design and propose strategies for climate resilience, disaster risk reduction, and sustainable development based on scientific evidence, stakeholder engagement, and policy integration.
17	DSE-III	Earth and Climate	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to Earth systems and climate science. • Explain the principles and theories of Earth systems dynamics, climate change processes, and environmental interactions. • Apply knowledge of Earth and climate science to analyze data, predict climate scenarios, and develop solutions for environmental challenges. • Analyze Earth systems interactions, climate change impacts, and policy responses to optimize climate management strategies. • Evaluate research findings, methodologies, and policy implications in Earth and climate science to enhance effectiveness and sustainability. • Design and propose strategies for sustainable Earth and climate management based on scientific evidence, stakeholder engagement, and policy integration.
18	GE-I	General geology and Mineralogy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to general geology, geological processes, rock types, and mineral properties. • Explain the principles and theories of geological formations, mineralogy, crystallography, and geological time scales. • Apply knowledge of general geology and mineralogy to analyze geological features, interpret mineral properties, and evaluate geological processes. • Analyze geological formations, mineral structures, and geological data to formulate hypotheses, predict geological events, and assess resource potential. • Evaluate research findings, methodologies, and interpretations in general geology and mineralogy to enhance geological understanding and environmental stewardship.



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			<ul style="list-style-type: none">• Design and propose geological studies, mineralogical investigations, and educational initiatives to promote geological awareness and sustainable resource management.
19	GE-II	Petrology and Historical geology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• Recall and identify fundamental facts, terminology, and concepts related to petrology, geological classifications, historical geology, and Earth's evolutionary history.• Explain the principles and theories of petrological processes, rock formations, stratigraphy, and evolutionary trends in Earth's history.• Apply knowledge of petrology and historical geology to analyze geological samples, interpret rock formations, and reconstruct past environments.• Analyze petrological compositions, geological structures, and historical geological events to formulate hypotheses, predict geological processes, and interpret Earth's history.• Evaluate research findings, methodologies, and interpretations in petrology and historical geology to enhance geological understanding and conservation efforts.• Design and propose geological studies, historical geology investigations, and educational initiatives to promote geological awareness and preserve Earth's geological heritage.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF SCIENCE IN MATHEMATICS

Sl.	Paper	Subject	Outcomes
1	CC-I	Calculus	After completion of this paper student will be able to <ul style="list-style-type: none">Recall and define fundamental calculus concepts like limits, derivatives, and integrals.Interpret the meaning and significance of derivatives and integrals in various contexts.Apply differentiation techniques to solve problems involving rates of change and optimization.Analyze functions using calculus tools to explore behavior such as concavity, inflection points, and asymptotes.Design and conduct experiments in the lab involving calculus principles, applying them to practical scenarios.Assess the accuracy and limitations of calculus models in predicting real-world outcomes.
2	CC-II	Discrete Mathematics	After completion of this paper student will be able to <ul style="list-style-type: none">Recall and define fundamental concepts in discrete mathematics, such as sets, relations, functions, and graphs.Interpret the significance of discrete structures like trees, graphs, and networks in different contexts.Apply combinatorial techniques to solve problems involving permutations, combinations, and probability.Analyze the properties and characteristics of discrete structures (e.g., graphs) using mathematical reasoning.Design algorithms to address specific challenges in discrete mathematics, such as graph algorithms or optimization problems.Critique and compare different approaches and strategies for solving discrete mathematical problems.
3	CC-III	Real Analysis	After completion of this paper student will be able to <ul style="list-style-type: none">Recall and define fundamental concepts in real analysis, such as limits, continuity, differentiability, and integrability.Explain the principles of convergence of sequences and series in the context of real numbers.Apply techniques of differentiation and integration to analyze and solve problems involving real-valued functions.Analyze the behavior of real-valued functions using mathematical reasoning and theoretical constructs.Construct rigorous proofs for theorems in real analysis, including the intermediate value theorem, mean value theorem, and fundamental theorems of calculus.Critique the validity of proofs and solutions in real analysis, identifying assumptions, logical fallacies, and potential gaps.



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4	CC-IV	Differential equations	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Identify and differentiate between different types of differential equations (e.g., ordinary differential equations (ODEs) vs. partial differential equations (PDEs)). • Interpret the physical, biological, or economic significance of solutions to differential equations in various contexts. • Apply methods such as separation of variables, integrating factors, and series solutions to solve first-order and higher-order ODEs. • Analyze the stability and behavior of solutions to differential equations, including equilibrium points and phase portraits. • Design mathematical models using differential equations to describe real-world phenomena in physics, engineering, or biology. • Critique the appropriateness of different solution methods for various types of differential equations and initial/boundary conditions.
5	CC-V	Theory of Real functions	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Memorize key definitions related to real functions such as continuity, differentiability, and integrability. • Explain the foundational principles of real analysis, including the completeness axiom and the construction of real numbers. • Apply theorems and techniques of real analysis to prove properties of real-valued functions, such as the intermediate value theorem and the Bolzano-Weierstrass theorem. • Evaluate the convergence and divergence of sequences and series related to real functions using limit theorems and tests. • Formulate mathematical arguments and counterexamples to support or challenge conjectures in the theory of real functions. • Assess the applicability of concepts from real analysis in advanced mathematics and other disciplines.
6	CC-VI	Group Theory-I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and define fundamental concepts of group theory, including groups, subgroups, cyclic groups, and cosets. • Explain the basic properties and axioms of groups, such as closure, associativity, identity, and inverses. • Apply theorems and properties of groups to solve problems and prove statements about specific groups and their elements. • Evaluate the properties of specific groups using techniques such as subgroup tests and coset analysis. • Construct proofs for theorems in group theory, including those related to group actions, the Sylow theorems, and the classification of finite groups. • Critique the validity of proofs and solutions in group theory, identifying any assumptions, logical gaps, or errors.
7	CC-VII	Partial differential equations and system of ODEs	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and define fundamental concepts related to PDEs, such as order, linearity, and types of boundary conditions. • Explain the physical and geometric interpretations of common PDEs and their boundary conditions. • Apply methods such as separation of variables, Fourier series, and transform techniques to solve linear PDEs. • Analyze the properties of PDE solutions, including stability, uniqueness, and convergence.



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			<ul style="list-style-type: none"> Formulate and solve PDEs modeling physical phenomena in fields such as heat conduction, wave propagation, and fluid dynamics. Critique the appropriateness and accuracy of analytical and numerical methods used to solve PDEs.
8	CC-VIII	Numerical Methods and Scientific Computing	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and define key numerical methods for solving mathematical problems, such as root-finding algorithms, interpolation, numerical integration, and differentiation. Explain the principles behind numerical methods and why they are necessary for solving mathematical problems. Apply numerical methods to solve algebraic and transcendental equations, perform interpolation and approximation, and evaluate integrals and derivatives numerically. Evaluate the convergence properties and error bounds of numerical solutions. Develop algorithms and implement numerical methods to solve complex mathematical problems. Assess the limitations of numerical methods and the implications of numerical errors in scientific computations.
9	CC-IX	Topology of Metric spaces	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and define fundamental concepts in topology and metric spaces, such as open and closed sets, convergence, continuity, compactness, and completeness. Explain the significance of basic topological properties like connectedness, compactness, and continuity in the context of metric spaces. Utilize concepts of convergence, continuity, and compactness to solve problems and prove results in metric spaces. Evaluate the implications of different types of convergence (e.g., pointwise, uniform) on the behavior of functions in metric spaces. Formulate and prove new results by combining known theorems and definitions in innovative ways. Critique the proofs and methods used in the study of metric spaces, identifying strengths, weaknesses, and potential areas for improvement.
10	CC-X	Ring Theory	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and define fundamental concepts of ring theory, such as rings, subrings, ideals, ring homomorphisms, and quotient rings. Explain the basic properties and axioms of rings, such as associativity, commutativity, and the existence of identity and inverses. Apply theorems and properties of rings to solve problems and prove statements about specific rings and their elements. Evaluate the properties of specific rings using techniques such as factorization and divisibility. Construct proofs for theorems in ring theory, including those related to ring homomorphisms, ideals, and factorization in commutative rings. Critique the validity of proofs and solutions in ring theory, identifying any assumptions, logical gaps, or errors.
11	CC-XI	Multivariable Calculus	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and define fundamental concepts such as vectors, vector-valued functions, partial derivatives, multiple integrals, and vector fields.



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			<ul style="list-style-type: none"> • Explain the geometric interpretations of partial derivatives, gradients, divergence, curl, and integrals in multiple dimensions. • Apply techniques of differentiation and integration to functions of several variables to solve problems in geometry, physics, and engineering. • Analyze the behavior of multivariable functions by examining their limits, continuity, differentiability, and critical points. • Construct mathematical models involving multivariable functions to represent real-world phenomena in science and engineering. • Critique the accuracy and efficiency of different methods for solving problems in multivariable calculus.
12	CC-XII	Linear Algebra	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and define fundamental concepts of linear algebra, including vectors, matrices, determinants, vector spaces, bases, and eigenvalues/eigenvectors. • Interpret the significance of key theorems, such as the Rank-Nullity Theorem, the Invertible Matrix Theorem, and the Spectral Theorem. • Apply methods of matrix operations, Gaussian elimination, and determinant calculation to solve systems of linear equations. • Analyze the structure of vector spaces and subspaces, and determine the rank, nullity, and dimension of these spaces. • Construct proofs for key theorems in linear algebra, including those related to vector spaces, linear transformations, and eigenvalues. • Critique the validity of proofs and solutions in linear algebra, identifying any assumptions, logical gaps, or errors.
13	CC-XIII	Complex analysis	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and define fundamental concepts in complex analysis, such as complex numbers, analytic functions, Cauchy-Riemann equations, contour integration, and residues. • Explain the geometric interpretation of complex numbers and functions, including mappings between the complex plane and transformations. • Apply techniques such as differentiation, integration, and series representation to solve problems involving complex functions. • Analyze the behavior of complex functions, including the classification of singularities (poles, essential singularities) and their implications. • Construct proofs for fundamental theorems in complex analysis, such as Liouville's Theorem, the Maximum Modulus Principle, and the Open Mapping Theorem. • Critique the validity and applicability of complex analysis techniques in solving mathematical problems and real-world applications.
14	CC-XIV	Group Theory-II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and define advanced concepts in group theory, such as group actions, Sylow theorems, solvable groups, and simple groups. • Understand the structure and properties of important classes of groups, including finite groups, permutation groups, and matrix groups. • Apply Sylow theorems to determine the number of Sylow subgroups of a given order in finite groups.



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			<ul style="list-style-type: none"> Analyze the structure of groups using normal series, composition series, and the Jordan-Hölder theorem. Classify finite simple groups and understand their role in the broader classification of finite groups. Construct new groups using group extensions and understand their significance in group theory.
15	DSE-I	Linear Programming	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and define fundamental concepts in linear programming, such as linear inequalities, objective functions, feasible regions, and optimal solutions. Interpret the significance of the Simplex method, duality theory, and sensitivity analysis in solving linear programming problems. Apply the Simplex method and other algorithmic approaches to solve linear programming problems. Analyze the structure of linear programming problems to determine the feasibility, boundedness, and optimality of solutions. Construct linear programming models for real-world optimization problems in various fields such as economics, engineering, and management. Critique the efficiency and effectiveness of different methods for solving linear programming problems.
16	DSE-II	Probability and Statistics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define key terms and concepts in probability, such as sample space, events, probability axioms, random variables, and probability distributions. Describe the steps in hypothesis testing, including formulating hypotheses, selecting appropriate tests, and interpreting results. Use probability distributions (e.g., binomial, Poisson, normal) to calculate probabilities and model random processes. Evaluate the results of statistical tests, considering the underlying assumptions and potential sources of error. Design and conduct statistical studies to collect data and test hypotheses, ensuring proper sampling methods and experimental controls. Evaluate the effectiveness of different statistical methods in addressing specific research questions, considering factors such as data type, sample size, and research design.
17	DSE-III	Differential Geometry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Define and recall fundamental concepts such as smooth manifolds, tangent spaces, and vector fields. Explain the fundamental concepts of differential geometry, including the role of tangent bundles, differential forms, and connections. Apply differential geometric techniques to solve problems involving surfaces, such as finding geodesics, computing curvature, and studying intrinsic properties. Analyze and classify different types of surfaces, such as minimal surfaces, ruled surfaces, and developable surfaces. Synthesize differential geometric concepts to create new models and approaches for solving complex problems in areas such as computer-aided design or medical imaging. Evaluate the effectiveness and robustness of differential geometry techniques in solving real-world problems, considering computational feasibility and practical implementation.



