HARISH CHANDRA POST GRADUATE COLLEGE

Affiliated to Mahatma Gandhi Kashi Vidyapith, Varanasi

SESSION: 2023-24

COURSE OUTCOME (CO), PROGRAM OUTCOME (PO), PROGRAM SPECIFIC OUTCOME (PSO)

Mechanism of Communication: The College has a clear vision about the stated learning outcomes of the Programs and Courses. The learning outcomes are communicated to students and teachers in the following way:

- Hard copy of syllabi and Learning Outcomes are available in the departments for ready reference the teachers and students.
- Soft Copy of Curriculum and learning Outcomes of Programs and course are also uploaded on College Website for reference.
- The importance of the learning outcomes has been communicated to the teachers in every IQAC Meeting and College Committee Meetings.
- The Students are also made aware of the same through Tutorial Meetings.

PROGRAM	COURSE	COURSE OUTCOME (CO)	PROGRAM OUTCOME (PO)	PROGRAM SPECIFIC OUTCOME (PSO)
B.Com. I-VI Semester	**SEMESTER I** **C010101T:** Business Organization **C010102T:** Business Statistics **C010103T**: Business Communication **C010104T:** Introduction to Computer Application	1. Ability to understand the concept of Business Organisation along with the basic laws and norms of Business Organisation. 2. Ability to understand the terminologies associated with the field of Business Organisation along with their relevance. 3. Ability to identify the appropriate and functioning of Business Organisation for solving different problems.	The career options for students pursuing B.Com. Programme is vast and candidates will always have interesting profiles to work at if they play to their strengths. While many B.Com. Graduates may choose the much tried and tested path of CA, CS, CMA and other related fields of study, one has ample opportunity to choose an out-of-the-box career option, as	Earning a graduate degree of commerce (B.Com.) is evidence of persistence, determination, intellectual prowess, and the ability to handle challenging environments all of which are sought-after qualities for individuals filling manager and director positions. An employee who has demonstrated

		4. Ability to apply basic Business Organisation principles to solve business and industry related problems. 5. Ability to understand the concept of Sole Proprietorship, Partnership and Joint Stock Company etc. 6. The purpose of this paper is to inculcate and analytical ability among the students. 7. To acquire skills in reading, writing, comprehension and communication, and also to Electronic media for business communication. 8. The objective of this course is to provide basic knowledge of computer, DBMS, database Language and word processing	one in travel and hospitality, media and telecommunications depending on the path and degree one chooses.	success in a long-term situation that requires stamina, discipline, leadership, and the ability to work well with others is going to be in line for growth opportunities within his or her organization. B.Com. graduate after completion of course can choose to work in job profile option available to them depending on their caliber and interest area such as Accountant, Auditor, Consultant, Company Secretary, Business Analyst, Finance Officer, Sales Analyst, Junior Analyst, Tax Accountant, Stock Broker, Economist, and Business Development Trainee and so on to explore.
	SEMESTER II **C010201T:** Business Management **C010202T:** Financial Accounting **C010203P:** Computerized Accounting **C010204T:** Essentials of E-Commerce **C010205T:** Business Economics	1. Ability to understand the concept of Business Management along with the basic laws and norms of Business Management. 2. Ability to understand the terminologies associated with the field of Business Management and control along with their relevance. 3. Ability to identify the appropriate method and techniques of Business Management for solving different problems. 4. Ability to apply basic Business Management principles to solve business and industry related problems. 5. Ability to understand the concept of Planning, Organising, Direction,		

		Motivation and Control etc. 6. The objective of this course is to provide basic knowledge of concepts, principles, tools and techniques of marketing 7. The purpose of this paper is to provide knowledge of accounting with computer. 8. This course is to familiarize the student with the basic of e-commerce and to comprehend its potential. 9. Course outcomes: Business Economics objective this course is meant to acquaint the students with the principles of Business Economics as are applicable in business.		
	SEMESTER III **C010301T:** Company Law **C010302T:** Cost Accounting **C010303T:** Business Regulatory Framework **C010304T:** Inventory Management	1. The objective of this course is to provide basic knowledge of the provisions of the companies Act 2013 along with relevant cases. 2. This course exposes the students to the basic concepts and the tools used in cost accounting. 3. The objective of this course is to provide a brief idea about the framework of India Contract Act, 1872 and Sale of Goods Act, 1930. 4. Ability to understand the concept of Inventory Management along With the basic laws and axioms of Inventory Management. 5. Ability to understand the terminologies associated with the field of Inventory management and control along with their relevance.		

		6. Ability to identify the appropriate method and techniques of Inventory management for solving different problems. 7. Ability to apply Inventory management principles to solve business and industry related problems. 8. Ability to understand the concept of Working Capital Management, Demand Analysis and Obsolescence.		
	SEMESTER IV **C010401T:** Income Tax Law and Accounts **C010402T:** Fundamentals of Marketing **C010403P:** Digital Marketing **C010404T:** Fundamentals of Entrepreneurship **C010405T:**Tourism and Travel Management	1. It enables the students to know the basics of Income Tax Act and its implications. 2. The objective of this course is to provide basic knowledge of concepts, principles, tools, techniques of marketing 3. Ability to understand the concept of Digital Marketing along with the basic forms and norms of Digital Marketing. 4. Ability to understand the terminologies associated with the field of Digital Marketing and control along with relevance. 5. Ability to identify the appropriate method and techniques of Digital Marketing for solving different problems. 6. Ability to apply basic Digital Marketing principles to solve business and industry related issues and problems. 7. Ability to understand the concept of Budgetary Control, Cash Flow		

		Statement, Fund Flow Statement, Break Even Analysis etc. 8. Ability to understand the concept of Entrepreneurship along with the basic laws and practices of Entrepreneurship. 9. Ability to understand the terminologies associated with the field of Entrepreneurship along with their relevance. 10. Ability to identify the appropriate functions and qualities of Entrepreneur for solving different problems. 11. Ability to apply basic Entrepreneurship principles to solve business and industry related problems. 12. Ability to understand the concept of Life Small Business, Raisin of Funds and EDP. 13. To understand the fundamental concept of Tourism and to familiarize with the significance and emerging in trends in tourism.		
	SEMESTER V **C010501T:** Corporate Accounting **C010502T:** Goods and Services Tax **C010503T:** Business Finance **C010504T:** Principles and Practices of Insurance **C010505T:** Monetary Theory and Banking in India	1. This course enables the student to develop awareness about corporate accounting in 2. Conformity with the provisions of company act. 3. Course outcomes: To provide students with the working knowledge of principles and provisions of GST to understand the relevance of GST in the present Indian tax in scenario and its contribution for economic		

development

4. This course is to help students understand the conceptual framework of Business Finance.
5. Ability to understand the concept of Insurance along with the basic laws and practices of Insurance.
6. Ability to understand the terminologies associated with the field of Insurance and control along with their relevance.
7. Ability to identify the appropriate method and types of Insurance for solving different problems.
8. Ability to apply basic Insurance principles to solve business and industry related problems.
9. Ability to understand the concept of Life, Marine and Fire Insurance.
10. The course exposes the students to the working for money and financial system prevailing in India.

	SEMESTER VI **C010601T:** Accounting for Managers **C010602T:** Auditing **C010603R:** Comprehensive Viva **C010604T:** Financial Institutions and Market **C010605T:** Human Resource Management **C010606T:** Business Ethics and Co rate Governance	1. Ability to understand the concept of Managerial Accounting along with the basic forms and norms of Managerial Accounting. 2. Ability to understand the terminologies associated with the field of Managerial Accounting and control along with relevance. 3. Ability to identify the appropriate method and techniques of Managerial Accounting for solving different problems. 4. Ability to apply basic Managerial Accounting principles to solve business and industry related issues and problems. 5. Ability to understand the concept of Bud 6. Control Cash Flow Statement Fund Flow Statement Break Even Analysis etc. 7. This course aims at imparting knowledge about the principles and methods of auditing and their application. 8. Ability to understand the concept of Financial Market along with the basic forms and norms of Financial Market 9. Ability to understand the terminologies associated with the field of Financial Market and control along with their relevance. 10. Ability to identify the appropriate method and techniques of Financial Market for solving different problems.		

		11. Ability to apply basic Financial Market principles to solve business and industry related problems. 12. Ability to understand the concept of Primary and Secondary Market, Stock Exchange, SEBI etc. 13. The paper aims to develop in the students a proper understanding about human resource management. 14. This course seeks to provide knowledge about the concepts, tools, techniques, relevance of Business Ethics and Co rate Governance in the present changing scenario.		
B.A. I -VI Semester HINDI	**Semester I** **A010101T:** हिन्दी काव्य	हिंदी काव्य के प्रतिनिधि कवियों की कविताओं के विषय में जानकारी देना तथा हिंदी काव्य के संक्षिप्त इतिहास की जानकारी देकर विद्यार्थियों को हिंदी कविता के विकास क्रम में अवगत कराना।	हिंदी कव्य एवं गद्य साहित्य के इतिहास की विराट परंपरा का ज्ञान तथा कंप्यूटर का विविध अनुप्रयोग। हिंदी के विद्यार्थियों को कार्यालय की जानकारी प्रदान करना। कार्यालयी हिंदी भाषा के द्वार कार्यालयी कामकाज करने में सक्षमता प्राप्त करना, अनुवादक के रूप में रोजगार की संभावना आदि।	
	Semester II **A010201T:** कार्यालयी हिन्दी और कंप्यूटर	हिन्दी के विद्यार्थियों को कार्यालय के कार्यों की मूलभूत जानकारी प्रदान करना ताकि वह कार्यालय के कार्यों को सुगमतापूर्वक कर सकें एवं उन्हे कंप्यूटर का मूलभूत ज्ञान देना तथा उन्हें कंप्यूटर पर हिन्दी में कार्य करने में सक्षम बनाना वे कंप्युटर पर कार्य करने में सक्षम होकर रोजगार प्राप्त कर सकें।		
	Semester III **A010301T:** हिन्दी गद्य	1. विभिन्न साहित्यिक विधाओं की समग्र समझ। 2. विधाओं की इतिहास और कला चेतना		

		के अन्योन्याश्रित सम्बन्ध की समझ। 3. आलोचना, उपन्यास, कहानी, एकांकी की प्रतिनिधि रचनाओां के माध्यम से समय-चेतना की समझ। 4. निबंधों के माध्यम से तारर्किकता और मूल्य चेतना की सम्पदा-प्राप्ति। 5. रेखाचित्र संस्मरण रिपोताज रेखाहचत्र, सांस्मरण, रिपोर्ताज, यात्रा-वृतांत जैसी आधुनिक गद्य विधाओं से साहित्य, संस्कृति और साहित्य, संस्कृति और संवैधानिक मल्यों की समझ।		
	Semester IV **A010401T:** हिन्दी अनुवाद	1. अध्ययनोपरांत विद्यार्थी अनुवाद की मूलभूत अवधारणा को समझ सकेंगे तथा वैश्विक पटल पर इसकी संभावनाओं सीमाओंएवं रोजगारपरकता का संज्ञान कर पाएंगे। 2. अध्ययनोपरांत विद्यार्थी सामाजिक सांस्कृतिक संबंधों तथा अंतर्विरोधों को समझने में समर्थ होंगे एक लोकतान्त्रिक राष्ट्र- समाज में भाषाई वर्चस्व और इसके बहाने थोपे जाने वाले भाषाई-सांस्कृतिक सामराज्यवाद को विश्लेषित करते हुए प्रखर बौद्धिक एवं चिंतक व्यक्तित्व प्राप्त करने में समर्थ हो सकेंगे। 3. अध्ययनोपरांत विद्यार्थी अनुवाद की सटीकता एवं विषय-वस्तु से संबद्धता को समझते हुए अनुवाद कौशल विकसित कर सकेंगे।		