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18	GE-I	Calculus And Differential Equations	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• Recall and define fundamental concepts in calculus, including limits, continuity, derivatives, and integrals.• Explain the principles of differentiation and integration, including the Fundamental Theorem of Calculus.• Formulate and solve first-order differential equations using methods such as separation of variables, integrating factors, and exact equations.• Analyze and interpret the behavior of solutions to differential equations using phase planes and stability analysis.• Create mathematical models involving differential equations to represent dynamic systems and predict their behavior.• Develop and implement numerical methods to approximate solutions to differential equations, such as Euler's method and Runge-Kutta methods.
19	GE-II	Algebra	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• Recall and define fundamental concepts in algebra, including groups, rings, fields, and modules.• Explain the structure and properties of groups, including subgroups, normal subgroups, and quotient groups.• Apply concepts of ring theory to solve problems involving polynomial rings and factorization.• Analyze the role of Galois theory in understanding the solvability of polynomial equations.• Develop proofs and approaches for solving complex algebraic problems, such as those involving homological algebra or category theory.• Evaluate the applications of algebraic structures in other areas of mathematics and science, such as coding theory, cryptography, and algebraic geometry.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF SCIENCE IN PHYSICS

Sl.	Paper	Subject	Outcomes
1	CC-I	Mathematical Physics-I	After completion of this paper student will be able to <ul style="list-style-type: none">Recall key concepts and definitions in calculus, vector algebra, curvilinear coordinates, Dirac delta function, and vector calculus.Explain the principles and applications of calculus, the significance of the Dirac delta function, and the importance of vector algebra.Apply orthogonal curvilinear coordinates and vector calculus in physical contexts.Analyze components of complex phenomena with the Dirac delta function and vector calculus.Critically evaluate the role of curvilinear coordinates and the accuracy of vector calculus applications.Formulate and solve novel physics problems using advanced mathematical concepts.
2	CC-II	Mechanics	After completion of this paper student will be able to <ul style="list-style-type: none">Recall the fundamental laws and principles of classical mechanics, including Newton's laws of motion and conservation laws.Describe the motion of objects under various forces, including gravitational, frictional, and elastic forces.Apply Newton's laws to solve problems involving the motion of particles and rigid bodies.Investigate the dynamics of rotating systems and the effects of torque and angular momentum.Evaluate different methods for solving mechanics problems and choose the most effective approach.Design and construct mechanical systems or models to demonstrate principles of mechanics.
3	CC-III	Electricity and Magnetism	After completion of this paper student will be able to <ul style="list-style-type: none">Recall the fundamental concepts and laws of electrostatics, electromagnetism, and electrodynamics, including Coulomb's law, Gauss's law, Ampere's law, and Faraday's law.Interpret the relationship between electricity and magnetism through Maxwell's equations.Use the principles of electromagnetism to analyze the behavior of inductors, transformers, and electromagnetic devices.Investigate the interaction between electric and magnetic fields in moving charges and current-carrying conductors.Evaluate different methods for solving electrostatic and



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			<p>electromagnetic problems and choose the most effective approach.</p> <ul style="list-style-type: none"> Formulate and test hypotheses related to electric and magnetic phenomena through experimentation and simulation.
4	CC-IV	Waves and Optics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall the fundamental principles and equations of wave motion, including the wave equation, types of waves, and the nature of light. Describe the behavior of light as a wave and the phenomena that arise from wave interactions, such as interference patterns and diffraction. Apply the wave equation to solve problems related to the propagation of waves in different media. Analyze the formation of standing waves, resonance, and the conditions for constructive and destructive interference. Evaluate the accuracy and limitations of different models and approximations used in wave and optics problems. Develop new methods or experimental setups to study and demonstrate wave and optical phenomena.
5	CC-V	Mathematical Physics-II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall advanced mathematical techniques and concepts used in physics, including differential equations, complex analysis, Fourier series, and transforms. Explain the methods of solving different types of differential equations and their significance in physical problems. Apply techniques of differential equations to solve physical problems in mechanics, electrodynamics, and quantum mechanics. Analyze the solutions of differential equations to understand the behavior of physical systems under various conditions. Evaluate the effectiveness of different mathematical techniques in solving specific physical problems. Develop new mathematical methods or modify existing techniques to solve advanced problems in physics.
6	CC-VI	Thermal Physics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall the fundamental principles and laws of thermodynamics, including the Zeroth, First, Second, and Third Laws. Describe the various thermodynamic processes (isothermal, adiabatic, isobaric, and isochoric) and their significance. Apply the First Law of Thermodynamics to calculate work done, heat transfer, and changes in internal energy for various processes. Break down complex thermal systems into simpler components to study their behavior and interactions. Evaluate the efficiency and performance of various heat engines, refrigerators, and other thermodynamic systems. Design and construct experimental setups or simulations to study and demonstrate thermodynamic principles, such as heat transfer and entropy changes.
7	CC-VII	Analog Systems and Applications	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall fundamental concepts and components of analog electronics, including resistors, capacitors, inductors, diodes, transistors, and operational amplifiers. Explain the functioning of basic analog components and circuits, including rectifiers, amplifiers, filters, and oscillators. Apply circuit analysis techniques to solve problems involving



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			<p>resistive, capacitive, and inductive elements in AC and DC circuits.</p> <ul style="list-style-type: none"> • Break down complex analog systems into simpler subsystems to understand their operation and interactions. • Evaluate the performance of analog circuits based on parameters like gain, bandwidth, efficiency, and signal-to-noise ratio. • Develop new analog circuits or modify existing designs to meet specific requirements or improve performance.
8	CC-VIII	Mathematical Physics III	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall advanced mathematical methods and tools used in physics, including tensor analysis, group theory, and partial differential equations. • Interpret partial differential equations and their solutions in the context of various physical phenomena. • Implement techniques for solving partial differential equations, such as separation of variables and the method of characteristics, in physical contexts. • Investigate the properties and solutions of partial differential equations in various domains such as electromagnetism, fluid dynamics, and quantum mechanics. • Critically assess the assumptions and limitations of various mathematical models used in physics. • Formulate and test hypotheses using advanced mathematical tools in simulations and experimental setups.
9	CC-IX	Elements of Modern Physics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Memorize key experiments and discoveries that led to the development of modern physics, such as the photoelectric effect, Rutherford's gold foil experiment, and the double-slit experiment. • Explain the postulates of special relativity and their implications for time dilation, length contraction, and mass-energy equivalence. • Apply the principles of special relativity to solve problems involving relativistic velocity, momentum, and energy. • Analyze the outcomes of key experiments that demonstrate the principles of modern physics, such as the Michelson-Morley experiment and Compton scattering. • Evaluate the validity and limitations of classical physics in explaining phenomena at the atomic and subatomic levels. • Formulate and test hypotheses related to quantum mechanics, particle physics, or relativity through advanced experimentation or simulation.
10	CC-X	Digital Systems and Applications	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall the fundamental concepts and components of digital electronics, including logic gates, flip-flops, counters, and registers. • Explain the operation and characteristics of basic digital components like logic gates, multiplexers, and decoders. • Use digital design techniques to create combinational circuits, such as adders, subtractors, and comparators. • Break down complex digital systems into simpler subsystems to understand their functionality and interactions. • Critically assess the limitations and advantages of various digital technologies and their applications. • Formulate and test hypotheses related to digital systems through



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			simulation and experimentation.
11	CC-XI	Quantum Mechanics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall the fundamental principles of quantum mechanics, including the wave-particle duality, the Schrödinger equation, and the Heisenberg uncertainty principle. Describe the solutions to the Schrödinger equation for simple systems, such as the free particle, particle in a box, harmonic oscillator, and hydrogen atom. Apply the principles of quantum mechanics to solve problems involving potential wells, barriers, and quantum tunneling. Break down complex quantum systems into simpler components to understand their behavior and interactions. Critically assess different interpretations of quantum mechanics, such as the Copenhagen interpretation, many-worlds interpretation, and pilot-wave theory. Design and construct experimental setups or computational simulations to explore and demonstrate quantum mechanical principles, such as quantum computing or quantum cryptography.
12	CC-XII	Solid State Physics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall the fundamental concepts of solid state physics, including crystal structures, bonding in solids, and the electronic properties of materials. Explain the various types of crystal structures and the methods used to determine them, such as X-ray diffraction. Apply the principles of crystallography to determine the crystal structure of materials using techniques such as X-ray diffraction and electron microscopy. Break down the contributions to the magnetic properties of solids, including diamagnetism, paramagnetism, ferromagnetism, and antiferromagnetism. Compare the predictions of solid state physics models with experimental data to validate theories and refine models. Formulate and test hypotheses related to the properties of novel solid state materials through experimentation and simulation.
13	CC-XIII	Electro-magnetic Theory	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall the fundamental laws and equations of electromagnetism, including Coulomb's law, Gauss's law, Faraday's law, and Ampere's law. Explain the physical significance of Maxwell's equations and their role in describing electromagnetic phenomena. Apply Maxwell's equations to solve problems involving static and dynamic electromagnetic fields in various geometries. Break down complex electromagnetic problems into simpler components using techniques such as separation of variables, method of images, and multipole expansion. Critically assess the assumptions and limitations of various models and approximations used in electromagnetic theory. Formulate and test hypotheses related to electromagnetic phenomena through advanced experimentation or simulation.
14	CC-XIV	Statistical Mechanics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall the fundamental principles and concepts of statistical mechanics, including microstates, macrostates, and the distribution functions. Interpret the laws of thermodynamics in the context of statistical mechanics and their implications for physical



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			<p>systems.</p> <ul style="list-style-type: none"> • Use statistical mechanics to solve problems related to the properties of ideal gases, including entropy, temperature, and pressure. • Break down complex systems into simpler components to study their statistical properties, such as phase transitions and critical phenomena. • Critically assess different statistical approaches, such as mean field theory and renormalization group theory, in describing physical phenomena. • Formulate and test hypotheses related to the statistical behavior of complex systems through simulations or experiments.
15	DSE-I	(Mechanics)+ Lab	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall the fundamental principles and laws of classical mechanics, including Newton's laws of motion, conservation laws, and the principles of work and energy. • Explain the concepts of force, mass, acceleration, momentum, and energy in the context of mechanical systems. • Implement the concepts of rotational dynamics to solve problems involving angular velocity, angular acceleration, torque, and moment of inertia. • Investigate the stability and oscillatory behavior of systems, including simple harmonic oscillators and damped/forced oscillations. • Critically assess the assumptions and limitations of classical mechanics in describing real-world phenomena. • Formulate and test hypotheses related to mechanical phenomena through experiments or simulations.
16	DSE-II	(Electricity, Magnetism & Emt) + Lab	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall the fundamental laws and principles of electricity and magnetism, including Coulomb's law, Gauss's law, Ampere's law, and Faraday's law. • Interpret the implications of Maxwell's equations for the propagation of electromagnetic waves. • Implement techniques for calculating electric potential, magnetic vector potential, and energy stored in electric and magnetic fields. • Break down complex electromagnetic problems into simpler components to understand the interactions and fields involved. • Compare the effectiveness of various analytical and numerical methods for solving electromagnetic problems. • Develop new theoretical models or modify existing ones to address advanced problems in electromagnetism, such as waveguides and antennas.
17	DSE-III	(Thermal Physics & Statical Mechanics) + Lab	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall the fundamental principles of thermal physics, including the laws of thermodynamics and the concepts of heat, work, and energy. • Describe the relationship between macroscopic thermodynamic properties and microscopic statistical behavior. • Implement methods to calculate thermodynamic quantities such as entropy, temperature, and pressure using statistical approaches. • Investigate the role of fluctuations and correlations in determining the macroscopic behavior of systems. • Compare the results of different theoretical approaches, such as



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			<p>mean field theory and renormalization group theory, in describing physical phenomena.</p> <ul style="list-style-type: none"> Design experiments or computational simulations to explore and demonstrate key concepts in thermal physics and statistical mechanics.
18	GE-I	(Mechanics & Properties of matter, Oscillation & Waves, Thermal Physics, Electricity and Magnetism & Electronics) + Lab	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall fundamental principles and laws across Mechanics, Properties of Matter, Oscillations and Waves, Thermal Physics, Electricity and Magnetism, and Electronics. Explain the behavior and interactions within mechanical systems, materials, oscillatory motion, wave propagation, thermal processes, electric fields, magnetic fields, and electronic circuits. Apply principles and laws to solve problems across all disciplines, including mechanics problems, wave equations, thermodynamic cycles, circuit analysis, and electromagnetic phenomena. Analyze complex systems and phenomena within each discipline, including mechanical behavior, wave propagation, thermodynamic processes, electromagnetic fields, and electronic circuits. Critically assess the assumptions, limitations, and effectiveness of models and theories within each topic area. Design experiments to investigate specific principles or phenomena within Mechanics, Oscillations and Waves, Thermal Physics, Electricity and Magnetism, and Electronics.
19	GE-II	(Optics, Special Theory of Relativity, Atomic Physics, Quantum Mechanics and Nuclear Physics)+ Lab	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall fundamental principles and laws in Optics, Special Theory of Relativity, Atomic Physics, Quantum Mechanics, and Nuclear Physics. Describe the principles and theories that govern each area, including wave-particle duality, relativistic kinematics, atomic spectra, quantum states, and nuclear reactions. Use mathematical and theoretical frameworks to analyze and predict phenomena, including optics phenomena, relativistic dynamics, quantum mechanical systems, atomic interactions, and nuclear processes. Analyze complex systems and phenomena within each discipline, including optical systems, relativistic effects, quantum states, atomic spectra, and nuclear reactions. Critically assess the applicability, limitations, and advancements of theories and models within each discipline. Design experiments to investigate specific principles or phenomena within Optics, Special Theory of Relativity, Atomic Physics, Quantum Mechanics, and Nuclear Physics.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF SCIENCE IN ZOOLOGY

Sl.	Paper	Subject	Outcomes
1	CC-I	Non-chordates I: Protista to Pseudocoelomates	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and characteristics of non-chordates from Protista to Pseudocoelomates. • Explain the principles, concepts, and evolutionary relationships among non-chordates. • Apply knowledge of non-chordates to classify, interpret adaptations, and analyze biological data. • Analyze the structure, function, and ecological roles of non-chordate organisms. • Evaluate the significance of non-chordates in ecosystems and their responses to environmental changes. • Design and propose research or conservation strategies for non-chordate biology based on scientific principles and methodologies.
2	CC-II	Principles of Ecology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental concepts, terminologies, and principles related to ecology. • Explain the principles and theories of ecology, including ecological interactions and population dynamics. • Apply ecological principles to analyze, interpret, and propose solutions to ecological issues. • Analyze the structure, function, and dynamics of ecosystems and ecological processes. • Evaluate the effectiveness of ecological theories, conservation strategies, and research methodologies. • Design and develop ecological research or conservation plans to address ecological challenges and promote sustainability.
3	CC-III	Non chordates II: Coelomates	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and characteristics of coelomates. • Explain the principles, concepts, and evolutionary relationships among coelomates. • Apply knowledge of coelomates to classify, interpret adaptations, and analyze biological data. • Analyze the structural diversity, functional adaptations, and ecological strategies of coelomates. • Evaluate the ecological and evolutionary significance of coelomates in ecosystems.



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			<ul style="list-style-type: none"> • Design and propose research or conservation strategies for coelomate biology based on scientific principles and methodologies.
4	CC-IV	Cell biology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and structures related to cell biology. • Explain the principles and theories of cell structure, function, and communication. • Apply knowledge of cell biology to analyze cellular processes and phenomena. • Analyze the structure, function, and interactions of cellular components within organisms. • Evaluate experimental data and hypotheses in cell biology to assess validity and implications. • Design and propose research projects or applications based on cell biology principles for scientific inquiry or practical applications.
5	CC-V	Diversity of Chordates	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and characteristics of chordates. • Explain the principles, concepts, and evolutionary relationships among different groups of chordates. • Apply knowledge of chordate diversity to classify, interpret adaptations, and analyze biological data. • Analyze the structural diversity, functional adaptations, and evolutionary trends of chordates. • Evaluate the ecological and evolutionary significance of chordates in ecosystems. • Design and propose research projects or conservation strategies for chordate biology based on scientific principles and methodologies.
6	CC-VI	Physiology: Controlling and Coordinating systems	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and components related to controlling and coordinating systems in physiology. • Explain the principles and mechanisms of nervous system function, including neuronal communication and hormone signaling. • Apply knowledge of controlling and coordinating systems to analyze physiological processes and regulatory mechanisms. • Analyze the interactions, feedback mechanisms, and regulatory pathways within controlling and coordinating systems. • Evaluate the effectiveness of physiological responses and regulatory mechanisms in maintaining homeostasis and responding to stimuli. • Design and propose research projects or applications based on controlling and coordinating systems to advance scientific understanding or address practical challenges in physiology.
7	CC-VII	Fundamentals of Biochemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to biochemistry. • Explain the principles and theories of biomolecular structure, function, and metabolism. • Apply knowledge of biochemistry to analyze biochemical reactions, pathways, and enzyme kinetics.



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			<ul style="list-style-type: none"> Analyze the structure-function relationships of biomolecules and their roles in cellular processes. Evaluate experimental data and hypotheses in biochemistry to assess validity and implications. Design and propose research projects or applications based on biochemistry principles for scientific inquiry or practical applications.
8	CC-VIII	Comparative anatomy of Vertebrates	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and characteristics of vertebrate anatomy. Explain the principles, concepts, and evolutionary relationships in vertebrate skeletal and organ systems. Apply knowledge of vertebrate anatomy to classify, interpret adaptations, and analyze biological data. Analyze the structural diversity, functional adaptations, and evolutionary patterns of vertebrates. Evaluate the ecological and evolutionary significance of vertebrate diversity and adaptations. Design and propose research projects or applications based on vertebrate anatomy to advance scientific understanding or address practical challenges in zoology and evolutionary biology.
9	CC-IX	Physiology: Life Sustaining Systems	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to life-sustaining physiological systems. Explain the principles and mechanisms of major organ systems involved in maintaining homeostasis. Apply knowledge of physiological systems to analyze responses to environmental stimuli and predict physiological outcomes. Analyze the interrelationships and integrative functions of physiological systems within the human body. Evaluate the effectiveness of physiological responses and regulatory mechanisms in health and disease. Design and propose research projects or applications based on physiological principles to advance scientific understanding or address practical challenges in human health and medicine.
10	CC-X	Biochemistry of Metabolic Processes	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to metabolic biochemistry. Explain the principles and theories of metabolic pathways, enzyme kinetics, and biochemical reactions. Apply knowledge of metabolic biochemistry to analyze pathways, disorders, and nutritional impacts. Analyze the interconnections, regulation, and integration of metabolic pathways. Evaluate the significance of metabolic biochemistry in health, disease, and therapeutic interventions. Design and propose research projects or applications based on metabolic biochemistry to advance scientific understanding or address practical challenges in health and medicine.
11	CC-XI	Molecular Biology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Recall and identify fundamental facts, terminology, and concepts related to molecular biology. Explain the principles and theories of molecular genetics, gene expression, and molecular processes.



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			<ul style="list-style-type: none"> • Apply knowledge of molecular biology to analyze genetic information, processes, and molecular interactions. • Analyze molecular interactions, genetic mechanisms, and their implications in health and disease. • Evaluate experimental data and hypotheses in molecular biology to assess validity and implications. • Design and propose research projects or applications based on molecular biology principles to advance scientific understanding or address practical challenges in genetics, biotechnology, or medicine.
12	CC-XII	Principles of Genetics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to genetics. • Explain the principles and theories of inheritance, genetic variation, and population genetics. • Apply knowledge of genetics to analyze genetic data, solve problems, and interpret inheritance patterns. • Analyze genetic patterns, relationships, and variations using genetic tools and methods. • Evaluate the ethical, social, and scientific implications of genetic research, technologies, and applications. • Design and propose research projects or applications based on genetic principles to advance scientific understanding or address practical challenges in genetics, agriculture, medicine, or biotechnology.
13	CC-XIII	Developmental Biology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to developmental biology. • Explain the principles and theories of developmental processes, signaling pathways, and genetic regulation. • Apply knowledge of developmental biology to analyze developmental processes, disorders, and anomalies. • Analyze developmental patterns, mechanisms, and evolutionary aspects across different species. • Evaluate experimental data and hypotheses in developmental biology to assess validity and implications. • Design and propose research projects or applications based on developmental biology to advance scientific understanding or address practical challenges in developmental biology, medicine, or biotechnology.
14	CC-XIV	Evolutionary Biology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to evolutionary biology. • Explain the principles and theories of natural selection, adaptation, speciation, and phylogenetics. • Apply knowledge of evolutionary biology to analyze patterns, adaptations, and evolutionary processes. • Analyze evolutionary relationships, patterns, and mechanisms across different taxa and ecosystems. • Evaluate evolutionary theories, hypotheses, and research findings to assess validity and implications. • Design and propose research projects or applications based on evolutionary biology to advance scientific understanding or address practical challenges in biodiversity, ecology, conservation, or medicine.



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15	DSE-I	Animal Behaviors and Chronobiology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to animal behavior and chronobiology. • Explain the principles and theories of behavioral ecology, chronobiology, and behavioral genetics. • Apply knowledge of animal behavior and chronobiology to analyze behavioral patterns, biological rhythms, and adaptive responses. • Analyze the diversity, complexity, and ecological significance of animal behaviors and biological rhythms. • Evaluate experimental data and hypotheses in animal behavior and chronobiology to assess validity and implications. • Design and propose research projects or applications based on animal behavior and chronobiology to advance scientific understanding or address practical challenges in ecology, conservation, animal welfare, or agriculture.
16	DSE-II	Basics of Neuroscience	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to neuroscience. • Explain the principles and theories of neural structure, function, and signaling. • Apply knowledge of neuroscience to analyze neural processes, functions, and their implications. • Analyze neural circuits, pathways, and their roles in behavior, cognition, and neurological disorders. • Evaluate research findings and hypotheses in neuroscience to assess validity and implications. • Design and propose research projects or applications based on neuroscience to advance scientific understanding or address practical challenges in medicine, psychology, or neurotechnology.
17	DSE-III	Fish and Fisheries	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to fish biology and fisheries management. • Explain the principles and theories of fish anatomy, physiology, ecology, and fisheries science. • Apply knowledge of fish biology and fisheries to analyze and propose solutions to fisheries management challenges. • Analyze fish populations, fisheries dynamics, and ecosystem interactions to inform sustainable practices. • Evaluate the effectiveness of fisheries management strategies and conservation efforts in achieving sustainability goals. • Design and propose strategies for sustainable fisheries management and conservation to address environmental and socio-economic challenges.
18	GE-I	Animal Diversity	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and identify fundamental facts, terminology, and concepts related to animal diversity and taxonomy. • Explain the principles and theories of animal phylogeny, adaptations, and ecological roles. • Apply knowledge of animal diversity to analyze evolutionary patterns, ecological interactions, and conservation challenges. • Analyze patterns of animal diversity, adaptations, and evolutionary trends across different taxa and ecosystems.



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			<ul style="list-style-type: none">• Evaluate classification schemes, evolutionary relationships, and research methodologies in animal diversity to assess validity and implications.• Design and propose research projects or applications based on animal diversity principles to advance scientific understanding or address practical challenges in ecology, conservation biology, or evolutionary biology.
19	GE-II	Aquatic Biology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• Recall and identify fundamental facts, terminology, and concepts related to aquatic biology and ecosystems.• Explain the principles and theories of aquatic ecology, biodiversity, and ecosystem dynamics.• Apply knowledge of aquatic biology to analyze and propose solutions to environmental and management challenges.• Analyze aquatic biodiversity, ecosystem dynamics, and environmental issues to inform conservation and management strategies.• Evaluate research findings, conservation strategies, and methodologies in aquatic biology to assess validity and implications.• Design and propose research projects or applications based on aquatic biology principles to advance scientific understanding or address practical challenges in ecology, conservation biology, or environmental science.



DEPARTMENT OF COMMERCE & MANAGEMENT **PRANANATH COLLEGE (AUTONOMOUS), KHORDHA**

COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF BUSINESS ADMINISTRATION (BBA)

Sl.	Paper	Subject	Outcomes
1	101	Introduction to Business	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental business concepts, terminology, and ethical principles. • Understand the principles and theories underlying various business functions and operations. • Apply business concepts and theories to practical scenarios and case studies. • Analyze complex business situations, problems, and decisions critically. • Evaluate business strategies, decisions, and outcomes using relevant criteria and frameworks. • Create innovative solutions, strategies, and projects demonstrating entrepreneurial skills and business acumen.
2	102	Strategic Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember key concepts and terminology in strategic management. • Understand the principles, theories, and components of strategic management processes. • Apply strategic management concepts to analyze business scenarios and develop strategic plans. • Analyze complex strategic issues, competitive dynamics, and organizational capabilities critically. • Evaluate the effectiveness of strategic decisions, plans, and outcomes using relevant criteria. • Create innovative strategies and solutions to enhance organizational performance and competitiveness.
3	103	Quantitative Techniques for Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and techniques in quantitative methods for management. • Understand the principles and theories underlying quantitative analysis in managerial decision-making. • Apply quantitative techniques to solve practical management problems and optimize business processes. • Analyze complex business problems using quantitative methods, data analysis, and modeling techniques. • Evaluate the effectiveness and implications of quantitative techniques in managerial decision-making. • Create innovative solutions and strategies using quantitative analysis to enhance organizational performance and competitive advantage.



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4	104	Basic Financial Accounting	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and principles of financial accounting. • Understand the principles and theories underlying financial accounting practices and GAAP. • Apply financial accounting principles to record transactions, prepare financial statements, and analyze financial data. • Analyze financial statements and reports using ratio analysis and financial performance metrics. • Evaluate the accuracy, reliability, and ethical implications of financial reporting practices. • Create financial statements, reports, and forecasts to support informed decision-making and business planning.
5	201	Economics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental economic concepts, theories, and indicators. • Understand economic principles, market structures, and the role of government in the economy. • Apply economic concepts to analyze real-world scenarios and decision-making. • Analyze economic data, trends, and policies using quantitative and qualitative methods. • Evaluate economic theories, policies, and their implications for stakeholders and the economy. • Create solutions, forecasts, and policy recommendations based on economic analysis and evaluation.
6	202	Management Theory and Practice	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember key management concepts, theories, and principles. • Understand management functions, theories, and their application in organizational settings. • Apply management concepts to analyze organizational scenarios and develop strategic plans. • Analyze management practices, strategies, and their impact on organizational performance. • Evaluate the effectiveness of management strategies, decisions, and outcomes. • Create innovative management strategies, solutions, and recommendations for organizational improvement.
7	203	Cost and Management Accounting	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in cost and management accounting. • Understand the principles, theories, and techniques of cost accounting and management accounting. • Apply cost and management accounting techniques to analyze business scenarios and support decision-making. • Analyze cost and performance data to evaluate business performance and profitability. • Evaluate the relevance, effectiveness, and ethical implications of cost management practices. • Create cost and management accounting reports, strategies, and recommendations for organizational improvement.
8	204	Computer for Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember basic computer concepts, hardware, software, and peripherals relevant to management.