		4. अध्ययनोपरांत विद्यार्थी विभिन्न प्रकार के कार्यालयी अनुवादों से सैद्धांतिक एवं तकनीकी पक्षों को जान सकेंगे और अभ्यास-कार्य के माध्यम से दक्ष अनुवाद के रूप में विकसित हो सकेंगे।		
	Semester V **A010501T:** साहित्याशास्त्र और हिन्दी आलोचना	1. विद्यार्थी इस यूनिट के अध्ययन के पश्चात समाज के प्रति संवेदनशील एवं कर्तव्यनिष्ठ हो सकेंगे। 2. इस यूनिट से विद्यार्थी की सांप्रेषण क्षमता का विकास होगा। इससे सामाजिक संपर्क में सुविधा होगी। 3. इससे विद्यार्थी अपने देश की भाषा एवं व्याकरण की सही समझविकसित कर सकेगा। इससे मानवीय व्यवहार करने में सहयोग मिलेगा। 4. इससे विद्यार्थी समाज के स्थापित नायक-खलनायक में भेद करना सीखेगा। समाज के विकास हेतु आदर्श कैसा हो यह भी सीखेगा। किसी भी घटना के कार्य-कारण सम्बन्धों की समझ विकसित होगी।		
	Semester VI **A010607T:** भाषा विज्ञान, हिन्दी भाषा देवनगिरी लिपि	1. अध्ययनोपरांत विद्यार्थी भाषा एवं भाषा विज्ञान की परिभाषा प्रारूप एवं प्रयोग से अवगत हो सकेंगे इसकी विभिन्न शाखाओं के आयामों को जान सकेंगे। 2. अध्ययनोंपरांत विद्यार्थी हिन्दी भाषा की सांरचना एवं इसके विभिन्न स्तरों से परिचित हो सकेंगे।		

		3. हिन्दी की व्यापक और लचीली शब्द परांपरा को जान सकेंगे और इसकी निर्मिती में उप भाषाओं व बोलियों के महत्व को रेखांकित कर सकेंगे।		
B.A. I –VI Semester **ENGLISH**	**Semester I** **A040101T:** English Prose and Writing Skills **Semester II** **A040201T:** English Poetry **Semester III** **A040301T:** British and American Drama **Semester IV** **A040401T:** Indian Literature in Translation **Semester V** **A040501T:** Classical Literature & History of English Literature **A040502T:** Fiction **Semester VI** **A040601T:** Indian & New Literatures in English **Any one of the following :** • **A040602T:** Literature in Films & Media Studies • **A040603T:** Media and Journalistic Writing		The objective of this course is to make students develop their reading skills and enhance their linguistic competence. The goal of literature in education is to help students reach their full potential by fostering their intellectual, spiritual, emotional, and physical well-being. This helps them develop into peaceful, well-balanced people with good social standards. The teaching of English provides a tremendous opportunity to students to acquire deeper insight into the world and its ways. The understanding of the diversity of cultures and peoples is more easily incorporated by students. It adds on to develop literary sensibility among students and instill values related to human concerns. The purpose of teaching English literature is to acquaint the students with the major poets, novelists, dramatists, thinkers and understand various worldviews which persists in their writings. This will inculcate in students the capacity to comprehend,	

			evaluate, and critically analyze literary works from the viewpoint of literary theory and history. It helps to broaden their vocabulary and to widen the understanding of language with its denotations and connotations.	
B.A. I & II Semester SANSKRIT	**Semester I** Sanskrit Padya Sahitya evam vyakran. **Semester II** Gadya Sahitya ka udbhav evam vikas. **Semester III** Sanskrit Natak evam Vyakran **Semester IV** Kavyashastra evam Sanskrit lekhan kaushal **Semester V** Vaidikwadmay evam bharitiya darshan Vyakran evam bhasha vigyan **Semester VI** **PAPER I:** Adhunik Sanskrit sahitya **PAPER II(A):** Yog evam prakritik chikitsa **PAPER II(B):** Ayurved evam swasthya vigyan		After becoming successful completion of all undergraduate general degree students should be able to achieve the following objectives. Students will be able to know ancient Indian history of literature and literary criticism. Grammar is very important part of this language to make a sentence, to know appropriate meaning of texts, oral communication and perfection. They will learn about the Indian Philosophy, Religion and Culture in Sanskrit tradition. Through Gita they also develop their personality. Ayurveda will help them to know the Indian medical tradition. They will also know Nation and	PSO1. Develop a strong concept of ancient Indian history, philosophy and literature. PSO2. Enhance communication skills- Listening, Speaking, Reading, Writing. PSO3. Students will be able to write Devnagari scripts which provide them the paleographical knowledge to read out the script of modern languages like Hindi and Marathi. PSO4.Students will demonstrate the skill needed to participate in conversation that builds knowledge with collaboration. PSO5. Students will gain knowledge of the major

			Nationalism through Sanskrit literature. The students will able to learn the yoga, their concept, features etc.	traditions of literatures written in Sanskrit. PSO6. To make them eligible for higher education. PSO7. Prepare students for the profession of teacher, WBCS, UPSC etc.
B.A. I - VI Semester MEDIEVAL AND MODERN HISTORY	**Semester I** **A050101T:** Ancient and Early Medieval India (Till 1206 A.D.)		Acquaintance to Indian National Movement is indispensable for a student to make a sense of Indian Modern History and Nationalism. The course is designed to provide an overview of Indian freedom Struggle and key concepts of the Indian Nationalism to the students, which would evolve them into a conscientious citizen. The paper covers the history of Freedom Movement in a manner that each section, which played a vital role in independence of the country is introduced to the student.	
	Semester II **A050201T:** History of Medieval India (1206 A.D - 1757 A.D			
	Semester III **A050301T:** History of Modern India(1757A.D -1950 A.D)			
	Semester IV **A050401T:** History of Modern world (1453 A.D 1950A.D)			
	Semester V **A050501T(Optional):** Nationalism in India **A050502T(Optional):** History of Modern world (1453 A.D-1815A.D) **A050503T(Optional):** Socio-Cultural and Economic History of Medieval India 1200A.D-1700 A.D **A050504T (Optional):** Ethics in History **A050501R:** Research Methodology, Tour and Study of maps			
	Semester VI			

	A050601T: Era of Gandhi and Mass Movement. **A050602T (Optional):** History of Modern world(1815A.D-1945A.D) **A050603T (Optional):** Socio-Cultural and Economic History of Modern India 1700A.D- 1900 A.D **A050604T (Optional):** History and its Professional utility **A050601R:** Study of Languages used in Indian History			
B.A. I - VI Semester **ANCIENT HISTORY**	**I & II Semester** **YEAR I :**MG/2021/50: Early Civilization of India and World **MG/2021/51:** Political History of India (600 BC-647 AD)		The courses presented shall be useful in providing historical knowledge to the students, all this have been constructed in such a way that it will not only gain knowledge of ancient civilizations of India and the world, but can also be understood with the help of historical development. It contains details of political and cultural development of ancient India; students may be	In this Course, students may gain knowledge in terms of the origin and development of Indus civilization, Vedic culture and the life of Aryans, develop an understanding of the ancient society and state. The purpose of this course is to teach the ancient civilizations of the India and World.
	III & IV Semester **MG/2021/52:** Political History of North India (647 AD to 1200 AD) **MG/2021/53:** Political History of South India (550 AD-1300 AD)			

	V & VI Semester **MG/2021/54:** State, Economy & Society in Ancient India **MG/2021/55:** Elements of Indian Archaeology **MG/2021/56:** Study of Coins and Scripts of Ancient India **MG/2021/57:** Religion & Philosophy **MG/2021/58:** Art & Architecture **MG/2021/59:** Study of Cultural Heritage Sites & Museum Visit		familiar with it. Archaeology, Art, Culture, Religion and Philosophy of ancient India have been included in the courses. Through this, students will get acquainted with historical facts and get knowledge of pride of India and can develop a positive attitude towards History and Culture. Thus, students will be motivated to contribute towards nation building by making them aware of the composite culture of India. These courses will develop the logical ability of the students to do rational analysis of historical events and will develop research aptitude among the students. It will not only inspire the logical ability of the students but will also provide them employment oriented vision	To generate a sense of history among the students. 1. In which way, the initial stage of state formation in India could move forward? 2. How did the Mauryan empire become a pan-India empire? 3. How did art & culture develop in India during the process of decentralization? 4. How did the foreign invaders like Kushan-Yavan got absorbed in Indian society? This Course is focused on the political situation of Northern India after Harsha. Students will gain knowledge of how political decentralization arose in the Northern India after Harsha's rein and under what circumstances the Rajputas originated. This Course gives a historical account of new political situations and conflicts in ancient India.
B.A. I - VI Semester **POLITICAL SCIENCE**	**SEMESTER I** **A060101T:** Indian National Movement &Constitution of India **A060102P:** Awareness of Rights	Acquaintance of the Inspirations of Indian National Movement & Constitution is indispensable for a student to make a sense of Indian	After the completion of three year course the student is expected to exhibit a fairly detailed understanding of the	

	&Law	Political System. The course is designed to provide a overview of Indian freedom Struggle and key concepts of the Indian constitution to the student, which would evolve him into a conscientious citizen. This paper intends to arm the student with basic digital and legal awareness where by the student can leverage this in the job market. It also intends to make the student aware of his basic legal rights which would help him to stand up and help others.	basic ideas, concepts, institutions, processes of politics and government at national, regional and international levels. Besides the programme has ability enhancing courses which provide the learner opportunities to explore subjects beyond the discipline of political science. Further he would be able to appreciate and cultivate (i) Values, ethics, rights and duties (ii) Capacity and ability to apply theoretical knowledge in problem solving (iii) Effective communication skills to negotiate and comprehend different situations (iv) Interdisciplinary method of critical thinking (v) A general understanding about how knowledge of politics and how that can be applied to benefit the management and/or amendment of problems of mankind. (vi) Capability to articulate ideas in appropriate manner. (vii) Sensitivity towards diverse contexts, ethnic groups, minorities, marginalized groups and gender issues.	
	Semester II **A060201T:** Political Theory & Concepts	Understanding Political theory is integral and indispensable for a comprehensive and critical study of political science. The course is designed to train a student in the foundational issues of political theory, which is relevant for any in depth study and research.		
	Semester III **A060301T:** Political Process In India **A060302P:** Field Work Tradition In Social Sciences	Study of the functioning of Indian Democratic System is essential for a comprehensive understanding of the Indian Political System. The course is designed to train& acclimatize the student with the Indian Political System in action and explain the working relationship between citizens and state and among various units of the state. The student would be able to appreciate the trajectory of the Indian political system since independence. This paper intends to train students in carrying out empirical studies and field		

		work which would help him in research. This would sensitize him to the precautions that is required to carry a empirical study on socially relevant topics		
	Semester IV **A060401T:** Western Political Thought	This course introduces the students to the ancient, medieval and modern political thinking in the West. This would help them understand the manner in which ideas pertaining to ideal state, kingship, duties of the ruler and the ruled, rights, liberty, equality, and justice have evolved over a period of time		
	Semester V **A060501T:** Comparative Government And Politics (UK, USA, Switzerland & China. **A060502T:** Principles Of Public Administration **A060503P:** Public Policy Formulation and Administration In India. **A060504R:** Project 1	Politics is the mirror of the society. This paper will help the student in furthering his understanding of the world around. This would help him to appreciate other systems and make him critically analyze the pros and cons of these systems. Comparison is widely used method of scientific knowledge .This would help the student to find out why a certain system is appropriate and suitable to a given society. Administration being essential to every organization, this course aims to acquaint a student with fundamentals of public administration to. This would provide him an insight regarding the principles of administration in general and help him to bring out the best from existing set up. This would help him to prepare for administrative examinations too. It aims to provide interface between public policy and administration in		

		India. The essence of this paper is to appreciate the translation of governing philosophy into programmes and policies. Students will able to understand Political Process as well as Policy formulation process and the difficulties in implementing Programmes and Policies promised in Manifestoes. This paper intends to develop a comprehensive insight in the students so that given an opportunity they can initiate a minor research proposal or attempt a minor dissertation on their area of interest.		

	Semester VI **A060601T:** Indian Political Thought **A060602T:** International Relations And Politics **A060603R:** Project 2	This course is to familiarize the students with the larger political and social thinking and ideas in Modern India. Designed in a way to help students engage with various ideological dispensations that came to shape the normative thinking on India. This course seeks to equip students the basic tools for understanding International relations. It also introduces major events and developments that have shaped the contemporary international system. It aims to capture the changing dynamics of the international politics by taking up burning and relevant issues which have potential to alter its contours. This paper intends to develop a comprehensive insight in the students so that given an opportunity they can initiate a minor research proposal or attempt a minor dissertation on their area of interest		
B.A. I - VI Semester ECONOMICS	**Semester I** **A080101T:** Principle of Micro Economics	The students is familiarised and aquainted with basic concepts such as laws of demand and supply and elasticity etc so that he/she can comprehend them & familirise with day today happenings. The students learn and understand the concepts of consumer like cardinal utility and ordinal utility analysis. The students learn and understand		

		application of Indifference curve analysis in deriving demand curves, price effect, income effect and substitution effect. The students learn and understand the Theory of production- iso-quants, laws ofreturns to scale, law of variable proportion. The students learn, understand and compare between the Traditional and mcxiern theory of Demonstrate an understanding, usage and application of basic economic principles. Describe and apply the methods for analyzing consumer behavior through demand and supply, elasticity and marginal utility. Understand the role of alternative property rights in resource To analyze the behavioral patterns of different economic agents regarding profit, price, cost etc. The decision-making in different market situations such as perfect monopolistic competition, monopoly and oligopoly markets. To deal with the advance theoretical issues and their practical applications of distribution theories. General equilibrium, economic efficiency and market failure.		
	Semester II **A080201T:** Principles of Macro Economics	Explains national income, calculation methods of national income, and concepts related to		

		national income. Relates factors determine national income such as consumption, saving and investment. Interprets macroeconomic issues such as money, foreign exchange, inflation, unemployment, economic growth, and foreign trade. Identify types of banks, explain the meaning and function of commercial banks. illustrate how banks create credit, and suggest the instruments to control credit. Analyze different phases of trade cycle, demonstrate various trade cycle theories, understand the impact of cyclical fluctuation on the growth of business, and lay policies to control trade cycle.		
	Semester III **A080301T:History of Economic Thought**	To learn and discuss, at an advanced undergraduate level, how the economic thought has evolved over time. Introducing students to the critical comparison of the contributions of the main schools of economics. To intrcxiuce & highlight before the students about Indian Fßonomic Thinkers and their valuable contribution in the field of Economics.		

		The classical, the marginalize revolution and its application to the theories of general and partial equilibrium, the current macroeconomic debate between the neo-classical and the Keynesian school		
	Semester IV **A080401T:** Money, Banking and Public Finance	Understand simple concepts related with monetary economics and banking theory. Correlate and apply to current events & key models and concepts of monetary economics and banking theory. Appreciate the potential importance of monetary phenomenon in the economy. Understand the sources of finance both public and private Demonstrate the role of government to correct market failures and possible advantage of public financing. Understand the possible burden, benefits and distribution of various types of taxes among various classes of people, know the general trend and impact on general welfare and arouse them to suggest good and bad tax system.		
	Semester V **A080501T:** Environmental Economics, Economic Growth and Development	Basic concepts of ecology environment and economy Public Market failure, externalities and		

	A080502T: Optional Paper(Any 1) Elementary Statistics **Or** **A080503T:** Demography **A080504R:** Project: Computer Application in Economics	internalization of externalities Solution to environmental problems- the command and control approach, market based methods, tax tradable pollution permit, etc, carbon trading Sustainable development, environmental impact assessment CO 5: Global and local environmental concerns. It will be focussed on Local Issues of Economic Bearing. Realize the importance and influence of environment on the economy including the qualityof manpower. Arouse their feelings to make cleaner environment so as to achieve harmonious development. Understand that environmental problem is not the problem of a single country or region but a global problem/issue. To understand specific contributions on themes of economic analysis and concerning figure of economists still important in the international economic debate at the international level, through selected readings of their texts and linking the different positions of economic thought to		

		philosophical foundations and political implications. Demonstrate theoretical empirical analysis of economic growth process. Demonstrate an understanding of economic growth theory, development and policy implications. Demonstrate the role of quantitative techniques in the field of business/industry. Illustrate different types of equations, solve equations and system of equations, understand the concept of sets. Illustrate and apply basic set operations. If taken by the student then he can apply the basic concept learned in this paper to qualitatively enhance Dissertation/Project. To orient the students with the positive aspects of population and how it can help in the Economic Development of the nation To orient the students with various Quantitative and qualitative aspects of population and various demographic Techniques.		

		To expose the students to recent concepts and developments in Demography.		
	Semester VI **A080601T:** Indian Economy & Economy of Uttar Pradesh **Optional Paper(Any I)** **A080602T:** Ethics and Economics **Or** **A080603T:** Elementary Mathematics **A080604R:** Dissertation/Project On the LG Issues with Economic Focus plus Presentation on ppt. of the Dissertation	To help the students to recognize legal and ethical issues when making business decisions. To gain an enhanced understanding of following ethical rules and ethical constraints. To improve analytical problem solving and ethical decision making skills. Have a good command of the conceptual vocabulary of policy-making and policy-analysis. Distinguish between ethical, economic and political dimensions of public policy. Work with matrices and determine if a given square matrix is invertible. Learn to solve systems of linear equations and application problems requiring them. Learn to compute determinants and know their properties. Learn to find and use values of a matrix in economics. Learn about and work with vector spaces and subspaces. The objective of introducing		

		Dissertation/Project at the graduation level is to familiarise, acquaint and experience the local issues of economic implication or focused on economic wellbeing and behaviour of consumers/citizens. It aims at enabling the students to use and apply the learned economic principles vis-a-vis local economic issues. To enable them to learn preparation of questionnaire/interview schedule. The Template/Format of the Dissertation/Project shall be by the respective Department. The idea behind this is to develop economic thinking in the students through direct experience to real life.		
B.A. I - VI Semester GEOGRAPHY	**Semester I** **A110101T:** Physical Geography **A110102P:** Elements of Map and Surveying	The Earth geomorphic transition from beginning to present day. Plate tectonics and related movements Landforms carved by various agents of erosion Earth's climate and that factors that influence it Oceans system and biogeography of the world.	This course provides the basic ideas and concepts of Physical & Human aspect of Geography. This course intends to orient the learner with the Approaches to the broader discipline of Geography. It will help in developing analytical and critical thinking based on the themes and	

		Understand the basic idea of Map, Scale and Topographic sheets	issues of Geography.	
	Semester II **A110201T:** Human Geography **A110202P:** Thematic Mapping and Surveying	To understand the Concept, Nature, Meaning and Scope of Human Geography To understand the natural and Cultural Changes in and around the Human Environs and their interrelationship Understand the basic idea of Map, Scale and Topographic sheets	It eventually prepares the students to understand the development of the subject and delve around issues suited to the needs of the contemporary world. It will help in exhaustive understanding of the basic concepts of Geography and an awareness of the emerging areas of the field.	
	Semester III **A110301T:** Environment, Disaster Management and Climate Change **A110302P:** Statistical Techniques and Surveying	The course aim is to give basic understanding of concept Environment, Climate Change and Disaster Management. Understanding of the of appraisal and conservation of Environment and Natural Resources. It will help in developing understanding about various Impacts of Climate Change. This course shall introduce the basic concepts related to disaster Management. This paper shall help in understanding Global effort in field of disaster management. To differentiate between qualitative and quantitative information.	Acquisition of in-depth understanding of the applied aspects of Geography as well as interdisciplinary subjects in everyday life. Improvement of critical thinking and skills facilitating. The application of knowledge gained in the field of Geography in the classroom to the practical solving of societal problems. The programme orients students with tradition geographical knowledge along with advance contemporary skills like remote sensing and GIS.	

		To understand the nature of various data. To understand sampling methods for data To present data through graphical and diagrammatic formats. To use the concept of probability mainly the normal distribution.		
	Semester IV **A110401T:** Economic Geography **A110402P:** Weather Maps, Geological Maps and Surveying	Define Meaning, concepts and approaches of Economic Geography Understand the nature of Economic activities, Resource Distribution Understand the Effect of globalization on developing countries. Identify the various Survey Operations and Survey Instruments To understand the idea of Basic and applied Instrumental surveying		
	Semester V **A110501T:** Regional Geography **A110502T:** Basics of Remote Sensing and GIS **A110503R:** Tour and Tour report **A110504R:** Project Report-I	**T**o understand the concept of Region and Regional Planning. To familiarize the students with Theories and Models for Regional Planning. To develop understanding about concept of Development, Sustainable Development and Multi level planning Understand the Basic idea and		

		application of Remote sensing Techniques and Geographical Information System The variation among geographical locations. Interaction with people with different natural and cultural settings. Study physical and human geography of area being visited. Learn to prepare tour report.		
	Semester VI **A110601T:** Geography of India **A110602T:** Evolution of Geographical Thoughts **A110603P:** Remote Sensing and GIS **A110604R:** Project Report-2	Understand the contribution of Indian and other renowned Geographers Understand the concept of evolution of Geographical Thought. Understand and Conceptualize Remote Sensing and GIS Technique Understand the use of various image processing Software Basic idea of Geographical Information System In-depth knowledge and application of RS and GIS technology in research. Learn to prepare Project Report.		
B.A. I - VI Semester PSYCHOLOGY	**Semester I** **A090101T:** Basic Psychological Processes **A090102P:** Lab work	The students will learn about the fundamental processes and core psychological concepts, models, classical theories, varied perspectives, and will be able to apply them in their	Comprehension about the discipline, its research methods, related theories and models.	

		own and in others lives. It will also give the learner a clear understanding of the concepts like intelligence, motivation, emotion and personality. It Will develop critical analytical skills regarding these individualistic traits**.**	Knack to link up theory with individual experiences and varied applied settings. Capacity to practice professional skills in the area of psychological testing, assessment and counselling.	
	Semester II **A090201T:** Basic Research Methodology and Statistics **A090202P:** Lab Work/ Psychological Testing	Students will be imparted a variety of skills to design and conduct psychological experiments ensuring controlled conditions, report writing and interpretations Of the report. The learners will be able to comprehend psychological data and can put them on appropriate scaling method. Moreover, they will be getting hold of essentials of psychological testing along with various kinds of tests implemented. Students will be conferred an array of skills to carry out experiments in lab settings, design and conduct psychological experiments ensuring controlled conditions, report writing and interpretations of the	Development Of skills in specific areas related to specific specialization (e.g. psycho-diagnostics, counselling, learning disability, health, community mental health and organizational behaviour). A general understanding about how knowledge of psychology can be applied to benefit the management and/or amendment of problems of mankind. Capability to articulate ideas in appropriate manner, With scientific writing and authentic reporting.	
	Semester III **A090301T:** Psychology of Social Behaviour **A090302P:** Lab Work and Measurement of Social Behaviour	Students will be exposed to the mixture of skills such as how to conduct a psychological experiment for understanding social behaviour as well as psychological measurements and scientific reporting of the data. Students Will be exposed to the mixture of skills such as how to conduct a psychological experiment for understanding social behavior as	Sensitivity towards diverse contexts, ethnic groups, minorities, marginalized groups and gender issues Development Of skills and attributes Of empathy, team work, coordination,	

		well as psychological measurements and scientific reporting of the data.	cooperation, conflict resolution, and congruence.	
	Semester IV **A090401T Abnormal Psychology** **A090402P Assessment/Testing**	Course Outcome: The students Will able to understand criteria of abnormality and one's own behaviour and behaviour of others. By applying the knowledge of assessment, diagnosis, classification system and DSM categories, the learners' Will develop the sensitivity towards individual diversity and various approaches to the diagnosis and treatment of psychological disorders. Summarize clinical features of symptoms, etiology and valid and reliable treatment of diagnostic categories of mental health disorders.		
	Semester V **A090502T Positive Psychology** **A090503P Lab Work/Survey/Field Visit** **A090504R Research Project**	At the end of the course, the students will be inherited a variety of proficiency to conduct the screening and assessment Of psychological tools for examining developmental issues and disorders. The practicum of case study will let the students learn and execute an in-depth investigation Of a single person, group, event or community. At the end of the course, the student will able to develop an ability to identify the milestones in diverse domains Of human developments across the child, adolescent and adulthood stages, understand the contributions of socio-cultural context toward shaping human development and acquire an ability to		

		decipher key developmental challenges and issues. By the end of the course, the students will be able to understand the basic principles of positive psychology, the major areas within positive psychology that have received a considerable amount of attention, the use of positive psychology tcxjls and techniques in own and in other's life. It will also ease the understanding Of positive aspects Of human behaviour through the wisdom embedded in Indian scriptures like Vedas, Upnishad, Shrimad Bhagwad Gita, Buddhist literature and folk tales. After completing this practicum, the student will have an understanding about how to frame research objectives and questions, plan, decide and execute appropriate methods of research, data analysis, interpretation and discussion of the findings. After completing this practicum, the student will have a comprehensive understanding about carrying out research project, how to frame research objectives and questions, plan, decide and execute appropriate methods of research, and intended data analysis.		