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			<ul style="list-style-type: none"> • Understand the principles and theories of computer applications in business and organizational contexts. • Apply computer skills to perform management tasks, use productivity tools, and analyze business data. • Analyze computer-based information systems, cybersecurity, and the impact of IT on business operations. • Evaluate the benefits, challenges, and ethical implications of using computer technology in management. • Create strategies, solutions, and recommendations using computer technology to address management challenges and support organizational goals.
9	301	Psychology for Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental psychological concepts and theories relevant to management. • Understand psychological principles in organizational behavior, motivation, and leadership. • Apply psychological principles to manage individuals and teams effectively. • Analyze psychological factors influencing organizational behavior and performance. • Evaluate the effectiveness and ethical implications of psychological strategies in management. • Create strategies, solutions, and recommendations using psychological insights to enhance organizational effectiveness and employee well-being.
10	302	Business Ethics and Corporate Governance	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember key concepts and principles of business ethics and corporate governance. • Understand ethical dilemmas, decision-making frameworks, and stakeholder roles in business contexts. • Apply ethical principles and governance practices to analyze and address business scenarios. • Analyze ethical issues, governance structures, and leadership impacts on organizational behavior. • Evaluate the effectiveness and ethical implications of corporate governance and CSR initiatives. • Create strategies, solutions, and recommendations to promote ethical business practices and enhance corporate governance.
11	303	Introduction to Banking and Insurance	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in banking and insurance. • Understand the principles, theories, and regulatory frameworks of banking and insurance operations. • Apply banking and insurance concepts to analyze financial scenarios and make informed decisions. • Analyze banking and insurance practices, risks, and regulatory compliance issues. • Evaluate the effectiveness of banking and insurance strategies, policies, and ethical considerations. • Create strategies, solutions, and recommendations for enhancing banking and insurance operations and governance.
12	304	Business and Corporate Law	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental legal concepts and terminology in business and corporate law.



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			<ul style="list-style-type: none"> • Understand the principles, theories, and legal frameworks governing business operations and transactions. • Apply legal principles to analyze and draft legal documents, contracts, and agreements. • Analyze the legal implications of business decisions, transactions, and corporate governance. • Evaluate the effectiveness of legal strategies, compliance practices, and ethical considerations in business. • Create strategies, solutions, and recommendations for legal compliance, risk management, and corporate governance.
13	305	Communicative English	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts, grammar, and vocabulary in English language and communication. • Understand principles of effective communication, audience analysis, and communication styles. • Apply English language skills to write, speak, and listen effectively in professional and social contexts. • Analyze communication techniques, barriers, and cultural influences on English communication. • Evaluate the effectiveness of communication strategies and presentations in English. • Create communication plans, strategies, and content in English for specific audiences and purposes.
14	401	Financial Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in financial management. • Understand principles of financial decision-making, investment analysis, and risk management. • Apply financial management techniques to analyze, plan, and allocate financial resources. • Analyze financial data, trends, and strategies to support informed decision-making. • Evaluate financial performance, strategies, and ethical considerations in financial management. • Create financial strategies, plans, and recommendations to optimize organizational performance and value creation.
15	402	Marketing Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in marketing management. • Understand principles of consumer behavior, market research, and marketing strategies. • Apply marketing management techniques to develop and implement marketing plans and campaigns. • Analyze market trends, competitive dynamics, and marketing performance metrics. • Evaluate the effectiveness of marketing strategies, ethical considerations, and sustainability practices. • Create innovative marketing strategies, plans, and recommendations to achieve competitive advantage and organizational success.
16	403	Human Resource Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in human resource management. • Understand principles of HRM practices, policies, legal frameworks, and diversity management.



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			<ul style="list-style-type: none"> • Apply HRM techniques to recruit, develop, and manage human capital effectively. • Analyze HRM practices, policies, and metrics to optimize organizational performance. • Evaluate the effectiveness of HRM strategies, ethical considerations, and compliance. • Create HRM strategies, plans, and recommendations to support organizational goals and employee development.
17	404	Production and Operation Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in production and operations management. • Understand principles of POM, including forecasting, inventory management, and supply chain management. • Apply POM techniques to plan, control, and improve production processes and operations. • Analyze production data, performance metrics, and operational challenges to optimize efficiency. • Evaluate the effectiveness of POM strategies, ethical considerations, and sustainability practices. • Create POM strategies, plans, and recommendations to enhance operational efficiency and competitiveness.
18	405	Environmental Studies	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in environmental studies. • Understand principles of environmental science, sustainability, and natural resource management. • Apply environmental knowledge to analyze, monitor, and manage environmental issues. • Analyze environmental data, policies, and impacts to assess environmental health and sustainability. • Evaluate the effectiveness of environmental policies, strategies, and interventions. • Create environmental strategies, plans, and recommendations for sustainable practices and conservation.
19	501	Organizational Behavior	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in organizational behavior. • Understand principles of individual and group behavior, motivation, leadership, and organizational change. • Apply OB theories and concepts to analyze and address organizational challenges. • Analyze organizational behavior data, trends, and dynamics to improve performance. • Evaluate the effectiveness of OB strategies, leadership styles, and organizational interventions. • Create strategies, policies, and recommendations to enhance organizational behavior and performance.
20	502	Financial Markets and Institutions	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in financial markets and institutions. • Understand principles of financial instruments, market operations, and regulatory frameworks. • Apply knowledge of financial markets and institutions to analyze and manage financial transactions.



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			<ul style="list-style-type: none"> Analyze financial data, market trends, and institutional performance to make informed decisions. Evaluate the effectiveness of financial market policies, regulations, and institutional practices. Create strategies and recommendations to enhance financial market efficiency and institutional performance.
21	503	Advertisement and Sales Promotion	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in advertising and sales promotion. Understand principles of consumer behavior, advertising strategies, and promotional mix elements. Apply advertising and sales promotion techniques to create effective marketing campaigns. Analyze advertising effectiveness, consumer response, and competitive strategies. Evaluate the impact and ethical implications of advertising and sales promotion practices. Create integrated advertising and sales promotion strategies to achieve marketing objectives and enhance brand equity.
22	504	Management Information System and DSS	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in Management Information Systems (MIS) and Decision Support Systems (DSS). Understand principles of MIS and DSS functionalities, data management, and integration with business processes. Apply MIS and DSS tools and techniques to analyze data, support decision-making, and improve organizational processes. Analyze data, system performance, and cybersecurity measures to optimize MIS and DSS effectiveness. Evaluate the impact of MIS and DSS on organizational efficiency, productivity, and strategic outcomes. Create strategies, architectures, and recommendations for implementing and enhancing MIS and DSS capabilities.
23	505	Indian Society and Culture	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology related to Indian society and culture. Understand the dynamics and complexities of Indian society, including cultural traditions and social structures. Apply knowledge of Indian society and culture to analyze contemporary issues and trends. Analyze social data and cultural artifacts to interpret Indian societal norms and practices. Evaluate the impact of cultural practices and social policies on Indian society. Create strategies and recommendations for promoting social harmony, cultural preservation, and inclusive development in India.
24	601	Research Methodology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in research methodology. Understand principles of research design, methodology, and data collection techniques. Apply research methods and techniques to design and conduct research studies.



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			<ul style="list-style-type: none"> Analyze research findings and draw valid conclusions based on data analysis. Evaluate research methodologies and their application across disciplines. Create research reports, proposals, and recommendations based on synthesized research findings.
25	602	Entrepreneurship and Small Business Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in entrepreneurship and small business management. Understand principles of entrepreneurial theories, business planning, and small business operations. Apply entrepreneurial concepts to develop and evaluate business ideas and plans. Analyze small business cases and entrepreneurial ventures to identify factors contributing to success. Evaluate the effectiveness of entrepreneurial strategies and small business management practices. Create comprehensive business strategies and recommendations for small business growth and sustainability.
26	603	Organizational Change and Development	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in organizational change and development. Understand principles of change management, leadership, and organizational dynamics. Apply change management techniques to facilitate and support organizational change initiatives. Analyze organizational issues and dynamics to identify opportunities for improvement and change. Evaluate the effectiveness of change efforts and interventions on organizational performance. Create strategic change plans and recommendations for fostering organizational development and resilience.
27	605	Digital and Social Media Marketing	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in digital and social media marketing. Understand principles of digital marketing strategies, consumer behavior, and social media platforms. Apply digital and social media marketing techniques to create and manage effective marketing campaigns. Analyze digital marketing metrics and data to evaluate campaign performance and ROI. Evaluate the impact of digital and social media marketing on business objectives and brand reputation. Create innovative digital marketing strategies and recommendations for optimizing campaign effectiveness



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – MASTER OF COMMERCE (M.COM)

Sl. No.	Paper	Subject	Outcomes
1	CC-I	MC 1.1 Advanced Accounting	After completion of this paper student will be able to <ul style="list-style-type: none"> • Recall key accounting principles, standards, and regulations. • Explain advanced accounting concepts and the rationale behind various accounting practices. • Apply advanced accounting techniques to solve complex accounting problems. • Analyze financial data and interpret the results to assess organizational performance. • Evaluate accounting policies and practices and make recommendations for improvements. • Develop comprehensive accounting reports and present innovative solutions to accounting issues.
2	CC-II	MC 1.2 Macro Economics	After completion of this paper student will be able to <ul style="list-style-type: none"> • Recall key macroeconomic concepts, theories, and terminology. • Explain the various components and principles of macroeconomic theory. • Apply macroeconomic models and theories to real-world economic issues. • Analyze economic data to identify trends and patterns. • Evaluate the effectiveness of different macroeconomic policies and strategies. • Develop comprehensive economic reports and propose solutions to macroeconomic problems.
3	CC-III	MC 1.3 Organizational Behavior	After completion of this paper student will be able to <ul style="list-style-type: none"> • Recall key concepts and theories of organizational behavior. • Explain the fundamental principles of organizational behavior and their application in business. • Apply organizational behavior theories and concepts to real-world business situations. • Analyze workplace behavior and diagnose organizational issues. • Evaluate the effectiveness of different organizational behavior strategies and interventions. • Design innovative solutions to enhance organizational effectiveness and employee well-being.
4	CC-IV	MC 1.4 Corporate Legal Framework	After completion of this paper student will be able to <ul style="list-style-type: none"> • Recall key legal concepts, terminologies, and statutes relevant to corporate law.



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			<ul style="list-style-type: none"> • Explain the fundamental principles and provisions of corporate law. • Apply legal principles and regulations to corporate scenarios. • Analyze legal cases and identify implications for corporate practice. • Evaluate the effectiveness of corporate legal strategies and compliance measures. • Design comprehensive legal compliance frameworks and policies for corporations.
5	CC-V	MC 1.5 Financial Modeling and Valuation	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key financial concepts, models, and valuation methods. • Explain the fundamental principles of financial modeling and valuation techniques. • Apply financial models and valuation techniques to real-world business scenarios. • Analyze financial data to derive insights and support decision-making. • Evaluate the accuracy and reliability of financial models and valuation estimates. • Design comprehensive financial models and perform detailed valuations for businesses.
6	CC-VI	MC 1.6 Digital Marketing	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key terms and concepts in digital marketing (e.g., SEO, SEM, PPC, social media marketing). • Explain the fundamental principles and theories of digital marketing. • Apply digital marketing techniques to create effective online campaigns. • Analyze digital marketing metrics and data to assess campaign performance. • Evaluate the effectiveness of digital marketing strategies and tactics. • Design innovative digital marketing strategies and plans tailored to specific business objectives.
7	CC-VII	MC 2.1 Advanced Cost and Management Accounting	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts and terminologies in cost and management accounting. • Explain advanced theories and principles of cost and management accounting. • Apply advanced cost accounting techniques to analyze and solve complex business problems. • Analyze financial and non-financial data to support decision-making in management accounting. • Evaluate the performance of cost and management accounting systems and recommend improvements. • Design and develop advanced management accounting systems and reports.
8	CC-VIII	MC 2.2 Strategic Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts and theories in strategic management. • Explain fundamental principles and frameworks in strategic management.



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			<ul style="list-style-type: none"> • Apply strategic management tools and techniques to analyze organizational situations. • Analyze strategic issues faced by organizations and propose solutions. • Evaluate strategic options and make recommendations based on strategic analysis. • Develop comprehensive strategic plans for organizations.
9	CC-IX	MC 2.3 International Business and Environment	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key terms, concepts, and theories related to international business and its environment. • Able to explain the fundamental principles and theories underlying international business operations. • Apply theories and concepts of international business to analyze global business scenarios. • Able to analyze the complexities and challenges faced by multinational enterprises (MNEs) in international markets. • Evaluate the strategic decisions and policies of MNEs operating in the global environment. • Develop strategic plans and recommendations for international businesses facing global challenges.
10	CC-X	MC 2.4 Quantitative Techniques and Operational Research	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, formulas, and techniques in quantitative methods and operational research. • Explain the fundamental principles and theories underlying quantitative techniques and operational research. • Apply quantitative methods and operational research techniques to solve business problems. • Analyze data and interpret results obtained from quantitative models and operational research studies. • Evaluate the effectiveness and limitations of different quantitative techniques in real-world applications. • Develop and design quantitative models and operational research solutions for optimizing business processes.
11	CC-XI	MC 2.5 Human Capital Development	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, theories, and models related to human capital development. • Explain the fundamental principles and frameworks in human capital development. • Apply human capital development theories and practices to organizational contexts. • Analyze the impact of human capital development initiatives on organizational performance. • Evaluate the effectiveness of human capital development programs and policies. • Design comprehensive human capital development strategies and frameworks for organizations.
12	CC-XII	MC 2.6 Research Methodology & Summer Internship Program	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts and terminology related to research methodology. • Explain the fundamental principles and methods of research design.