	Semester VI **A090601T:** Community and Health Psychology **A090602T:** Counselling Psychology **A090603P:** Survey/Field/Visit/Project Work **A090604R:** Research Project	At the end of the course the student will be able to recognize that individuals relate to their communities and the reciprocal effect Of communities on individuals and will able to understand and resolve community issues, analyze the data, and recommend interventions that promote community wellness. Moreover, they will able to use the psychological theories on health-related practices and will able to examine persons' health history and describe and enact a positive, proactive attitude toward healthy living for oneself and others. At the end Of the paper, students will able to understand how to establish rapport and use various approaches in counselling. After completing this practicum, the student will have an understanding about how to frame research objectives and questions, plan, decide and execute appropriate methods of research, data analysis, interpretation and discussion Of the findings. It will help the learner to critically reflect on, review the scientific basis for, and integrate what you have learned and accomplished as a psychology student and Will prepare to explore the cultural, social, and ethical impact of psychological	

		application on community and daily life.		
B.A. I - VI Semester **EDUCATION**	**Semester I** **E010101T:** Conceptual Framework of Education **E010102P:** Practical	To understand the meaning, nature, scope and aims of education. To explain the factors of education and their interrelationship. To become aware of different agencies of education that influence education. To be acquainted with the Constitutional values and Educational provisions . Develop an stronger orientation towards research conceptualize the basic elements of Indian Constitution	This course is meant for future educators and educational administrators. Education is a process of acquisition of knowledge, values, culture and skills. After completion Of the program, Graduates will be able to correlate and apply Education with life situations. They will able to understand its interdisciplinary nature. Program will be helpful in conceptualization and synthesis of knowledge of Educational aspects in relation to: 1. Human Development, 2. Human Behaviour, 3. Teaching Learning, 4. Measurement and Evaluation, **5.** Society and Nation.	
	Semester II **E010201T:** Development and challenges of Indian Education System **E010202P:** Prepare a profile of any School (Class 6th - 12th) - Government / aided / Private	Understand the development of Indian Education during different ages Analyze the trends of Education running in the different educational systems. Narrate the major contributions of Indian Educational Heritage in the different fields of study. Discuss the views of foreign travelers about Indian cultural and educational heritage. Identify the problems of Indian		

		education at different levels of education. Assess the root cause of challenges faced by Indian education system. Develop an stronger orientation towards research Conceptualize the school profile preparation.		
	Semester III **E01030IT:** Philosophical-Sociological- Political-Economic Perspectives of Education **E0103021:** Practical: Review a book written by prominent educational thinkers included in the course .	Define Education an Philosophy. Explain difference between Darshan and Philosophy. Identify significant features of the Indian and Western philosophies. Illustrate the relevance of the Indian and Western philosophical for modern educational system and society. Compare the Indian and Western Philosophical thoughts. Define pluralism and diversity in Indian society. Relate Education with Political and Economic issues. Distinguish between Fundamental Rights and duties. Value role of Education for Sustainable Development Develop an stronger orientation		

		towards research Understand the concept of Book review.		
	Semester IV **E010401T:** Psychological Perspectives of Education **E010402P:** Practical: Prepare a Case study ofa Special Child	Define Education and Psychology. Relate Education and Psychology Compare characteristics and needs of different stages of development. Name different approaches of learning. Distinguish between different psychological traits. Identify Individual Differences. Examine the importance Mental Health. Illustrate Teaching Learning Process. Develop an stronger orientation towards research. Identify the different special children. Pre are a case study.		
	Semester V **E010501T:** Educational Assessment **E010502T:** Educational Statistics **E010503P:** Administration and Interpretation of Score of a psychological test Achievement/Intelligence/ Personality /Aptitude	Define assessment, measurement and evaluation. Enumerate and Illustrate Characteristics of a good test. Classify different psychological tests. Test Intelligence/Personality/Aptitude of a subject.		

	E010501R: Collection of Data related to Education, application of suitable statistical methods, analysis and interpretation of result. OR Visit to any type of University other than Distance University: 1. It's profile preparation. 2. Report on its administrative structure.	Define Statistical terms. Prepare graphical charts. Interpret the results various operations of statistics. Survey and collect data. Analyze the data with Suitable Statistical methods.		
	Semester VI **E010601T** Educational Administration and Management **E010602T:** Milestones and New Dimensions of Indian Education **E010603P:** 1. Visit to an Anganwadi Centre and report preparation. **2.** Write and submit an article on any trending Socio-Cultural Environmental Issue. **E010601R**: PROJECT Visit any Distance Education centre. Interview its administrator and five students. Compare the Distance Education and Regular Education and prepare report. OR For Understanding Social disadvantages, Interview an working child/ a child who has experienced natural calamity or war or Terrorist Attack/ Orphan," Urban or rural poor child/ a child who does not go to school/ or a person who got married	Describe different Educational Organizations. Compare Administration, Management and Supervision. Differentiate between inspection and supervision. List and differentiate the different education programs and schemes. Use MOOCs and SWAYAM. Collect and use material from OERs. Review e-journals and e-Magazines. Develop an stronger orientation towards research. Understand and Conceptualize ICDS and Anganwadi. Understand current issues and write an article.		

	as a child.	Understand Basic methods of research and different research tools		
B.A. I - VI Semester SOCIOLOGY	**Semester I** **A070101T:** Introduction to Basic Concepts of Sociology	This paper will introduce students to new concepts of Sociology discipline. These concepts will enhance the conceptual learning and understanding of the basic concepts used in Sociology. This paper will contribute in enriching the vocabulary and scientific temperament of the students. The course is designed to incorporate all the key concepts of sociology which would enable the learner to develop keen insights to distinguish between the commonsense knowledge and Sociological knowledge.	This course will introduce students to new concepts of Sociology discipline. These concepts will enhance the conceptual learning and understanding of the basic concepts used in Sociology. This course will contribute in enriching the vocabulary and scientific temperament of the students.	
	Semester II **A070201T:** Society in India: Structure, Organization & Change. **A070202P**: Writing skill development on topics of Contemporary Sociological Importance	This paper is designed in this manner, so that students are introduced to the concepts related to Indian They are made familiar with the Indian Society, its linkages and continuity with past and present. It also gives insights to analyze contemporary Indian society. This paper provides comprehensive understanding of Indian society This is the practical paper introduced in the second semester of the certificate course in order to develop writing skills among the students of Sociology. This would enhance and inculcate the analytical skills among the students. The paper is designed to enrich the conceptual vocabulary of the students, such that they are equipped With the writing style in	The course is designed to incorporate all the key concepts of sociology which would enable the learner to develop keen insights to distinguish between the commonsense knowledge and Sociological knowledge. This course provides comprehensive understanding of Indian society.	

		Sociology. This paper is presumably beneficial for the students who are interested in the field of Media, Journalism, Essay writer, Column writer, Photo , Journalism.	
	Semester III **A070301T:** Social Change & SOCI Movements	Course Outcomes: This paper is designed in manner, so that students are introduced to the concepts related to Social change and Social Movement. This course will introduce students to the dynamic aspect and dissension tendencies of society. The critical evaluation would enable students to come out with better suggestions, contributing in cohesion of society	
	Semester IV **A070401T:** Social Problems & Issues of Development in India **A070402R**: Projects on Sustainable Society	Course Outcomes: The syllabus is designed to introduce students to the emerging social problems, the concept and issues Of development in Indian Society. The course intends to focus upon the deviant and delinquent behaviour, issue of corruption and other disorganization and structural problems of Indian Society. The endeavour of the course is to make learners aware about the social problems and developmental issues in the Indian Society. The syllabus designed to introduce students to the emerging social problems and the concept and issues Of development in Indian Society. The project work will engage students directly in practical knowledge about the conducting research project. This project work will help learners to know about the issue of sustainability and	

		policies and programmes		
	Semester V **A070501T:** Classical Sociological Thought Research **A070502T:** Methodology in Social Sciences practical **A070503P:** Project Work	Course Outcomes: The course syllabus is designed to help students to know about the classical contributions of Pioneers of Sociology. The paper will focus upon the history of and the intellectual traditions originated during the crisis in Europe and the impact it had on the structures Of society. The learner will gain theoretical as well as methodological knowledge about the subject. The course of Research Methodology in Social Sciences/Sociology is structured in a way that it makes student to understand and comprehend the research problems, research techniques and nevertheless course intends to develop objective as well as subjective enquiry into the areas of Sociological studies. The main pumose of the course is to develop scientific and humanistic approach towards the research work in the subject. Research Methodologies comprise important part in the course structure of Sociology, hence the course is designed in such a way that student will learn the basic and useful techniques of research which will be beneficial in exploring the research questions and formulation Of Research Design. The student will learn how to construct schedules,		

		questionnaire and applicability of other research methods		
	Semester VI **A070601T**: Pioneers o Indian Sociology **A07602T:** Gender and Society **A070603R:** Field Work	The course outline has been delineated in a manner that the student of Sociology is able to gather knowledge about the esteemed Indian Pioneers of Sociology, who largely used indigenous methodology to understand the Indian society and its complexities. The learner Will be able to grasp information and knowledge about the approaches and theoretical framework adopted by the Indian and simultaneously they will know about the History of Sociology in India and Sociological traditions. This course is gender sensitive and is directed towards engaging students to learn and rethink about the gender issues. The course Will introduce students to the core gender issue and Will equip them to come with suggestions which would be directed towards gender equity. The syllabus is designed to introduce students to get themselves engaged in the field work and project work so that they are equipped with the practical knowledge about the field work and research project. This will be an empirical learning for those who aspire to become future Social Scientists.		
B.A. I - VI Semester PHYSICAL EDUCATION	**Semester I** **E020101T:** Course Title: Elementals of Physical Education	The physical education is very wide concept and this subject teaches about introduction and Sociological concept	Physical Education is a very wide subject in which biological, psychological,	

	E020102P: Course Title: Fitness and Yoga	of Physical Education and this also teaches about historical development of physical education in India and other countries. Its introduce a general concept of good health and wellness. This program will also help a student to promote healthy way of living and they will also be able to make fitness and health plan. Yoga is very helpful in prevention of many diseases and students will learn about it. This subject deals with basic knowledge about and Aerobics and Gymnasium classes which will help students to excel in the fitness industry.	physical, health and functional aspects of sports and body are studied. It is noteworthy that it is such a subject with the help of which human body both internally and externally can be kept healthy. Students will definitely be able to discharge duties towards themselves and society through this subject. Under this subject, the students can demonstrate excellently their skills and perfection particularly in sports ability, management, leadership, health plan, event management, sports budgeting, physiology, teaching methods, sports psychology and research along with getting information regarding to the importance of Physical Education for DIVYANG.	
	Semester II **E020201T**: Sports organization and Management **E020202P:** Practical Sports Event and Track & Field	This course is designed to give real time exposure to students in the area of organising an event/ sports. The students will also learn about store management, purchasing and budget making.		
	Semester III **E020301T:** Anatomy and Exercise Physiology **E020302P:** Health &Physiology	Students can be able to understand human structure and function as well as effects of exercise on various human body systems.		
	Semester IV **E020401T:** Sports Psychology And Recreational Activities **E020402P:** Sports Psychology	Students can be able to understand various aspects of psychology apply to sports person and how to organize sports and recreational activities.		
	Semester V **E020501T:** Athletic Injuries and Rehabilitation **E020502T:** Kinesiology and Biomechanics in Sports**:** **E020503P:** Rehabilitation and sports	Students can be able to understand Athletic Injuries and Athletic Care and Rehabilitation. Learn to Prepare Questionnaire. Learn to write research report.		

	E020504P: Project			
	Semester VI **E020601T:** Research methods **E020602T:** Course Title: Physical education for DIVYANG **E020603P:** Research and Sports **E020604P:** Research Project	Students can be able to understand Research methods in Sports and Physical Education. This subject will help the students to understand the needs of the disabled (DIVYANG) people and make them ready to tackle any situation which comes in front of them while dealing disabled people. This subject can also teach Inclusion in sports for adapted people. It will help the learner to understand the basic problems of school going students related to sports and Physical Education and finding their solution with the help of analyzed data.		
B.A./B.Sc. Semester I-VI MATHEMATICS	**Semester I** **B030101T:** Differential Calculus & Integral Calculus **B030102P:** Practical	The programme outcomes is to give foundation knowledge for the students to understand basics of mathematics including applied aspect for developing enhanced quantitative skills and pursuing higher mathematics and research as well. By the time students complete the course they will have wide ranging application of the subject and have the knowledge of real functions such sequence and series. They will also be able to know about of sequence and series. Also, they have knowledge about curvature, envelop and evaluates trace curve in Cartesian as well as parametric curves.		