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			<ul style="list-style-type: none"> • Apply research methodologies to formulate research questions and hypotheses. • Analyze research data using appropriate statistical and qualitative analysis techniques. • Evaluate the validity and reliability of research findings. • Create a comprehensive research report or thesis based on their internship experience or research project.
13	CC-XIII	MC 3.1 Forensic Accounting and Auditing	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Key terms, concepts, and principles in forensic accounting and auditing. • Explain the fundamental theories, frameworks, and methodologies used in forensic accounting and auditing. • Apply forensic accounting techniques and auditing procedures to detect and investigate financial irregularities. • Analyze financial data and evidence to support forensic accounting investigations. • Evaluate the effectiveness of forensic accounting and auditing practices in detecting and mitigating fraud risks. • Develop comprehensive forensic audit reports and fraud risk management strategies.

14	CC-XIV	MC 3.2 Business Data Analytics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key terminology and concepts related to business data analytics. • Explain the fundamental principles and theories underlying business data analytics. • Apply data analytics techniques to analyze business data and derive meaningful insights. • Analyze data patterns, trends, and relationships to draw conclusions and make data-driven decisions. • Evaluate the reliability and validity of data analytics results and methodologies. • Develop comprehensive data analytics reports and presentations to communicate findings and recommendations.
15	CC-XV	MC 3.3 Basic Econometrics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key econometric concepts, theories, and terminology. • Explain the fundamental principles and methodologies of econometrics. • Apply econometric techniques to analyze economic data and test economic theories. • Analyze econometric models and interpret results to draw meaningful conclusions. • Evaluate the strengths and limitations of econometric models and methodologies. • Develop econometric models and empirical studies to address economic questions and policy issues.
16	CC-XVI	MC 4.1 Dynamics of Banking & Insurance	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, terminology, and regulations in banking and insurance industries.



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			<ul style="list-style-type: none"> • Explain the fundamental principles and theories underlying banking and insurance operations. • Apply knowledge of banking and insurance principles to analyze financial products and services. • Analyze the dynamics and trends in banking and insurance sectors. • Evaluate the impact of regulatory changes and economic factors on banking and insurance industries. • Develop strategies and recommendations for banking and insurance institutions to enhance performance and manage risks.
17	CC-XVII	MC 4.2 Investment Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key terms, concepts, and theories related to investment management. • Explain the fundamental principles and theories underlying investment management practices. • Apply investment management techniques to analyze investment opportunities and construct portfolios. • Analyze financial markets, securities, and economic indicators to assess investment risks and returns. • Evaluate the performance of investment portfolios and strategies using relevant metrics and benchmarks. • Develop investment strategies and recommendations to optimize portfolio performance and achieve financial goals.
18	CE-I	MC 3.4.1 IFRS and IND AS	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, principles, and terminology used in IFRS and IND AS. • Explain the fundamental principles and framework of IFRS and IND AS. • Apply IFRS and IND AS principles to prepare financial statements and reports. • Analyze financial statements prepared under IFRS and IND AS to interpret financial performance and position. • Evaluate the impact of adopting IFRS and IND AS on financial reporting quality and transparency. • Develop strategies and recommendations for organizations transitioning to or implementing IFRS and IND AS.
19	CE-II	MC 3.4.2 Corporate Tax Planning and GST	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key provisions, rules, and regulations related to corporate taxation and GST. • Explain the fundamental principles and concepts of corporate tax planning and GST. • Apply tax planning techniques and strategies to optimize tax efficiency for corporations. • Analyze tax implications and compliance requirements under corporate tax and GST regimes. • Evaluate the effectiveness of corporate tax planning strategies in achieving financial objectives and compliance with tax laws. • Develop comprehensive tax planning and GST compliance strategies tailored to corporate needs and objectives.
20	CE-III	MC 3.4.3 International Finance	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key terms, concepts, and theories related to international finance.



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			<ul style="list-style-type: none"> • Explain the fundamental principles and theories underlying international finance. • Apply international finance concepts to analyze financial decisions and strategies in a global context. • Analyze international financial markets, instruments, and institutions. • Evaluate the implications of international financial policies and regulations on global economic stability. • Develop strategies and recommendations for managing foreign exchange risk and optimizing international financial operations.
21	CE-IV	MC 4.4.1 International Accounting	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key international accounting standards (IAS) and their application. • Explain the fundamental principles and frameworks of international accounting. • Apply international accounting standards to prepare and analyze financial statements. • Analyze the impact of international accounting standards on financial reporting practices and corporate governance. • Evaluate the challenges and benefits of harmonizing accounting standards across different countries and jurisdictions. • Develop strategies and recommendations for multinational corporations to address complexities in international accounting compliance.
22	CE-V	MC 4.4.2 Corporate Reporting Practices	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key principles, standards, and regulations related to corporate reporting. • Explain the fundamental theories, frameworks, and methodologies in corporate reporting. • Apply corporate reporting standards and guidelines to prepare financial statements and reports. • Analyze corporate financial statements and reports to interpret financial performance and position. • Evaluate the quality and reliability of corporate reporting practices. • Develop comprehensive corporate reporting strategies and recommendations to enhance transparency and stakeholder trust.
23	CE-VI	MC 4.4.3 Risk Management and Derivative	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts, terminology, and types of risks in financial markets. • Explain the fundamental principles and theories of risk management. • Apply risk management techniques and strategies to identify and mitigate financial risks. • Analyze the effectiveness of risk management strategies in mitigating financial risks. • Evaluate the implications of derivatives and risk management practices on financial stability and performance. • Develop comprehensive risk management frameworks and strategies for organizations.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – MASTER OF SCIENCE IN APPLIED GEOLOGY

Sl. No.	Paper	Subject	Outcomes
1	CC-I	Crystallography, Mineralogy and Mineral optics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in crystallography, mineralogy, and mineral optics. • Understand principles of crystal symmetry, mineral identification, and optical properties of minerals. • Apply knowledge of crystallography and mineralogy to identify and analyze minerals. • Analyze mineralogical data to interpret geological processes and mineralogical phenomena. • Evaluate the significance of mineralogical studies in geology and related disciplines. • Create research hypotheses, proposals, and recommendations based on synthesized mineralogical knowledge.
2	CC-II	Mineral deposits	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in mineral deposits and ore geology. • Understand principles of ore formation processes, ore genesis models, and geological controls. • Apply knowledge of mineral deposits to identify, explore, and evaluate potential ore bodies. • Analyze geological and geochemical data to interpret the genesis and evolution of mineral deposits. • Evaluate the economic, environmental, and social impacts of mineral resource development. • Create exploration, mining, and conservation strategies based on synthesized knowledge of mineral deposits.
3	CC-III	Applied Economic Geology, Mineral Economics and Remote Sensing	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in applied economic geology, mineral economics, and remote sensing. • Understand principles of geological criteria, economic models, and remote sensing techniques relevant to mineral resource assessment. • Apply knowledge to practical scenarios in mineral exploration, economic evaluation, and resource management. • Analyze geological, economic, and remote sensing data to evaluate mineral resource potential and investment opportunities.



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			<ul style="list-style-type: none"> • Evaluate the economic, environmental, and socio-economic implications of mineral resource development. • Create comprehensive strategies and recommendations for sustainable mineral resource management and economic development.
4	CC-IV	Igneous petrology, Sedimentary Petrology and Basin analysis	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in igneous petrology, sedimentary petrology, and basin analysis. • Understand principles of igneous processes, sedimentary processes, and basin formation. • Apply knowledge to interpret geological features and processes in igneous rocks, sedimentary rocks, and basins. • Analyze geological data to interpret the origin, evolution, and tectonic setting of igneous rocks, sedimentary rocks, and basins. • Evaluate the significance of igneous petrology, sedimentary petrology, and basin analysis in geological research and resource exploration. • Create geological models, hypotheses, and research proposals based on synthesized knowledge of igneous petrology, sedimentary petrology, and basin analysis.
5	CC-V	Metamorphic petrology and Applied Geochemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in metamorphic petrology and applied geochemistry. • Understand principles of metamorphic processes, metamorphic facies, and geochemical analysis techniques. • Apply knowledge to interpret geological processes and phenomena in metamorphic rocks and terranes. • Analyze geological data to interpret the origin, evolution, and metamorphic history of rocks and terranes. • Evaluate the significance of metamorphic petrology and applied geochemistry in geological research and resource exploration. • Create geological models, research hypotheses, and proposals based on synthesized knowledge of metamorphic petrology and applied geochemistry.
6	CC-VI	Applied hydrogeology and Engineering geology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in applied hydrogeology and engineering geology. • Understand principles of groundwater flow, aquifer behavior, geological hazards, and engineering geological investigations. • Apply knowledge to solve practical problems in hydrogeological and engineering geological contexts. • Analyze geological and hydrogeological data to interpret subsurface conditions and groundwater dynamics. • Evaluate the environmental, economic, and societal impacts of groundwater and geological engineering projects.



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			<ul style="list-style-type: none"> • Create sustainable groundwater management and engineering solutions based on synthesized knowledge of applied hydrogeology and engineering geology.
7	CC-VII	Structural geology, Geodynamics and Geomorphology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in structural geology, geodynamics, and geomorphology. • Understand principles of geological structures, plate tectonics, and landform evolution. • Apply knowledge to interpret geological features and processes in field and laboratory settings. • Analyze geological and geophysical data to interpret structural evolution, tectonic history, and landscape dynamics. • Evaluate the significance of structural geology, geodynamics, and geomorphology in understanding Earth processes and hazards. • Create geological models, research hypotheses, and proposals based on synthesized knowledge of structural geology, geodynamics, and geomorphology.
8	CC-VIII	Palaeontology, Applied Micro palaeontology & Quaternary geology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in palaeontology, micropalaeontology, and Quaternary geology. • Understand principles of fossil preservation, microfossil identification, Quaternary stratigraphy, and environmental reconstruction. • Apply knowledge to interpret geological history, evolutionary patterns, and environmental changes. • Analyze geological and paleontological data to interpret past ecosystems, climate variations, and landscape evolution. • Evaluate the significance of palaeontology, micropalaeontology, and Quaternary geology in understanding Earth's history and environmental changes. • Create geological models, research hypotheses, and proposals based on synthesized knowledge of palaeontology, micropalaeontology, and Quaternary geology.
9	CC-IX	Stratigraphy, Palaeogeography and Marine geosciences	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in stratigraphy, palaeogeography, and marine geosciences. • Understand principles of sedimentary facies analysis, sequence stratigraphy, palaeogeographic reconstructions, and marine processes. • Apply knowledge to interpret geological history, environmental changes, and marine dynamics. • Analyze geological and geophysical data to interpret stratigraphic relationships, palaeogeographic changes, and marine geological processes. • Evaluate the significance of stratigraphy, palaeogeography, and marine geosciences in understanding Earth's geological history and environmental changes.



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			<ul style="list-style-type: none"> • Create geological models, research hypotheses, and proposals based on synthesized knowledge of stratigraphy, palaeogeography, and marine geosciences.
10	CC-X	<p>a) Geostatistics and Computer application in Geology</p> <p>b) Environmental geology, medical geology and Disaster management</p>	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in geostatistics and computer applications in geology. • Understand principles of geostatistical methods, spatial data analysis, and GIS applications in geological research. • Apply knowledge to analyze geological data, perform spatial modeling, and utilize geostatistical software. • Analyze geological datasets using geostatistical methods to interpret spatial patterns and variability. • Evaluate the effectiveness and limitations of geostatistical techniques in geological resource assessment and environmental management. • Create innovative solutions and propose strategies for using geostatistics and computer applications in geological research, resource management, and environmental planning.
11	E-A	Ore Geology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in ore geology. • Understand principles of ore formation, geological processes, and the classification of ore deposits. • Apply knowledge to interpret geological data, assess mineral potential, and predict ore deposit locations. • Analyze geological data to interpret ore deposit formation and evaluate mining feasibility. • Evaluate the significance of ore geology in mineral exploration, resource estimation, and sustainable mining practices. • Create strategies for ore exploration, resource development, and environmental stewardship based on synthesized knowledge of ore geology.
12	E-B	Applied Hydrogeology and Water Management	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in hydrogeology and water management. • Understand principles of groundwater flow, recharge, contamination, and water management strategies. • Apply knowledge to solve practical problems related to groundwater resources and water quality management. • Analyze hydrogeological data to interpret groundwater dynamics, assess contamination risks, and evaluate water resource issues. • Evaluate the effectiveness of hydrogeological methods and water management strategies in addressing water resource challenges. • Create solutions for sustainable groundwater use, aquifer protection, and environmental stewardship based on synthesized knowledge of applied hydrogeology and water management.
13	E-C	Fuel Geology and Sedimentary Petrology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in fuel geology and sedimentary petrology.



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			<ul style="list-style-type: none"> • Understand principles of fossil fuel formation, sedimentary rock characteristics, and depositional environments. • Apply knowledge to analyze geological data, interpret fossil fuel occurrences, and assess sedimentary rock properties. • Analyze geological data to evaluate the formation, distribution, and economic significance of fossil fuels and sedimentary rocks. • Evaluate the environmental, economic, and societal impacts of fossil fuel exploration, extraction, and usage. • Create strategies for sustainable resource management, energy policy development, and environmental stewardship based on synthesized knowledge of fuel geology and sedimentary petrology.
14	E-D	Remote Sensing and GIS	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in remote sensing and GIS. • Understand principles of remote sensing technologies, electromagnetic radiation, and GIS applications. • Apply knowledge to analyze spatial data, perform geospatial analysis, and utilize GIS functionalities. • Analyze remote sensing data and GIS outputs to interpret spatial patterns and relationships. • Evaluate the accuracy, reliability, and societal impacts of remote sensing and GIS applications. • Create innovative solutions and propose applications for remote sensing and GIS in geospatial research, planning, and policy.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – MASTER OF SCIENCE IN CHEMISTRY

Sl. No.	Paper	Subject	Outcomes
1	CC	Inorganic Chemistry-I	After completion of this paper student will be able to <ul style="list-style-type: none">Remember fundamental concepts and terminology in inorganic chemistry.Understand principles of atomic structure, chemical bonding, coordination chemistry, and periodic trends.Apply knowledge to solve problems, conduct experiments, and analyze inorganic reactions.Analyze data on periodic trends, reaction mechanisms, and spectroscopic analysis in inorganic chemistry.Evaluate research methodologies, findings, and practical applications in inorganic chemistry.Create innovative research proposals, techniques, and applications in inorganic chemistry.
2	CC	Organic Chemistry- I	After completion of this paper student will be able to <ul style="list-style-type: none">Remember fundamental concepts and terminology in organic chemistry.Understand principles of organic structure, bonding, stereochemistry, and reaction mechanisms.Apply knowledge to solve problems, conduct experiments, and analyze organic reactions.Analyze data on spectroscopic analysis, reaction mechanisms, and kinetic studies in organic chemistry.Evaluate research methodologies, findings, and practical applications in organic chemistry.Create innovative research proposals, techniques, and applications in organic chemistry.
3	CC	Physical Chemistry –I	After completion of this paper student will be able to <ul style="list-style-type: none">Remember fundamental concepts and terminology in physical chemistry.Understand principles of thermodynamics, kinetics, quantum mechanics, and electrochemistry.Apply knowledge to solve problems, conduct experiments, and analyze physical chemical systems.Analyze data on thermodynamic properties, reaction kinetics, spectroscopic analysis, and electrochemical processes.Evaluate research methodologies, findings, and practical applications in physical chemistry.Create innovative research proposals, techniques, and applications in physical chemistry.
4	AE	Spectroscopy-I	After completion of this paper student will be able to



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			<ul style="list-style-type: none"> Remember fundamental concepts and terminology in spectroscopy. Understand principles of electromagnetic radiation, absorption, emission, and spectroscopic techniques. Apply knowledge to solve problems, conduct experiments, and interpret spectroscopic data. Analyze data on UV-Vis, IR, and NMR spectra to elucidate molecular structures and properties. Evaluate reliability, accuracy, and applications of spectroscopic techniques in chemical analysis. Create innovative research proposals, techniques, and applications using spectroscopy.
5	AE	Computer for Chemist	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in computer applications in chemistry. Understand principles of computational methods, algorithms, and software tools in chemistry. Apply knowledge to solve problems, conduct simulations, and analyze chemical data. Analyze computational data to interpret molecular behaviors and predict chemical properties. Evaluate reliability, accuracy, and applications of computational methods in chemistry. Create innovative research proposals, techniques, and applications using computer simulations in chemistry.
6	CC	Inorganic Chemistry-II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in inorganic chemistry. Understand principles of bonding, structure, and properties of inorganic compounds. Apply knowledge to solve problems, conduct experiments, and analyze inorganic reactions. Analyze data on spectroscopic, structural, and thermodynamic properties of inorganic compounds. Evaluate reliability, accuracy, and applications of inorganic chemistry principles. Create innovative research proposals, techniques, and applications using inorganic chemistry.
7	CC	Organic Chemistry- II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in organic chemistry. Understand principles of bonding, structure, and reactions of organic compounds. Apply knowledge to solve problems, conduct experiments, and analyze organic reactions. Analyze data on spectroscopic, structural, and kinetic properties of organic compounds. Evaluate reliability, accuracy, and applications of organic chemistry principles. Create innovative research proposals, techniques, and applications using organic chemistry.
8	CC	Physical Chemistry –II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in physical chemistry.



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			<ul style="list-style-type: none"> • Understand principles of thermodynamics, kinetics, quantum chemistry, and statistical mechanics. • Apply knowledge to solve problems, conduct experiments, and analyze chemical reactions. • Analyze data on thermodynamic properties, reaction kinetics, spectroscopic data, and theoretical models. • Evaluate reliability, accuracy, and applications of physical chemistry principles. • Create innovative research proposals, techniques, and applications using physical chemistry.
9	AE	Spectroscopy-II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in spectroscopy. • Understand principles of absorption, emission, and interaction of matter with electromagnetic radiation. • Apply knowledge to interpret spectra, solve problems, and analyze molecular properties. • Analyze experimental spectra and data to draw conclusions about molecular structures and interactions. • Evaluate reliability, accuracy, and applications of spectroscopic techniques. • Create innovative research proposals, techniques, and applications using spectroscopy.
10	AE	Analytical Chemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in analytical chemistry. • Understand principles of quantitative and qualitative analysis techniques. • Apply knowledge to solve problems, conduct experiments, and analyze samples. • Analyze experimental data and results to draw conclusions about chemical compositions and properties. • Evaluate reliability, accuracy, and applications of analytical chemistry methods. • Create innovative research proposals, techniques, and applications using analytical chemistry.
11	CC	Pericyclic reactions and photochemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in pericyclic reactions and photochemistry. • Understand principles of orbital symmetry in pericyclic reactions and electronic transitions in photochemical reactions. • Apply knowledge to predict products, design experiments, and propose synthetic routes. • Analyze experimental data and theoretical models to elucidate reaction mechanisms and pathways. • Evaluate reliability, applications, and environmental impact of pericyclic reactions and photochemistry. • Create innovative research proposals, techniques, and applications using pericyclic reactions and photochemistry.
12	CC	Bioinorganic & Supramolecular Chemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in bioinorganic and supramolecular chemistry.



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			<ul style="list-style-type: none"> • Understand principles of metal coordination in biological systems and non-covalent interactions in supramolecular chemistry. • Apply knowledge to predict structures, design experiments, and propose applications. • Analyze experimental data and theoretical models to elucidate complex chemical systems. • Evaluate reliability, applications, and ethical considerations of bioinorganic and supramolecular chemistry. • Create innovative research proposals, techniques, and applications using bioinorganic and supramolecular chemistry.
13	AE	Application of Spectroscopy-I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in spectroscopy. • Understand principles of electromagnetic radiation interaction and molecular spectroscopic techniques. • Apply knowledge to interpret spectra, solve problems, and analyze molecular structures. • Analyze experimental data and spectra to draw conclusions about molecular properties. • Evaluate reliability, limitations, and applications of spectroscopic methods. • Create innovative research proposals, techniques, and applications using spectroscopic techniques.
14	AE	Organic Synthesis	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in organic synthesis. • Understand principles of retrosynthetic analysis, reaction mechanisms, and stereochemistry in organic chemistry. • Apply knowledge to design synthetic routes and execute laboratory experiments. • Analyze synthetic routes and experimental data to assess yield, purity, and efficiency. • Evaluate reliability, feasibility, and sustainability of synthetic methods in organic chemistry. • Create innovative research proposals, methodologies, and applications using organic synthesis.
15	AE	Environmental Chemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in environmental chemistry. • Understand principles of pollutant sources, transport, fate, and environmental legislation. • Apply knowledge to analyze pollutants, assess environmental impacts, and design solutions. • Analyze environmental data and scientific literature to evaluate pollution issues. • Evaluate environmental risks, policies, and sustainability of chemical practices. • Create innovative solutions and proposals for environmental chemistry applications.
16	CC	Bioorganic Chemistry	<p>After completion of this paper student will be able to</p>



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			<ul style="list-style-type: none"> Remember fundamental concepts and terminology in bioorganic chemistry. Understand principles of biomolecular structure, function, and metabolism. Apply knowledge to analyze biochemical problems and design experiments. Analyze biochemical data and literature to evaluate biomolecular functions. Evaluate biochemical significance and ethical considerations in bioorganic chemistry. Create innovative solutions and proposals for bioorganic chemistry applications.
17	CC	Organ transition metal chemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in organotransition metal chemistry. Understand principles of transition metal complexation, bonding, and reactivity. Apply knowledge to design and synthesize organometallic compounds and catalysts. Analyze organometallic structures and reaction mechanisms to predict outcomes and solve problems. Evaluate sustainability, efficiency, and economic feasibility of organometallic catalysts. Create innovative solutions and proposals for advancing organotransition metal chemistry.
18	CC	Polymer Chemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in polymer chemistry. Understand principles of polymer synthesis, structure-property relationships, and characterization techniques. Apply knowledge to design and synthesize polymers for diverse applications. Analyze polymer structures and properties to optimize performance and solve problems. Evaluate sustainability, environmental impact, and economic feasibility of polymer technologies. Create innovative solutions and proposals for advancing polymer science and technology.
19	CC	Solid State Chemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in solid state chemistry. Understand principles of crystallography, bonding in solids, and material properties. Apply knowledge to design and synthesize solid state materials for specific applications. Analyze experimental data and theoretical models to interpret solid state phenomena. Evaluate sustainability, effectiveness, and implications of solid state technologies. Create innovative solutions and proposals for advancing solid state chemistry and materials science.
20	AE	Application of Spectroscopy-II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Identify and recall spectroscopic techniques and basic principles.



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			<ul style="list-style-type: none">• Explain fundamental concepts and interpret spectral data.• Apply spectroscopic techniques to analyze compounds and solve related problems.• Differentiate between spectroscopic methods and analyze complex spectra.• Design experimental setups and formulate hypotheses based on spectroscopic data.• Judge the validity of spectroscopic results and assess their applicability in solving chemical problems.
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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – MASTER OF SCIENCE IN COMPUTER SCIENCE

Sl. No.	Paper	Subject	Outcomes
1	CC-I	Data Structure and Algorithms	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in data structures and algorithms. • Understand principles of data structure operations, algorithmic paradigms, and complexity analysis. • Apply knowledge to implement data structures and algorithms in programming assignments and projects. • Analyze algorithmic efficiency and data structure performance through theoretical analysis and empirical testing. • Evaluate the effectiveness and suitability of data structures and algorithms in solving computational problems. • Create innovative solutions and propose advancements in data structures and algorithms for solving complex computational challenges.
2	CC-II	Computer System Architecture	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in computer system architecture. • Understand principles of CPU design, memory hierarchy, and computer architecture paradigms. • Apply knowledge to analyze system performance and design basic system components. • Analyze computer system designs and architectures to evaluate trade-offs and optimizations. • Evaluate the effectiveness of computer system architectures in meeting performance and design requirements. • Create innovative designs and propose advancements in computer system architecture for improved performance and efficiency.
3	CC-III	Database Systems & Implementation	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in database systems. • Understand principles of database design, normalization, transaction management, and SQL. • Apply knowledge to design, implement, and manage databases using DBMS technologies. • Analyze database designs and query performance to evaluate efficiency and scalability.



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			<ul style="list-style-type: none"> • Evaluate the effectiveness of database systems in supporting data management and application requirements. • Create innovative solutions and propose advancements in database system design and implementation for improved performance and reliability.
4	CC-IV	Discrete Mathematical Structures	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in discrete mathematics. • Understand principles of set theory, logic, mathematical induction, and graph theory. • Apply knowledge to solve problems in combinatorics, probability, and algorithm design. • Analyze discrete structures and mathematical arguments to evaluate correctness and complexity. • Evaluate the effectiveness of discrete mathematical structures in solving real-world computational and optimization problems. • Create innovative solutions and propose advancements in discrete mathematical models and algorithms for improved problem-solving capabilities.
5	CC-V	Algorithms	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in algorithms. • Understand principles of algorithm design, analysis, and complexity theory. • Apply knowledge to solve computational problems using various algorithmic techniques. • Analyze algorithmic strategies and their efficiency to evaluate performance and scalability. • Evaluate the effectiveness of algorithms in solving real-world computational problems. • Create innovative solutions and propose advancements in algorithm design for improved performance and efficiency.
6	CC-VI	Database	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in databases. • Understand principles of database design, normalization, transaction management, and query optimization. • Apply knowledge to design, implement, and manage databases using DBMS technologies. • Analyze database structures and query performance to optimize efficiency and scalability. • Evaluate the effectiveness of database systems in managing and retrieving information. • Create innovative solutions and propose advancements in database design and implementation for improved performance and reliability.
7	CC-VII	Computer Networks	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in computer networks. • Understand principles of network protocols, addressing, routing, and security.