		The main objective of the course is to equip the student with necessary analytic and technical skills. By applying the principles of integral he learns to evolve a variety of practical problems in science and engineering. The student is equipped with standard concepts and tools at an intermediate to advance level that will serve him well towards taking more advance level in mathematics. The main objective of the course is to equip the student to plot the different graph and solve the different of equations by plotting the graph computer software such as Mathematical IMATLAB 'Maple 'Scilab/Maxima etc. After completion of this course student would able to know the convergence of sequences through plotting, verify Bolzano-Weicrstrass plotting the sequence, Cauchy's test by plotting and Ratio test by plotting the ratio of n^{th} and $(n + 1)^{th}$ Student would be able to plot Complex numbers and their representations, addition, subtraction, Multiplication, Division, Modulus of form Student would able to Ft-form following task of matrix as Addition,		

		Multiplication, Inverse, Transpose, Determinant, Rank, Characteristic and verification of the the Cayley-Hamilton theorem, Solving the systems of linear equations.		
	Semester II **B030201T**: Matrices and Differential Equations & Geometry	The subjects of the course are designed in such a way that they on developing mathematical skills in algebra, calculus and analysis and give in dept knowledge of geometry, calculus, algebra and other theories. The student will be able to find the rank, Eigenvalues of matrices and study the linear homogeneous and non-homogeneous equations. The course in differential equation intends to develop problem solving skills for solving various types of differential equation and geometrical meaning of differential equation. The subjects learn and visualize the fundamental ideas about coordinate geometry and learn to describe some of the surface by using analytical geometry On successful completion of the course students have gained knowledge about regular geometrical figures and their properties. They have the foundation or higher course in Geometry.		
	Semester III **B030301T:** Algebra & Mathematical Methods	Group theory is one of the building blocks of modern algebra. Objective of this course is to introduce students to basic concepts of Group, Ring theory their properties.		

		A student learning this course gets a concept of Group, Ring, Integral Domain and their properties. This course will lead the student to basic course in advanced mathematics and Algebra. The course gives emphasis to enhance student's knowledge of functions of two variables, Laplace Transforms, Fourier Series On successful completion of the course students should have knowledge about higher different mathematical methods and will help him in going for Higher studies and research.		
	Semester IV **B030401T:** Differential Equations & Mechanics	The objective of this course is to familiarize the students with various methods of solving differential equations, partial differential equations of first order, second order and to have qualitative applications. A student doing this course is able to solve differential equations and is able to mcxiel problems in nature using ordinary differential equations. After completing this course, a student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, non-linear evolution equitation etc. These entire courses are important in engineering and industrial applications for solving boundary value problem. The object of the paper is to give		

		students knowledge of basic mechanics such as simple harmonic motion, motion under other laws and forces. The student, after completing the course can go for higher problems in mechanics such as Hydrodynamics, this will be helpful in getting employment industry.	
	Semester V **B030501T:** Group and Ring Theory & Linear Algebra **B030502T:** Any One of The Following (i) Number Theory & Game Theory (ii) Graph Theory & Discrete Mathematics (iii) Differential Geometry & Tensor Analysis	Linear algebra is a basic course in almost all branches of science. The objective of this course is to introduce a student to the basics of linear algebra some of its applications. The student will use this knowledge in computer science, finance mathematics, industrial mathematics and Bio mathematics. After completion of this course students appreciate its interdisciplinary nature.	
	Semester VI **B030601T:** Metric Space & Complex Analysis **B030602T:** Numerical Analysis & Operations Research **B030603P:**PRACTICAL	Upon successful completion, students will have the knowledge and skills to solve problems in elementary number theory and also apply elementary number theory to cryptography. This course provides an introduction to Game Theory. Game Theory is a mathematical framework which makes possible the analysis of the decision making process of interdependent subjects. It is aimed at explaining and predicting how individuals behave in a specific strategic situation, and therefore help improve decision	

		making. A situation is strategic if the outcome ofa decision problem depends on the choices of more than one person. Most decision problems in real life are strategic. To illustrate the concepts, real-world examples, case studies, and classroom experiments might be used.		
B.A./B.Sc. Semester I – VI STATISTICS	**Semester I** **B060101E:** Descriptive Statistics (Univariate) and Theory of Probability **B060102P:** Descriptive Data Analysis Lab (Univariate)	Knowledge of Statistics. its scope and importance in various fields. Ability to understand concepts of sample vs. population and difference between different types of data. Knowledge of methods for summarising data sets. including common graphical tools (such as boxplots, histograms and stemplots). Interplet histograms and boxplots. Ability to describe data with measures of central tendency and measures Of dispersion. Ability to understand measures of skewness and kurtosis and their utility and significance. Ability to understand the concept of probability along with basic laws and axioms of probability. Ability to understand the terms mutually exclusive and independence and their relevance.	Students having Degree in B.Sc. (with Statistics) should have knowledge of different concepts and fundamentals of Statistics and ability to apply this knowledge in various fields of industry. They may pursue their future career in the field of Statistics and Research.	**After completing B.Sc. (with Statistics t e student should have:** Knowledge of different concepts, principles, methodologies and tools (skills) of Statistics. Ability to collect, tabulate, represent graphically, analyze and interpret data/information by using appropriate statistical tools. Ability to identify and solve a wide range of problems in real life/industry related to Statistics. Familiarity with computational techniques and statistical software including programming language (e.g. R) for

		Ability to identify the appropriate method (i.e. union. intersection. conditional. etc.) for solving a problem. Ability to apply basic probability principles to solve real life problems. Ability to understand the concept of random variable (discrete and continuous), concept of probability distribution. Ability to represent/summarise the data/information using appropriate Graphical methods including common graphical tools (such as boxplots. histograms and stemplots) and also to draw inferences from these graphs Acquire the knowledge to identify the situation to apply appropriate measure of central tendency as per the nature and need of the data and draw meaningful conclusions regarding behaviour of the data. Acquire the knowledge to identify the situation to apply appropriate measure of dispersion as per the nature and need of the data and draw meaningful conclusions regarding heterogeneity Of the data. Ability to measure skewness and		mathematical and statistical computation. Capability to use appropriate statistical skills in interdisciplinary areas such as finance, health, agriculture, government, business, industry, telecommunication and bio-statistics. Ability to compete with industrial/private sector demand in the field of data analysis, marketing survey, etc, in professional manner and pursue their future career in the field of Statistics. Ability to develop original thinking for formulating new problems and providing their solutions. As a result, they will be able to pursue higher studies or research in the field of Statistics.

		kurtosis of data and define their significance. Acquire the knowledge to compute conditional probabilities based on Bayes Theorem .		
	Semester II **B060201T:** Descriptive Statistics (Bivariate) and Probability Distributions **B060202P:** Descriptive Data Analysis Lab (Bivariate)	Knowledge of the method of least squares tor curve fitting to theoretically describe experimental data with a function or equation and to find the parameters associated with the model. Knowledge of the concepts of correlation and simple linear regression and Perform correlation and regression analysis. Ability to interpret results from correlation and regression. Ability to compute and interpret rank correlation. Ability to understand concept of qualitative data and its analysis. Knowledge of discrete distributions. Discuss appropriate distribution negative binomial, Poisson, etc. with their progenies and application of discrete distribution models to solve problems. Knowledge of continuous distributions, Discuss the appropriate distribution (i.e. uniform, exponential, normal. etc,)		

		with their properties and application of continuous distribution models to solve problems. Knowledge of the formal definition of order statistics. derive the distribution function and probability density function of the r^{th} order statistic and joint distribution of n^{th} and s^{th} order statistics. Ability to identify the application of theory of order statistics in real life problems.		
	Semester III **B060301T:** Theory of Estimation and Sampling Survey **B060302P:** Sampling Survey Lab	Knowledge of the concept of Sampling distributions, Ability to understand the difference between parameter & statistic and standard error & standard deviation. Knowledge of the sampling distribution of the sum and mean. Ability to understand the t, f and chi-squate distribution and to identify the main characteristics of these distributions, Knowledge of the concept of Point and Interval Estimation and discuss characteristics of a good estimator. Ability to understand and practice various methods of estimations of		

		parameters. Ability to understand the concept of sampling and how it is different from complete enumeration. Knowledge of various probability and non-probability sampling methods along with estimates of population parameters Ability to identify the situations where the various sampling techniques shall be used. Knowledge of sampling and non-sampling errors. Knowledge Of regression and ratio methods Of estimation in simple random sampling (SIRS).		
	Semester IV **B060401T:** Testing of Hypothesis and Applied Statistics **B060402P:** Test or Significance and Applied Statistics Lab	Knowledge Of the terms like null and alternative hypotheses, two-tailed and one- tailed alternative hypotheses. significant and insignificant. level Of signiticance and confidence, p value etc. Ability to understand the concept of MP, UMP and UMPU tests Ability to understand under what situations one would conduct the small sample and large sample tests (in case of one sample and two sample tests).		

		Familiarity with different aspects Of Applied Statistics and their use in real life situations. Ability to understand the concept of Time series along with its different components. Knowledge of Index numbers and their applications along with different types of Index numbers. Familiarity with various demographic methods and different measures of mortality and fertility. Ability to understand the concept of life table and its construction. Knowledge to understand the concept of statistical quality control and different control charts for variables and attributes.		
	Semester V **B060501T:** Multivariate Analysis and Non-parametric Methods **B060502T**: Analysis of Variance and Design of Experiment **B060503T**: Non-parametric Methods and DOE Lab	Ability to understand the basic concepts of vector space and matrices in order to study multivariate distribution. Knowledge of the applications of multivariate normal distribution and Maximum Likelihood estimates of mean vector and dispersion matrix. Knowledge of Principal Component Analysis and Factor Analysis.		

		Ability to apply distribution free tests (Non-parametric methods) for one and two sample cases. Ability to conduct test of significance based non-parametric tests. Ability to deal with multivariate data. Knowledge of Principal Component Analysis and Factor Analysis. Ability to perform ANOVA for one way and two classification, Ability to perform analysis. Ability to conduct analysis of CRD. RBD and LSD with and without missing observations. Ability to conduct analysis for Factorial experiments (without confounding).		
	Semester VI **B060601T:** Statistical Computing and Introduction to Software **B060602T:** Operations Research **B060603P:** Operations Research and Statistical Computing Lab	Basic Knowledge of SPSS and R programming with some basic notions for developing their own simple programs and visualizing graphics in R, Ability to perform data analysis for both univariate and multivariate data sets using R as well as SPSS An idea about the historical background and need o Operations research Ability to identity and develop		

		operational research models from the verbal description of the real lite problems. Knowledge of the mathematical tools that are needed to solve optimization problems. Ability of solving Linear programming problem, Transportation and Assignment problems, Replacement problems, Job sequencing, etc. Ability to solve the problems based on Game Theory, Knowledge of mathematical formulation of L.P.P Ability of solving EPP using different methods. Ability to solve Allocation Problem based on Transportation and - Assignment model. Ability to solve problems based on Game Theory. Ability to use programming language R as Calculator. Knowledge Of using R in simple data analysis. Able to perform statistical analysis by using SPSS.	