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			<ul style="list-style-type: none"> • Apply knowledge to design, configure, and troubleshoot computer networks. • Analyze network architectures and protocols to evaluate performance and scalability. • Evaluate the effectiveness of network solutions in meeting performance and security requirements. • Create innovative solutions and propose advancements in network design and implementation for improved performance and reliability.
8	CC-VIII	Advanced JAVA	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in advanced Java programming. • Understand principles of multithreading, networking, exception handling, and GUI development in Java. • Apply knowledge to develop robust and scalable Java applications using advanced features and libraries. • Analyze advanced Java applications and code to evaluate design, performance, and efficiency. • Evaluate the effectiveness of advanced Java solutions in meeting application requirements and security standards. • Create innovative solutions and propose advancements in Java application design and implementation for improved performance and functionality.
9	CC-IX	Operating System Design	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in operating system design. • Understand principles of process management, memory management, file systems, and synchronization in operating systems. • Apply knowledge to design and implement operating system components and algorithms. • Analyze operating system architectures and algorithms to evaluate performance, efficiency, and reliability. • Evaluate the effectiveness of operating system designs in meeting performance, security, and scalability requirements. • Create innovative solutions and propose advancements in operating system design and implementation for improved performance and functionality.
10	CC-X	Theory of Computation	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in the theory of computation. • Understand principles of automata theory, formal languages, grammars, and computational complexity. • Apply knowledge to construct formal models and algorithms for solving computational problems. • Analyze theoretical models and algorithms to evaluate computational feasibility and complexity. • Evaluate the effectiveness and limitations of theoretical concepts in solving real-world computational problems. • Create innovative solutions and propose advancements in theoretical models and algorithms in the theory of computation.
11	CC-XI	JAVA Programming	<p>After completion of this paper student will be able to</p>



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			<ul style="list-style-type: none"> Remember fundamental concepts and terminology in Java programming. Understand principles of object-oriented programming, exception handling, and Java libraries. Apply knowledge to develop software applications using Java programming language. Analyze Java programs and algorithms to evaluate performance, efficiency, and complexity. Evaluate the effectiveness of Java solutions in meeting software requirements and design specifications. Create innovative solutions and propose advancements in Java application design and implementation for improved performance and functionality.
12	CC-XII	Operating Systems	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in operating systems. Understand principles of process management, memory management, file systems, and device management in operating systems. Apply knowledge to design and configure operating system components and algorithms. Analyze operating system behaviors and algorithms to evaluate performance, efficiency, and reliability. Evaluate the effectiveness of operating system designs in meeting performance, security, and scalability requirements. Create innovative solutions and propose advancements in operating system design and implementation for improved performance and functionality.
13	CC-XIII	Artificial Intelligence	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in artificial intelligence. Understand principles of machine learning, knowledge representation, natural language processing, and computer vision in AI. Apply knowledge to develop AI systems and applications using various AI techniques and frameworks. Analyze AI models and algorithms to evaluate performance, efficiency, and scalability. Evaluate the ethical, societal, and economic implications of artificial intelligence technologies. Create innovative solutions and propose advancements in AI application design and implementation for improved performance and functionality.
14	CC-XIV	Software Engineering	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in software engineering. Understand principles of software development life cycle (SDLC), requirements engineering, design patterns, and software testing. Apply knowledge to develop software systems using appropriate methodologies, architectures, and tools. Analyze software systems and methodologies to evaluate performance, quality, and scalability.



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			<ul style="list-style-type: none"> • Evaluate the effectiveness of software engineering practices, methodologies, and quality metrics. • Create innovative solutions and propose advancements in software design, development, and testing for enhanced performance and functionality.
15	CC-V	Compiler Design	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in compiler design. • Understand principles of lexical analysis, parsing techniques, semantic analysis, and code generation in compiler construction. • Apply knowledge to implement and optimize compilers for translating high-level programming languages. • Analyze compiler components and algorithms to evaluate performance, efficiency, and optimization strategies. • Evaluate the effectiveness of compiler designs, optimizations, and generated code quality. • Create innovative solutions and propose advancements in compiler design and implementation for improved performance and functionality.
16	CE-I	Visual Programming	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in visual programming. • Understand principles of visual representation, event-driven programming, and usability in visual programming languages. • Apply knowledge to develop interactive applications and simulations using visual programming environments. • Analyze visual programming environments and techniques to evaluate usability, performance, and scalability. • Evaluate the impact of visual programming on software development, creativity, and user experience. • Create innovative solutions and propose advancements in visual programming tools and applications for diverse domains and functionalities.
17	CE-II	Data Mining	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in data mining. • Understand principles of data preprocessing, supervised and unsupervised learning, model evaluation, and validation. • Apply knowledge to implement data mining techniques for classification, clustering, association rule mining, and anomaly detection. • Analyze data mining results to interpret patterns, clusters, and associations in datasets. • Evaluate the effectiveness, reliability, and ethical implications of data mining models and techniques. • Create innovative solutions and propose advancements in data mining algorithms, workflows, and applications for diverse domains and challenges.
18	CE-III	Network Security	<p>After completion of this paper student will be able to</p>



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			<ul style="list-style-type: none">• Remember fundamental concepts and terminology in network security.• Understand principles of network security architectures, protocols, cryptography, and access control.• Apply knowledge to design, implement, and manage secure network solutions and protocols.• Analyze network security incidents, vulnerabilities, and risks to recommend mitigation strategies.• Evaluate the effectiveness of network security technologies, policies, and practices in protecting against cyber threats.• Create innovative solutions and propose advancements in network security strategies, policies, and technologies to enhance organizational cybersecurity posture.
19	CE-IV	Embedded System	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• Remember fundamental concepts and terminology in embedded systems.• Understand principles of embedded system architecture, real-time operating systems, and communication protocols.• Apply knowledge to design, develop, and implement embedded system applications.• Analyze embedded system performance and optimize hardware/software configurations.• Evaluate the effectiveness and reliability of embedded system designs in real-world applications.• Create innovative solutions and propose advancements in embedded system technologies and applications.



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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – MASTER OF SCIENCE IN ZOOLOGY

Sl. No.	Paper	Subject	Outcomes
1	CC-I	Biosystematics, Bioinformatics and Non-Chordates	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in biosystematics, bioinformatics, and non-chordates. • Understand principles of taxonomy, non-chordate biology, and bioinformatics tools and techniques. • Apply knowledge to identify species, analyze genetic data, and conduct research on non-chordate organisms. • Analyze morphological, genetic, and ecological data to understand relationships and draw conclusions. • Evaluate research findings, techniques, and the impact of non-chordate species on ecosystems. • Create innovative research proposals, tools, and reports integrating biosystematics, bioinformatics, and non-chordate biology.
2	CC-II	Cell Biology and Genetics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in cell biology and genetics. • Understand principles of cellular structure, function, and genetic inheritance. • Apply knowledge to conduct experiments and solve biological problems. • Analyze experimental data and information to understand cellular and genetic processes. • Evaluate research findings, methodologies, and ethical considerations in cell biology and genetics. • Create innovative research proposals, techniques, and applications in the fields of cell biology and genetics.
3	CC-III	Physiology, Histology and Histochemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in physiology, histology, and histochemistry. • Understand principles of tissue structure, physiological mechanisms, and histochemical techniques. • Apply knowledge to conduct experiments and analyze biological samples. • Analyze physiological and histological data to understand bodily functions and tissue structure. • Evaluate research findings, methodologies, and the significance of physiological and histological studies. • Create innovative research proposals, techniques, and applications in the fields of physiology, histology, and histochemistry.



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4	CC-IV	Instrumentation and Biostatistics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in instrumentation and biostatistics. • Understand principles of operation for scientific instruments and statistical analysis of biological data. • Apply knowledge to conduct experiments using instruments and perform statistical analyses. • Analyze the performance of instruments and the significance of experimental data. • Evaluate the reliability and validity of research findings and methodologies. • Create innovative research proposals, techniques, and applications integrating instrumentation and biostatistics.
5	CC-V	Biophysics and Biochemistry	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in biophysics and biochemistry. • Understand principles of biomolecular structure, enzyme kinetics, thermodynamics, and molecular interactions. • Apply knowledge to conduct experiments and analyze biochemical and biophysical data. • Analyze enzyme kinetics, molecular structures, and thermodynamic data to draw conclusions. • Evaluate research findings, methodologies, and the impact of molecular changes on function. • Create innovative research proposals, techniques, and applications in the fields of biophysics and biochemistry.
6	CC-VI	Microbiology and Immunology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in microbiology and immunology. • Understand principles of microbial structure, pathogenesis, and immune responses. • Apply knowledge to conduct experiments and analyze microbiological and immunological data. • Analyze microbial growth, immune responses, and host-pathogen interactions to draw conclusions. • Evaluate research findings, methodologies, and the effectiveness of antimicrobial and immunological interventions. • Create innovative research proposals, techniques, and applications in the fields of microbiology and immunology.
7	CC-VII	Endocrinology and Reproductive Physiology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in endocrinology and reproductive physiology. • Understand principles of hormone action, endocrine regulation, and reproductive processes. • Apply knowledge to conduct experiments and analyze endocrinological and reproductive data. • Analyze hormone levels, physiological processes, and interactions between hormones. • Evaluate research findings, methodologies, and treatments related to endocrine and reproductive health.



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			<ul style="list-style-type: none"> • Create innovative research proposals, techniques, and applications in endocrinology and reproductive physiology.
8	CC-VIII	Evolutionary Biology and Animal Behaviour	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in evolutionary biology and animal behavior. • Understand principles of natural selection, genetic variation, speciation, and animal behavior. • Apply knowledge to analyze genetic, evolutionary, and behavioral data and conduct relevant experiments. • Analyze data on genetic variation, population dynamics, and behavior to draw meaningful conclusions. • Evaluate research methodologies, findings, and conservation strategies based on evolutionary and behavioral principles. • Create innovative research proposals, techniques, and applications in the fields of evolutionary biology and animal behavior.
9	CC-IX	Chordates, Comparative Anatomy and Economic Zoology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in chordates, comparative anatomy, and economic zoology. • Understand principles of chordate evolution, structural adaptations, and the economic importance of animals. • Apply knowledge to conduct anatomical dissections, comparative analyses, and economic assessments. • Analyze evolutionary relationships, structural differences, and economic impacts of animal species. • Evaluate research methodologies, findings, and conservation strategies related to chordates and economically important animals. • Create innovative research proposals, techniques, and applications in the fields of chordate biology, comparative anatomy, and economic zoology.
10	CC-X	Developmental Biology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in developmental biology. • Understand principles of embryonic development, cell differentiation, and genetic regulation. • Apply knowledge to analyze developmental processes and conduct relevant experiments. • Analyze data on gene expression, cell signaling, and the impact of mutations and environmental factors. • Evaluate research methodologies, findings, and the effectiveness of model organisms in developmental biology. • Create innovative research proposals, techniques, and applications in the field of developmental biology.
11	AE-I	Environmental Biology and Wildlife Conservation	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Remember fundamental concepts and terminology in environmental biology and wildlife conservation. • Understand principles of ecology, biodiversity, population dynamics, and conservation biology. • Apply knowledge to analyze ecological data, design conservation plans, and propose sustainable solutions.



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			<ul style="list-style-type: none"> Analyze data on biodiversity, habitat health, and conservation effectiveness. Evaluate conservation strategies, policies, and their socio-economic impacts. Create innovative research proposals, conservation strategies, and management plans in environmental biology and wildlife conservation.
12	AE-II	Animal Physiology and Developmental Biology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in animal physiology and developmental biology. Understand principles of physiological regulation, embryonic development, and evolutionary adaptations in animals. Apply knowledge to analyze physiological processes, conduct developmental studies, and apply findings. Analyze data on animal physiology, developmental stages, and environmental impacts. Evaluate research methodologies, findings, and the applicability of animal models in physiology and development. Create innovative research proposals, techniques, and applications in animal physiology and developmental biology.
13	CE-I	Molecular Biology, Genetic Engineering and Applications	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in molecular biology and genetic engineering. Understand principles of DNA structure, gene expression, genetic regulation, and genetic engineering techniques. Apply knowledge to analyze biological data, conduct experiments, and apply molecular techniques. Analyze data on gene expression, genetic variations, and the impacts of genetic modifications. Evaluate research methodologies, findings, and ethical considerations in genetic engineering. Create innovative research proposals, techniques, and applications in molecular biology and genetic engineering.
14	CE-II	Microbial Ecology and Biotechnology, and Nanobiology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> Remember fundamental concepts and terminology in microbial ecology, biotechnology, and nanobiology. Understand principles of microbial interactions, genetic engineering, nanotechnology, and their applications. Apply knowledge to analyze ecological data, conduct biotechnological experiments, and apply nanobiology techniques. Analyze data on microbial diversity, biotechnological processes, and nanomaterial properties. Evaluate research methodologies, findings, and ethical considerations in microbial ecology, biotechnology, and nanobiology. Create innovative research proposals, techniques, and applications in microbial ecology, biotechnology, and nanobiology.



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15	CE-III	Animal development and Neurobiology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• Remember fundamental concepts and terminology in animal development and neurobiology.• Understand principles of embryonic development, neurogenesis, synaptic transmission, and neural circuits.• Apply knowledge to analyze developmental processes, conduct neurobiological experiments, and apply neuroimaging techniques.• Analyze data on gene expression, neural activity patterns, and developmental disorders.• Evaluate research methodologies, findings, and ethical considerations in animal development and neurobiology.• Create innovative research proposals, techniques, and applications in animal development and neurobiology.
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COURSE OUTCOMES

Course outcomes refer to the specific knowledge, skills, abilities, or attitudes that students are expected to demonstrate or achieve by the end of a course. They articulate what learners should be able to do or know after completing the course, reflecting the intended goals of the educational experience. Course outcomes are typically aligned with the course content, objectives, and overall educational goals of the institution or program. They serve as benchmarks to assess student progress and success, guiding both teaching and learning activities throughout the course. These outcomes help educators design effective instructional strategies, assessments, and learning experiences to support student achievement and mastery of the subject matter.

COURSE OUTCOMES – BACHELOR OF ARTS IN ECONOMICS

Sl.	Paper	Subject	Outcomes
1	CC-I	Introductory Microeconomics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall the fundamental concepts and definitions of microeconomics, including supply, demand, market equilibrium, elasticity, and utility. • Explain the principles underlying consumer and producer behavior, market structures, and the role of government in microeconomic markets. • Use microeconomic models to interpret real-world economic scenarios and predict the outcomes of changes in economic variables. • Break down complex economic issues into simpler components and analyze how different factors influence market outcomes. • Critically evaluate microeconomic policies and proposals, considering their economic efficiency and equity implications.³ • Develop and propose solutions to microeconomic problems, using theoretical frameworks and empirical evidence.
2	CC-II	Mathematical methods for Economics I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental mathematical concepts and definitions used in economics, including preliminaries, functions of one real variable, derivatives, functions of multiple variables, matrices, and determinants. • Explain the principles and properties of mathematical functions, derivatives, and linear algebra that are essential for economic analysis. • Use mathematical techniques to solve economic problems involving single-variable and multivariable functions, and linear algebra. • Break down complex economic models into simpler mathematical components to understand their structure and implications. • Critically assess the mathematical solutions to economic problems, considering their validity and implications. • Develop mathematical models to represent and solve real-world economic problems, using appropriate mathematical methods.
3	CC-III	Introductory Macroeconomics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental concepts and definitions in macroeconomics, such as GDP, inflation, unemployment, fiscal policy, and monetary policy. • Explain the basic principles and models of macroeconomics, including the circular flow of income, aggregate demand and supply, and the IS-LM model.



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			<ul style="list-style-type: none"> • Use macroeconomic models to interpret real-world economic scenarios and predict the outcomes of changes in economic variables. • Break down complex macroeconomic issues into simpler components to understand their underlying factors and implications. • Critically assess macroeconomic policies and proposals, considering their effectiveness and potential impacts on different sectors of the economy. • Develop and propose solutions to macroeconomic problems, using theoretical frameworks and empirical evidence.
4	CC-IV	Mathematical Methods for Economics II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental mathematical concepts and techniques related to linear models, higher-order derivatives, integration, and optimization. • Explain the principles and methods underlying linear models, derivatives, integration, and optimization in economic contexts. • Use mathematical techniques to solve economic problems involving linear models, differentiation, integration, and optimization. • Break down complex economic problems into simpler mathematical components to understand their structure and implications. • Critically assess mathematical solutions to economic problems, considering their validity and economic implications. • Develop and propose mathematical models and solutions to economic problems using advanced mathematical methods.
5	CC-V	Microeconomics I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental concepts and definitions in consumer theory, production theory, costs, and profit maximization. • Explain the principles and models of consumer behavior, production processes, cost structures, and profit maximization. • Use economic models to analyze consumer choices, production decisions, and profit maximization strategies. • Break down complex economic scenarios involving consumer behavior, production, and profit maximization into simpler components to understand their underlying factors. • Critically assess the implications of consumer decisions, production choices, and profit-maximizing strategies on market outcomes and welfare. • Develop and propose solutions to economic problems using the frameworks of consumer theory, production theory, and profit maximization.
6	CC-VI	Macroeconomics I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental concepts and definitions related to consumption, investment, money demand and supply, aggregate demand and supply, inflation, unemployment, expectations, and trade cycles. • Explain the principles and theories underlying consumption and investment, money market dynamics, aggregate demand and supply, inflation, unemployment, expectations, and trade cycles. • Use macroeconomic models to analyze real-world economic scenarios involving consumption, investment, money demand and supply, aggregate demand and supply, inflation, unemployment, and trade cycles.



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			<ul style="list-style-type: none"> • Break down complex macroeconomic issues into simpler components to understand their underlying factors and implications. • Critically assess macroeconomic policies and their effectiveness in addressing issues like inflation, unemployment, and trade cycles. • Develop and propose solutions to macroeconomic problems using theoretical frameworks and empirical evidence.
7	CC-VII	Statistical Methods for Economics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall basic statistical concepts and terminology used in economics. • Explain the principles and methods of descriptive and inferential statistics in the context of economic data. • Use statistical methods to organize, summarize, and present economic data effectively. • Analyze economic data using statistical techniques to identify patterns, relationships, and trends. • Critically assess the results of statistical analyses and their implications for economic theory and policy. • Develop and propose statistical models to address economic problems and test economic hypotheses.
8	CC-VIII	Microeconomics II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall fundamental concepts and theories related to firm supply, market equilibrium, general equilibrium, efficiency, welfare, market imperfections, monopoly, oligopoly, and game theory. • Explain the theoretical foundations and principles underlying firm supply and market equilibrium, general equilibrium, efficiency and welfare, market imperfections, and game theory. • Use microeconomic models and theories to analyze real-world market scenarios involving firm supply, market equilibrium, general equilibrium, efficiency, welfare, and market imperfections. • Break down and examine the impacts of market structures, such as monopoly and oligopoly, on economic outcomes, efficiency, and welfare. • Critically assess different market structures and their effects on efficiency and welfare, considering both theoretical and empirical perspectives. • Develop and propose strategies and policies to address market imperfections and improve market outcomes using game theory and other microeconomic tools.
9	CC-IX	Macroeconomics II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key concepts and theories related to economic growth modeling, open economy macroeconomic policy, classical and Keynesian macroeconomic thoughts, and monetarist and new classical macroeconomic thoughts. • Explain the theoretical foundations and principles underlying economic growth modeling, open economy macroeconomic policy, classical and Keynesian macroeconomic theories, and monetarist and new classical macroeconomic theories. • Use macroeconomic models and theories to analyze real-world macroeconomic issues related to economic growth, open economy policies, and different schools of macroeconomic thought. • Analyze the differences and similarities between classical, Keynesian, monetarist, and new classical macroeconomic



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			<p>theories in terms of their assumptions, implications, and policy recommendations.</p> <ul style="list-style-type: none"> • Critically evaluate the strengths and weaknesses of different macroeconomic theories and their relevance to contemporary economic issues. • Develop and propose macroeconomic policies and strategies based on different macroeconomic theories to address economic challenges and promote sustainable economic growth.
10	CC-X	Research Methodology	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall key research terminologies and concepts used in economics research methodology. • Explain the principles and importance of research design and methodology in economic research. • Apply quantitative and qualitative research methods commonly used in economics to formulate research questions and hypotheses. • Analyze and interpret economic data using appropriate statistical and econometric techniques. • Evaluate the ethical considerations involved in conducting economic research, including issues related to data privacy and confidentiality. • Design a comprehensive research proposal in economics that includes research questions, methodology, data collection techniques, and analytical methods.
11	CC-XI	Indian Economy I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and understand fundamental concepts, characteristics, and historical context related to the Indian economy. • Understand the reasons behind India's status as a developing economy, the interplay between population dynamics and economic development, and the objectives of economic planning. • Apply economic indicators, demographic data, and knowledge of economic planning to analyze India's economic growth story and development strategies. • Analyze current challenges, policy impacts, and the effectiveness of economic planning in India. • Evaluate the outcomes and implications of India's economic growth, economic planning, and demographic trends. • Synthesize knowledge and skills to develop policy recommendations, analytical reports, and strategic frameworks for addressing economic challenges and leveraging opportunities in India.
12	CC-XII	Development Economics I	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and understand fundamental concepts, theories, and definitions related to economic development, poverty, inequality, and institutional frameworks. • Understand the theories of economic growth and development, the causes and implications of poverty and inequality, and the roles of agriculture, industry, and institutions in development. • Apply economic theories, empirical methods, and data analysis techniques to analyze development patterns, poverty, inequality, and sectoral contributions in developing countries. • Analyze development strategies, policy impacts, and the relationships between institutions, inequality, and economic outcomes in developing economies.



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			<ul style="list-style-type: none"> • Evaluate theories, policies, and institutional impacts on development outcomes, poverty, inequality, and economic growth in developing countries. • Synthesize knowledge and skills to develop policy recommendations, research proposals, and strategies for promoting inclusive growth, reducing inequality, and addressing development challenges in developing economies.
13	CC-XIII	Indian Economy II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and understand fundamental concepts, historical developments, and key sectors (agriculture, industry, tertiary) in the Indian economy. • Understand the factors influencing agricultural productivity, challenges and opportunities in industrial development, and the roles of HRD and the external sector in India's economy. • Apply economic theories, industrial economics concepts, and trade theories to analyze trends, policies, and dynamics in agriculture, industry, and external trade in India. • Analyze the impacts of agricultural and industrial policies, as well as the contribution of the service sector, on economic growth, employment, and environmental sustainability in India. • Evaluate the effectiveness of policies and strategies in agriculture, industry, and trade, as well as assessing their impact on inclusive growth, regional disparities, and environmental sustainability in India. • Synthesize knowledge and skills to develop policy recommendations, analytical reports, and strategic frameworks for addressing challenges and promoting growth, competitiveness, and sustainability across different sectors of the Indian economy.
14	CC-XIV	Development Economics II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and understand fundamental concepts, theories, and issues related to population dynamics, dualism, and environmental challenges in development economics. • Understand the demographic factors influencing economic development, theories of dualism, and the concepts of sustainable development and environmental policies. • Apply demographic theories, dual economy models, and environmental economics concepts to analyze policies and trends in population, dualism, and environmental sustainability in developing countries. • Analyze the impacts of population growth, dualism, and environmental policies on economic development, poverty, inequality, and environmental sustainability in developing countries. • Evaluate the effectiveness of policies and strategies in population management, reducing dualism, and promoting sustainable development and trade practices in developing countries. • Synthesize knowledge and skills to develop policy recommendations, research reports, and strategies for addressing demographic challenges, income disparities, and environmental sustainability in the context of development economics.
15	DSE-I	Economic History of India (1857-1947)	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall and understand key events, policies, and figures in India's economic history from 1857 to 1947. • understand the economic structure of British colonial rule in India, its policies, and their socio-economic impacts.



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			<ul style="list-style-type: none"> • apply economic theories and historical analysis to evaluate economic consequences, nationalist movements, and policy responses during the colonial era. • analyze the impacts of colonial policies, industrialization, and nationalist movements on India's economy and society. • evaluate the economic legacy of colonialism, the effectiveness of nationalist economic agendas, and the economic factors influencing India's path to independence. • synthesize knowledge and skills to develop policy recommendations, research papers, and strategies for addressing historical economic challenges and integrating lessons into contemporary economic policies.
16	DSE-II	Introductory Econometrics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • recall and understand fundamental concepts, principles, and techniques of econometrics. • understand the theoretical foundations, assumptions, and interpretations of econometric models and results. • apply econometric techniques to estimate models, analyze data, and test hypotheses using real-world economic data. • analyze econometric results, diagnosing model problems, and assessing the limitations and biases of econometric research. • evaluate the appropriateness, robustness, and ethical considerations of econometric models and research methods. • synthesize knowledge and skills to develop econometric models, research proposals, and policy recommendations based on econometric analysis.
17	DSE-III	Environmental Economics	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and understand fundamental concepts, principles, policies, and economic tools used in environmental economics. • Understand the causes of environmental degradation, economic theories/models, and the role of market-based instruments in environmental management. • Apply economic principles and methods to analyze environmental issues, conduct valuation studies, and design policy solutions. • Analyze the effectiveness of environmental policies, assessing distributional impacts, and examining empirical data on economic-environmental relationships. • Evaluate ethical, equity, and sustainability aspects of environmental policies, economic growth patterns, and international cooperation in environmental management. • Synthesize knowledge and skills to develop policy recommendations, research projects, and strategies for integrating environmental considerations into economic decision-making.
18	GE-I	Indian Economy	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none"> • Recall and understand fundamental concepts, characteristics, challenges, and reforms related to the Indian economy. • Understand the structure, evolution, and significance of agriculture, industry, and the service sector in India's economic development. • Apply economic theories and principles to analyze and assess policies, challenges, and growth opportunities in agriculture, industry, and the service sector. • Analyze the factors driving productivity, growth, and structural transformation in agriculture, industry, and the service sector of the Indian economy.



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			<ul style="list-style-type: none">• Evaluate the effectiveness of policies, reforms, and economic sectors in addressing challenges and promoting sustainable development and growth in India.• Synthesize knowledge and skills to develop policy recommendations, strategic plans, and growth strategies for enhancing agriculture, industry, and the service sector in India.
19	GE-II	Indian Economy II	<p>After completion of this paper student will be able to</p> <ul style="list-style-type: none">• Recall and understand fundamental concepts, components, and principles related to India's external sector, financial markets, and public finance.• Understand the role, significance, and operational frameworks of India's external sector, financial markets, and fiscal policies.• Apply economic theories, principles, and analytical tools to analyze and assess policies, trends, and challenges in India's external sector, financial markets, and public finance.• Analyze the factors, trends, and patterns influencing India's external sector, financial markets, and public finance to draw meaningful insights and recommendations.• Evaluate the impacts, effectiveness, and challenges of policies, regulations, and economic strategies in India's external sector, financial markets, and public finance.• Synthesize knowledge and skills to develop policy recommendations, strategic plans, and reform strategies aimed at addressing current economic challenges and promoting sustainable economic development in India.