B.A./B.Sc. Semester I- VI Journalism & Mass Communication	**Semester I** **A270101T:** Basics of Mass Communication and Journalism **A270102P:** Computer for Mass Media			
	Semester II **A270201T:** Reporting and Editing **A270202P:** Media related Software			
	Semester III **A270301T:** Advertising and Public relations **A270302P:** Graphics Design for Advertising			
	Semester IV **A270401T:** Media Law and Ethics **A270402P:** Print Media Production			
	Semester V **A270501T:** Communication Research **A270502T:** New Media Technology **A270503P:** Content Production for News Media **A270504R:** News Paper Production			
	Semester VI **A270601T:** Media Management **A270602T:** Developmental Communication **A270603P:** Audio Visual Production **A270604R:** Profile Study			
B.Sc. Semester I – VI PHYSICS	**Semester I** **B010101T:** Mathematical Physics & Newtonian Mechanics **B010102P:** Mechanical Properties of Matter	Recognize the difference between scalars, vectors, pseudo-scalars and pseudo-vectors. Understand the physical interpretation of gradient, divergence and curl. Comprehend the difference and connection between Cartesian, spherical and cylindrical coordinate	The practical value of science for productivity, for raising the standard of living of the people is surely recognized. Science as a power, which provides tools for effective action for the benefit of mankind or for conquering the forces of Nature or for developing	This programme aims to give students the competence in the methods and techniques of calculations using Newtonian Mechanics and Thermodynamics. At the end of the course the students are expected to

		systems. Know the meaning of 4-vectors, Kronecker delta and Epsilon (Levi Civita) tensors. Study the origin of pseudo forces in rotating frame. Study the response of the classical systems to external forces and their elastic deformation. Understand the dynamics of planetary rm»tion and the working of Global Positioning System (GPS). Comprehend the different features of Simple Harmonic Motion (SHM) and wave propagation. Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the mechanical properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling.	resources, is surely highlighted everywhere. Besides the utilitarian aspect, the value of Science, lies in the fun called intellectual enjoyment. Science teaches the value of rational thought as well as importance of freedom of thought. Our teaching so far has been aimed more at formal knowledge and understanding instead of training and application oriented. Presently, the emphasis is more on training, application and to some extent on appreciation, the fostering in the pupils of independent thinking and creativity. Surely, teaching has to be more objective based. The process of application based training, whether we call it a thrill or ability, is to be emphasized as much as the content. Physics is a basic science; it attempts to explain the natural phenomenon in as simple a manner as possible. It is an intellectual activity aimed at interpreting the Multiverse. The starting point of all physics lies in experience. Experiment, whether done outside or in the laboratory, is an important ingredient of learning physics and hence the present programme integrates six	have hands on experience in modeling, implementation and calculation of physical quantities of relevance. An introduction to the field of Circuit Fundamentals and Basic Electronics which deals with the physics and technology of semiconductor devices is practically useful and gives the students an insight in handling electrical and electronic instruments. Experimental physics has the most striking impact on the industry wherever the instruments are used. The industries of electronics, telecommunication and instrumentation will specially recognize this course This programme aims to introduce the students with Electromagnetic Theory, Modern Optics and Relativistic Mechanics. Electromagnetic Wave Propagation serves as a basis for all communication systems and deals with the physics and technology of
	Semester II **B010201T:** Thermal Physics & Semiconductor Devices **B010202P:** Thermal Properties of Matter & Electronic Circuits	Recognize the difference between reversible and irreversible processes. Understand the physical significance of thermodynamical potentials. Comprehend the kinetic model of gases w.r.t. various gas laws. Study the implementations and		

		limitations of fundamental radiation laws. Utility of AC bridges. Recognize the basic components of electronic devices. Design simple electronic circuits. Understand the applications of various electronic instruments. Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the thermal and electronic properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling	experimental physics papers focusing on various aspects of modern technology based equipments. With all the limitations imposed (even the list of experiments as given in the syllabus) if the spirit of discovery by investigation is kept in mind, much of the thrill can be experienced. 1. The main aim of this programme is to help cultivate the love for Nature and its manifestations, to transmit the methods of science (the contents are only the means) to observe things around, to generalize, to do intelligent guessing, to formulate a theory & model, and at the same time, to hold an element of doubt and thereby to hope to modify it in terms of future experience and thus to practice a pragmatic outlook. 2. The programme intends to nurture the proficiency in functional areas of Physics, which is in line with the international standards, aimed at realizing the goals towards skilled India. 3. Keeping the application oriented training in mind; this	semiconductor optoelectronic devices. A deeper insight in Electronics is provided to address the important components in consumer Optoelectronics, IT and Communication devices, and in industrial instrumentation. The need of Optical instruments and Lasers is surely highlighted everywhere and at the end of the course the students are expected to get acquaint with applications of Lasers in technology. Companies and R&D Laboratories working on Electromagnetic properties, Laser Applications, Optoelectronics and Communication Systems are expected to value this course. This programme contains very important aspects of modern day course curriculum, namely, Classical, Quantum and Statistical computational tools required in the calculation of physical quantities of relevance in interacting many body
	Semester III **B010301T:** Electromagnetic Theory & Modern Optics **B010302P:** Demonstrative Aspects of Electricity & Magnetism	Better understanding of electrical and magnetic phenomenon in daily life. To troubleshoot simple problems related to electrical devices. Comprehend the powerful applications of ballistic galvanometer. Study the fundamental physics behind reflection and refraction of light (electromagnetic waves). Study the working and applications of Michelson and Fabry-Perot interferometers. Recognize the difference between		

		Fresnel's and Fraunhofer's class of diffraction. Comprehend the use of polarimeters. Study the characteristics and uses of lasers. Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the electric and magnetic properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling.	programme aims to give students the competence in the methods and techniques of theoretical, experimental and computational aspects of Physics so as to achieve an overall understanding of the subject for holistic development. This will cultivate in specific application oriented training leading to their goals of employment. 4. The Bachelor's Project (Industrial Training / Survey / Dissertation) is intended to give an essence of research work for excellence in explicit areas. It integrates with specific job requirements / opportunities and provides a foundation for Bachelor (Research) Programmes	problems in physics. It introduces the branches of Solid State Physics and Nuclear Physics that are going to be of utmost importance at both undergraduate and graduate level. Proficiency in this area will attract demand in research and industrial establishments engaged in activities involving applications of these fields. This course amalgamates the comprehensive knowledge of Analog & Digital Principles and Applications. It presents an integrated approach to analog electronic circuitry and digital electronics. Present course will attract immense recognition in R&D sectors and in the entire cutting edge technology based industry
	Semester IV **B010401T:** Perspectives of Modern Physics & Basic Electronics **BO10402P:** Basic Electronics Instrumentation	Recognize the difference between the structure of space & time in Newtonian & Relativistic mechanics. Understand the physical significance of consequences of Lorentz transformation equations. Comprehend the wave-particle duality. Develop an understanding of the foundational aspects of Quantum Mechanics. Study the comparison between various biasing techniques. Study the classification of amplifiers. Comprehend the use of feedback and oscillators. Comprehend the theory and working of optical fibers along with its applications.		

		Basic Electronics instrumentation has the most striking impact on the industry wherever the components / instruments are used to study and determine the electronic properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling.		
	Semester V **B010501T:** Classical & Statistical Mechanics **B010502T:** Quantum Mechanics & Spectroscopy **B0105031P:** Demonstrative Aspects of Optics & Lasers	Understand the concepts of generalized coordinates and D'Alembert's principle. Understand the Lagrangian dynamics and the importance of cyclic coordinates. Comprehend the difference between Lagrangian and Hamiltonian dynamics. Study the important features of central force and its application in Kepler's problem. Recognize the difference between macrostate and microstate. Comprehend the concept of ensembles. Understand the classical and quantum statistical distribution laws. 8. Study the applications of statistical distribution laws. Understand the significance of operator formalism in Quantum mechanics. Study the eigen and expectation value methods.		

		Understand the basis and interpretation of Uncertainty principle. Develop the technique of solving Schrodinger equation for 1D and 3D problems Comprehend the success of Vector atomic model in the theory of Atomic spectra. Study the different aspects of spectra of Group I & II elements. Study the production and applications of X-rays. Develop an understanding of the fundamental aspects of Molecular spectra. Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the optical properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling.		
	Semester VI **B010601T:** Solid State & Nuclear Physics **B010602T:** Analog & Digital Principles & Applications **B010603P:** Analog & Digital Circuits	Understand the crystal geometry w.r.t. symmetry operations. Comprehend the power of X-ray diffraction and the concept of reciprocal lattice. Study various properties based on crystal bindings. Recognize the importance of Free Electron & Band theories in understanding the crystal properties. Study the salient features of nuclear		

		forces & radioactive decays. Understand the importance of nuclear models & nuclear reactions. Comprehend the working and applications of nuclear accelerators and detectors. Understand the classification and properties of basic building blocks of nature. Study the drift and diffusion of charge carriers in a semiconductor. Understand the Two-Port model of a transistor. Study the working, properties and uses of FETs. Comprehend the design and operations of SCRs and UJTs. Understand various number systems and binary codes. Familiarize with binary arithmetic. Study the working and properties of various logic gates. Comprehend the design of combinational and sequential circuits Analog & digital circuits have the most striking impact on the industry wherever the electronics instruments are used to study and determine the electronic properties. Measurement precision and perfection is achieved through Lab Experiments. Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for modeling.		
B.Sc. Semester I – VI CHEMISTRY	**Semester I** **B020101T**: Fundamentals of Chemistry		Students will have a firm foundation in the fundamentals and application of current	Certificate in Bioorganic and Medicinal Chemistry will give the student a

	B020102P: Quantitative Analysis		chemical and scientific theories including those in analytical, Inorganic, Organic and Physical Chemistries. Students will be able to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments. Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems. Students will be able to explore new areas of research in both chemistry and allied fields of science and technology. Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine. Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.	basic knowledge of all the fundamental principles of chemistry like molecular polarity , bonding theories of molecules, Periodic properties of more than 111 elements, mechanism of organic Reactions, Stereochemistry, basic mathematical concepts and computer knowledge, chemistry of carbohydrates, proteins and nucleic acids: medicinal chemistry, synthetic polymers, synthetic dyes, Student will be able to do to qualitative quantitative and bio chemical analysis of the compounds in the laboratory. This certificate course is definitely going to prepare the students for various fields of chemistry and will give an insight into all the branches of chemistry and enable our students to join the knowledge and available opportunities related to chemistry in the government and private sector services particularly in the field of food safety, health inspector, pharmacist etc. Have a
	Semester II **B020201T:** Bioorganic and Medicinal Chemistry **B020202P:** Biochemical Analysis	Biomolecules are important for the functioning of living organisms. These molecules perform or trigger important biochemical reactions in living organisms. When studying biomolecules, one can understand the physiological function that regulates the proper growth and development of a human body. This course aims to introduce the students with basic experimental understanding of carbohydrates, amino acids, proteins, nucleic acids and medicinal chemistry. Upon completion of this course students may get job opportunities in food, beverage and pharmaceutical industries. This course will provide basic qualitative and quantitative experimental knowledge of biomolecules such as carbohydrates, proteins, amino acids, nucleic acids drug molecules. Upon successful completion of this course students may get job opportunities in food, beverage and pharmaceutical industries.		
	Semester III **B020301T:** Chemical Dynamics & Coordination Chemistry **B020302P:** Physical Analysis	Upon successful completion of this course students should be able to describe the characteristic of the three states of matter and describe the different physical properties of each state of matter. kinetic theory of gases, laws of crystallography , liquid state and liquid crystals, conductometric, potentiometric, optical methods,		

		polarimetry and spectrophotometer technique to study Chemical kinetics and chemical equilibrium. After the completion of the course, Students will be able to understand .metal- ligand bonding in transition metal complexes, thermodynamic and kinetic aspects of metal complexes. Upon successful completion of this course students should be able to calibrate apparatus and prepare solutions of various concentrations, estimation of components through volumetric analysis; to perform dilatometric experiments: one and two component phase equilibrium experiments.	Students will be able to function as a member of an interdisciplinary problem solving team.	broad foundation in chemistry that stresses scientific reasoning and analytical problem solving with a molecular perspective Diploma in Chemical Dynamics and Analytical Techniques will provide the theoretical as well as practical knowledge of handling chemicals, apparatus, equipment and instruments. The knowledge about feasibility and velocity of chemical reactions through chemical kinetics, chemical equilibrium ,phase equilibrium, kinetic theories of Gases ,solid and liquid states, coordination chemistry, metal carbonyls and bioinorganic will enable the students to work as chemists in pharmaceutical industries. The knowledge about atomic structure, quantum mechanics, various spectroscopic tools and separation technique will make the students skilled to work in industries: Achieved the skills
	Semester IV **B020401T:** Quantum Mechanics and Analytical Techniques **B020402P:** Instrumental Analysis	Upon successful completion of this course students should be able to describe atomic structure, elementary quantum mechanics ,wave function and its significance ;Schrodinger wave equation and its applications; Molecular orbital theory, basic ideas – Criteria for forming molecular orbital from atomic orbitals , Molecular Spectroscopy, Rotational Spectrum ,vibrational Electronic Spectrum: photo chemistry and kinetics of photo chemical reaction Analytical chemistry plays an enormous role in our society, such as in drug manufacturing, process control in industry, environmental monitoring, medical diagnostics, food production, and forensic surveys. It is also of great importance in different research areas. Analytical chemistry is a		

		science that is directed towards creating new knowledge so that chemical analysis can be improved to respond to increasing or new demands. • Students will be able to explore new areas of research in both chemistry and allied fields of science and technology. • Students will be able to function as a member of an interdisciplinary problem solving team. • Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems • Students will gain an understanding of how to determine the structure of organic molecules using IR and NMR spectroscopic techniques • To develop basic skills required for purification, solvent extraction, TLC and column chromatography		required to succeed in the chemical industry like cement industries, agro product, paint industries, rubber industries, petrochemical industries, food processing industries, Fertilizer industries, pollution monitoring and control agencies etc. Got exposures of a breadth of experimental techniques using modern instrumentation Learn the laboratory skills and safely measurements to transfer and interpret knowledge entirely in the working environment. monitoring of environment issues: monitoring of environmental pollution problems of atmospheric sciences, water chemistry and soil chemistry and design processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations Degree in Bachelor of Science programme aims
	Semester V **B020501T:** Organic Synthesis-A **B020502T:** Rearrangements and Chemistry of Group Elements **B020503P:** Qualitative Analysis **B020504R:** Research Project	Upon completion of this course, chemistry majors are able to employ critical thinking and scientific inquiry in the performance, design, interpretation and documentation of laboratory experiments, at a level suitable to succeed at an entry-level position in chemical industry or a chemistry graduate program. • Students will be able to explore new areas of research in both chemistry and allied fields of science and technology. • Students will be able to function as a member of an interdisciplinary problem solving team.		

		• Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems • Students will gain an understanding of how to determine the structure of organic molecules using IR and NMR spectroscopic techniques • To develop basic skills required for purification, solvent extraction, TLC and column chromatography Hydrocarbons are the principal constituents of petroleum and natural gas. They serve as fuels and lubricants as well as raw materials for the production of plastics, fibers, rubbers, solvents and industrial chemicals. This course will provide a broad foundation in for the synthesis of hydrocarbons. Hydroxy and carbonyl compounds are industrially important compounds The industries of plastics, fibers, petroleum and rubbers will specially recognize this course. Students will gain an understanding of which are used as solvents and raw material for synthesis of drug and other pharmaceutically important compounds. • Synthesis and chemical properties of aliphatic and aromatic hydrocarbons • Synthesis and chemical properties of alcohols, halides carbonyl compounds, carboxylic acids and esters • How to design and synthesize aliphatic and aromatic hydrocarbons. • How to convert aliphatic and		to introduce very important aspects of modern day course curriculum, namely, chemistry of hydrocarbons, alcohols, carbonyl compounds, carboxylic acids, phenols, amines, heterocyclic compounds, natural products main group elements, qualitative analysis, separation techniques and analytical techniques. It will enable the students to understand the importance of the elements in the periodic table including their physical and chemical nature and role in the daily life and also to understand the concept of chemistry to inter relate and interact to the other subject like mathematics, physics, biological science etc. • Upon completion of a degree, chemistry students are able to employ critical thinking and scientific inquiry in the performance, design, interpretation and

		aromatic hydrocarbons to other industrially important compounds • Functional group interconversion This paper provides detailed knowledge of synthesis of various class of organic compounds and functional groups inter conversion. Organic synthesis is the most important branch of organic chemistry which provides jobs in production & QC departments related to chemicals, drugs, medicines, FMCG etc. industries. • It relates and gives an analytical aptitude for synthesizing various industrially important compounds. • This paper also provides a detailed knowledge on the elements present in our surroundings, their occurrence in nature. Their position in periodic table, their physical and chemical properties as well as their extraction. This paper also gives detailed understanding of the s, p, d and f block elements and their characteristics. Upon completion of this course the students will have the knowledge and skills to: understand the laboratory methods and tests related to inorganic mixtures and organic compounds. • Identification of acidic and basic radicals in inorganic mixtures • Separation of organic compounds from mixture • Elemental analysis in organic compounds		documentation of laboratory experiments, at a level suitable to succeed at an entry-level position in chemical industry or a chemistry graduate program • Various research institutions and industry people in the pharmaceuticals, polymers, and food industry sectors will surely value this course.

		• Identification of functional group in organic compounds • Identification of organic compound		
	Semester VI **B020601T** Organic Synthesis-B **B020602T** Chemical Energetics and Radiochemical **B020603P** Analytical Methods **B020604R** Research Project	This paper provides detailed knowledge of synthesis of various class of organic compounds and functional groups inter conversion. Organic synthesis is the most important branch of organic chemistry which provides jobs in production & QC departments related to chemicals, drugs, medicines, FMCG etc. industries. The study of natural products and heterocyclic compounds offers an excellent strategy toward identifying novel biological probes for a number of diseases. Historically, natural products have played an important role in the development of pharmaceutical drugs for a number of diseases including cancer and infection. • It relates and gives an analytical aptitude for synthesizing various industrially important compounds. • Learn the different types of alkaloids, & terpenes etc and their chemistry and medicinal importance. • Explain the importance of natural compounds as lead molecules for new drug discovery. Upon successful completion of this course students should be able to describe laws of thermodynamics and its applications, phase equilibria of one and two component system, electro		

		chemistry ,ionic equilibrium applications of conductivity and potentiometric measurements Upon successful completion of this course students should be able to quantify the product obtained through gravimetric method; determination of R*f* values and identification of organic compounds through paper and thin layer chromatography laboratory techniques: perform thermo chemical reactions		
B.Sc. Semester I-VI BOTANY	**Semester I** **B040101T:** Microbiology & Plant Pathology **B040102P:** Techniques in Microbiology &Plant Pathology	After the completion of the course the students will be able to: 1. Develop understanding about the classification and diversity of different microbes including viruses, Algae, Fungi & Lichens & their economic importance. 2. Develop conceptual skill about identifying microbes,pathogens,biofertilizers & lichens. 3. Gain knowledge about developing commercial enterprise of microbial products. 4. Learn host –pathogen relationship and disease management. 5. Learn Presentation skills (oral & writing) in life sciences by usage of computer of computer &multimedia 6. Gain Knowledge about uses of microbes in various fields. 7. Understand the structure and reproduction of certain selected bacteria algae, fungi and lichens 8. Gain Knowledge about the economic	Transformed curriculum shall develop educated outcome-oriented candidature, fostered with discovery-learning, equipped with practice & skills to deal practical problems and versed with recent pedagogical trends in education including e-learning, flipped class and hybrid learning to develop into responsible citizen for nation-building and transforming the country towards the future with their knowledge gained in the field of plant science CBCS syllabus with a combination of general and specialized education shall introduce the concepts of breadth and depth in learning Shall produce competent plant biologists who can employ and	This Programme imparts knowledge on various fields of plant biology through teaching, interactions and practical classes. It shall maintain a balance between the traditional botany and modern science for shifting it towards the frontier areas of plant sciences with applied approach. This syllabus has been drafted to enable the learners to prepare them for self-entrepreneurship and employment in various fields including academics as well as competitive exams. Students would gain wide knowledge in following aspects: 1. Diversity of plants and

		values of this lower group of plant community. After the completion of the course the students will be able: 1. Understand the instruments, techniques, lab etiquettes and good lab practices for working in a microbiology laboratory. 2. Develop skills for identifying microbes and using them for Industrial, Agriculture and Environment purposes. 3. Practical skills in the field and laboratory experiments in Microbiology &Pathology. 4. learn to identify Algae, Lichens and plant pathogens along with their Symbiotic and Parasitic associations. 5. Can initiate his own Plant & Seed Diagnostic Clinic 6. Can start own enterprise on microbial products	implement their gained knowledge in basic and applied aspects that will profoundly influence the prevailing paradigm of agriculture, industry, healthcare and environment to provide sustainable development. Will increase the ability of critical thinking, development of scientific attitude, handling of problems and generating solution, improve practical skills, enhance communication skill, social interaction, increase awareness in judicious use of plant resources by recognizing the ethical value system. The training provided to the students will make them competent enough for doing jobs in Govt. and private sectors of academia, research and industry along with graduate preparation for national as well as international competitive examinations, especially UGC-CSIR NET , UPSC Civil Services Examination, IFS, NSC, FCI, BSI, FRI etc. Certificate and diploma courses are framed to generate self-entrepreneurship and	microbes their habitat, morphology, architecture and reproduction. 2. Plant disease causing microbes, symptoms &control. 3. Economic value of plants and their use in Human Welfare This course provides a broad understanding of identifying, growing and using plants .This course is primarily aimed to introduce people to the richness of plant diversity found in surrounding areas. Lecture sessions are designed to cover fundamental topics concerning classification of plants and their utilization required for understanding the flora and vegetation. Practical sessions are organized following theory for easy understanding of the various parts of the plants, structural organization of floral parts and diversity therein. Participants are taken to different locations covering a variety of habitats and forest types to acquaint
	Semester II **B040201T: 1T** Archegoniate &Plant Architecture **B040202P:** Land Plants Architecture	After the completion of the course the students will be able to: 1. Develop critical understanding on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms 2. Understanding of plant evolution and their transition to land habitat. 3. Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding the basis of plant diversity, economic values & taxonomy of plants 4. Understand the details of external		

		and internal structures of flowering plants 5. The students will be made aware of the group of plants that have given rise to land habit and the flowering plants. Through field study they will be able to see these plants grow in nature and become familiar with the biodiversity. 6. Students would learn to create their small digital reports where they can capture the zoomed in and zoomed out pictures as well as videos in case they are able to find some rare structure or phenomenon related to these plants. 7. Develop an understanding by observation and table study of representative members of phylogenetically important groups to learn the process of evolution in a broad sense. 8. Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding plant diversity, economic values & taxonomy of lower group of plants 9. Understand the composition, modifications, internal structure &architecture of flowering plants for becoming a Botanist.	selfemployability, if multiexit option is opted. Lifelong learning be achieved by drawing attention to the vast world of knowledge of plants and their domestication.	them with the native flora. in the long run, will contribute towards building momentum for people's participation in environmental conservation without compromising on academic rigour and our rich wealth of knowledge inherited over generations. 1. The course will cover conventional topics in Field Botany like Evolutionary History & Diversity of Plants, Complete Morphology, Nomenclature of plants, Systems of Classification, Keys to Important Families of Flowering Plants, Field Data Collection & Herbarium Techniques. 2. The course is designed to become a commercial crop grower, florist, protected cultivator, green belt plant advisor to industries, pharmacologist & taxonomist. The learning outcomes of three years graduation course are aligned with program learning outcomes but these are specific to-specific courses
	Semester III **B040301T** Flowering Plants Identification & Aesthetic characteristics	After the completion of the course the students will be able to: 1. To gain an understanding of the history and concepts underlying		

	B040302P Plant Identification technology	various approaches to plant taxonomy and classification. 2. To learn the major patterns of diversity among plants, and the characters and types of data used to classify plants. 3. To compare the different approaches to classification with regard to the analysis of data. 4. To become familiar with major taxa and their identifying characteristics, and to develop in depth knowledge of the current taxonomy of a major plant family. 5. To discover and use diverse taxonomic resources, reference materials, herbarium collections, publications. 6. For the entrepreneur career in plants, one can establish a nursery, Start a landscaping business, Set up a farm Or Run a plantation consultancy firm After the completion of the course the students will be able: 1. To learn how plant specimens are collected, documented, and curated for a permanent record. 2. To observe, record, and employ plant morphological variation and the accompanying descriptive terminology. 3. To gain experience with the various tools and means available to identify plants. 4. To develop observational skills and field experience.		offered in a program. The core courses shall be the backbone of this framework whereas discipline electives, generic electives and skill enhancement courses would add academic excellence in the subject together with multi-dimensional and multidisciplinary approach. 1. Understanding of plant classification systematics, evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics and molecular biology of various life-forms. 2. This course is suitable to produce expertise in conservation biology like ex-situ conservation, response to habitat change, genotype characterization and reproductive biology. 3.Understanding of various analytical techniques of plant sciences, use of plants as industrial resources or as

		5. To identify a taxonomically diverse array of native plants. 6. To recognize common and major plant families. 7. To Understand aesthetic characters of flowering plants by making-landscapes,gardens,bonsai,miniatures 8. Comprehend the concepts of plant taxonomy and classification of Angiosperms.		human livelihood support system and is well versed with the use of transgenic technologies for basic and applied research in plants. 4. Understanding of various life forms of plants, morphology, anatomy, reproduction, genetics, microbiology, molecular biology, recombinant DNA technology, transgenic technology and use of bioinformatics tools and databases and the application of statistics to biological data. 5. Entrepreneurship Skill Development, Understand the issues of environmental contexts and sustainable development, Inculcation of human values, 6. Strengthen mathematical and computational skills. Enable students to use ICT&AI effectively. 7. Develop good skills in laboratory such as observation and evaluation by the use of modern tools and technology. **PSO 1**
	Semester IV **B040401T :** Economic Botany , Ethno medicine & Photochemistry **B040402P:** Commercial Botany & Photochemical Analysis	After the completion of the course the students will be able to: 1. Understand about the uses of plants –will know one plant-one employment 2. Understand phytochemical analysis related to medicinally important plants and economic products produced by the plants 3. know about the importance of Medicinal plants and its useful parts, economically important plants in our daily life and also about the traditional medicines and herbs, and its relevance in modern times. After the completion of the course the students will be able to: 1. Know about the commercial products produced from plants. 2. Gain the knowledge about cultivation practices of some economic crops. 3. Understand about the ethnobotanical details of plants. 4. Learn about the chemistry of plants &herbal preparations		

		5. Can become a protected cultivator, aromatic oil producer, Pharmacologist or quality analyst in drug company.		Understanding the nature and basic concepts of all the plant groups, their metabolism, components at the molecular level, biochemistry, taxonomy and ecology. The course will make them aware of natural resources and environment and the importance of conserving it. Hands on training in various fields will develop practical skills, handling equipments and laboratory use along with collection and interpretation of biological materials and data. Knowledge gained through theoretical and lab-based experiments will generate technical personnel in various priority areas such as genetics, cell and molecular biology, plant systematics and biotechnology. **PSO 2** Botanists are able to contribute to all these fields and therefore, are mainly employed with educational institutions, government or public sectors or companies in
	Semester V **B040501T** Plant Physiology , Metabolism & Biochemistry **B040502T** Molecular Biology & Bioinformatics **B040503P** Experiments in physiology, Biochemistry & molecular biology **B040504R *Project-I**	After the completion of the course the students will be able to: 1. Understand the role of Physiological and metabolic processes for plant growth and development. 2. Learn the symptoms of Mineral Deficiency in crops and their management. 3. Assimilate Knowledge about Biochemical constitution of plant diversity. 4.Know the role of plants in development of natural products, nutraceuticals, dietary supplements, antioxidants After the completion of the course the students will be able to: 1. Understand nucleic acids, organization of DNA in prokaryotes and Eukaryotes, DNA replication mechanism, genetic code and transcription process. 2. Know about Processing and modification of RNA and translation process, function and regulation of expression. 3. Gain working knowledge of the practical and theoretical concepts of bioinformatics After the completion of the course the students will be able to: 1. Know and authentic the		

		physiological processes undergoing in plants along with their metabolism 2. Identify Mineral deficiencies based on visual symptoms 3. Understand and develop skill for conducting molecular experiments for genetic engineering • Project work will supplement field experimental learning and deviations from classroom and laboratory transactions. • project work will enhance the capability to apply gained knowledge and understanding for selecting, solving and decision-making processes. • It will promote creativity and the spirit of enquiry in learners. • They will learn to consult Scientists, libraries, laboratories and herbariums and learn importance of discussions, Botanical & field trips, print and electronic media, internet etc. along with data documentation, compilation, analysis & representation in form of dissertation writing. • It will enhance their abilities, enthusiasm, and interest		industries, such as agriculture or forestry, oil, chemical, biotechnology, geological survey, environmental protection, drugs, genetic research, plant resources laboratories, plant health inspection services, lumber and paper, food, fermentation, nursery, fruit and so on. Jobs available as a botanist: •Microbiologist, plant pathologist, Taxonomist • Plant Physiologist • Plant Biochemist • Researcher • Mycologist • Ecologist • Weed Scientist • Palaeobotanist • Conservationist • Fruit Grower • Morphologist • Cytologist • Ethnobotanist • Plant geneticists etc. **PSO 3** Inculcate strong fundamentals on modern and classical aspects of Botany, Understand knowledge of Botany is an essential pre-requisite for the pursuit of many applied sciences. It will facilitate students for taking up and shaping a successful career in Botany
	Semester VI **B040601T** Cytogenetics, Plant Breeding & Nanotechnology **B040602T** Ecology & Environment **B040603P** Cytogenetics, Conservation & Environment management **B040604R** *Project-II	After the completion of the course the students will be able: 1.Acquire knowledge on ultrastructure of cell. 2. Understand the structure and chemical composition of chromatin and concept of cell division. 3. Interpret the Mendel's principles, acquire knowledge on cytoplasmic		

		inheritance and sex linked inheritance. 4. Understand the concept of 'one gene one enzyme hypothesis' along with molecular mechanism of mutation. 5.Interpret the concept of Lemarkism, Neo Lamarkism, Darwinism and also understand the concept of natural selection. 1. acquaint the students with complex interrelationship between organisms and environment; 2. make them understand methods for studying vegetation, community patterns and processes, ecosystem functions, and principles of phytogeography. 3. This knowledge is critical in evolving strategies for sustainable natural resource management and biodiversity conservation. After the completion of the course the students will be able: 1. To perform all experiments related to the semester-i.e. Plant tissue cultured plants, conducting breeding on field, conserving and depolluting the environment. 2. Can be employed in environment impact assessment companies & start his own venture After completing this course a student will have: • Project work will supplement field experimental learning and deviations		and allied sciences **PSO 4** Introduction of research project will inculcate research aptitude and passion for higher education and scientific research.

		from classroom and laboratory transactions. • project work will enhance the capability to apply gained knowledge and understanding for selecting, solving and decision-making processes • It will promote creativity and the spirit of enquiry in learners. • They will learn to consult Scientists, libraries, laboratories and herbariums and learn importance of discussions, Botanical & field trips, print and electronic media, internet etc. along with data documentation, compilation, analysis & representation in form of dissertation writing • It will enhance their abilities, enthusiasm, and interest.		
B.Sc. Semester I – VI ZOOLOGY	**Semester I** **B050101T:** Cytology, Genetics and Infectious Diseases **B050102P:** Cell Biology and Cytogenetic Lab	The student at the completion of the course will be able to: • Understand the structure and function of all the cell organelles. • Know about the chromatin structure and its location. • To be familiar with the basic principle of life, how a cell divides leading to the growth of an organism and also reproduces to form new organisms. • How one cell communicates with its neighboring cells?		This course introduces System Biology and various functional components of an organism. Emphasis will be on physiological understanding abnormalities and anomalies associated with white blood cells and red blood cells. The course emphasizes cell identification, cell differentiation and cell morphology evaluation procedures. This will enhance hematology analytical skills along with

		• Understand the basic principles of genetics and how genes (earlier called factors) are inherited from one generation to another. • Understand the Mendel's laws and the deviations from conventional patterns of inheritance. • Comprehend how environment plays an important role by interacting with genetic factors. • How to detect chromosomal aberrations in humans and study the pattern of inheritance by pedigree analysis in families. At the completion of the course students will learn Hands-on: 1. To use simple and compound microscopes. 2. To prepare slides and stain them to see the cell organelles. 3. To be familiar with the basic principle of life, how a cell divides leading to the growth of an organism and also reproduces to form new organisms. 4. The chromosomal aberrations by preparing karyotypes. 5. How chromosomal aberrations are inherited in humans by pedigree analysis in families.		skill of using many instruments. The students will learn the basic principles of genetics and how to prepare karyotypes to study the chromosomes. How chromosomal aberrations are inherited in humans by pedigree analysis in families. The students will have hands-on training in the techniques like microscopy, centrifugation and chromatography, and various biochemical techniques, preparation of slides which will help them in getting employment in pathology labs and contribute to health care system The Certificate courses will enable students to apply for technical positions in government and private labs/institutes The student at the completion of the course will be able to have a detailed and conceptual understanding of molecular processes viz. DNA to trait. The differential regulation of genes in prokaryotes and

		6. The antigen-antibody reaction		eukaryotes leads to the development of an organism from an embryo.
	Semester II **B050201T:** Biochemistry and Physiology **B050202P/R:** Physiological, Biochemical &Hematology Lab	The student at the completion of the course will learn: • To develop a deep understanding of structure of biomolecules like proteins, lipids and carbohydrates • How simple molecules together form complex macromolecules. • To understand the thermodynamics of enzyme catalyzed reactions. • Mechanisms of energy production at cellular and molecular levels. • To understand systems biology and various functional components of an organism. • To explore the complex network of these functional components. • To comprehend the regulatory mechanisms for maintenance of function in the body The student at the completion of the course will be able to: • Understand the structure of biomolecules like proteins, lipids and carbohydrates • Perform basic hematological laboratory testing, • Distinguish normal and abnormal hematological laboratory findings to predict the diagnosis of hematological disorders and diseases.		The students will be able to understand and apply the principles and techniques of molecular biology which prepares students for further career in molecular biology. Independently execute a laboratory experiment using the standard methods and techniques. The principles of genetic engineering, gene cloning, immunology and related technologies will enable students to play an important role in applications of biotechnology in various fields like agriculture, forensic sciences, industry and human health and make a career out of it. Students can have their own start-ups as well. The basic tools of bioinformatics will enable students to analyze large amount of genomic data and its application to evolutionary biology.Apply knowledge and awareness of the basic principles and concepts of biology,
	Semester III **B050301T** Molecular Biology, Bioinstrumentation &Biotechniques **BOS0302P** Bioinstrumentation& Molecular Biology lab	The student at the completion of the course will be able to have: • A detailed and conceptual understanding of molecular processes viz. DNA to trait.		

		• A clear understanding of the processes of central dogma viz. transcription, translation etc. underlying survival and propagation of life at molecular level. • Understanding of how genes are ultimately expressed as proteins which are responsible for the structure and function of all organisms. • Learn how four sequences (3 letter codons) generate the transcripts of life and determine the phenotypes of organisms. • How genes are regulated differently at different time and place in prokaryotes and eukaryotes. The student at the completion of the course will be able to • Understand the basic principles of microscopy, working of different types of microscopes • Understand the basic techniques of centrifugation and chromatography for studying cells and separation of biomolecules • Understand the principle of measuring the concentrations of macromolecules in solutions by colorimeter and spectrophotometer and use them in Biochemistry. • Learn about some of the commonly used advance DNA testing methods.		computer science and mathematics existing software effectively to extract information from large databases and to use this information in computer modeling. The Diploma courses will ensure employability in Hospitals/Diagnostics and Pathology labs with good hands-on training. It will also enable students to take up higher studies and Research as their career and work in renowned labs in the country and abroad. This programme aims to introduce students to animal diversity of invertebrates and vertebrates. The students will be taught about invertebrates and vertebrates using observational strategies, museum specimens and field reports A variety of interacting processes generate an organism's heterogeneous shapes, size, and structural features Inclusion of ecology and environmental sciences will enrich students with
	Semester IV **B050401T** Gene Technology, Immunology and Computational Biology	The student at the completion of the course will be able to: • Understand the principles of genetic engineering, how genes can be cloned		

	B050402P/R Genetic Engineering and Counselling Lab	in bacteria and the various technologies involved in it. • Know the applications of biotechnology in various fields like agriculture, industry and human health. • To have an in depth understanding about Immune System & its mechanisms. • Get introduced to DNA testing and utility of genetic engineering in forensic sciences. • Get introduced to computers and use of bioinformatics tools. • Enable students to get employment in pathology/Hospital. • Take up research in biological sciences. The student at the completion of the course will be able to: • Understand the principles of genetic engineering with hands-on experiments in mutation detection, testing of infectious diseases like Covid 19. • Get introduced to DNA testing and utility of genetic engineering in forensic sciences. • Apply knowledge and awareness of the basic principles and concepts of biology, computer science and mathematics existing software effectively to extract information from large databases and to use this information in computer modeling. • Use bioinformatics tools to find out evolutionary/phylogenetic relationship		our world which is crucial for human well being and prosperity. This section will provide new knowledge of the interdependence between people and nature that is vital for food production, maintaining clean air and water, and sustaining biodiversity in a changing climate. Students will also come to know about the basic principle of life, how a cell divides leading to the growth of an organism and also reproduces to form new organisms. The basic concepts of biosystematics, evolutionary biology and biodiversity will enable students to solve the biological problems related to environment. At the end of the course the students will be capable enough to comprehend the reason behind such a huge diversity of animals and reason out why two animals are grouped together or remain separate due to similarities and differences which

		of organisms using gene sequences. • Get employment in Hospitals/Diagnostic and forensic labs/Counsel families with genetic disorders. • Enable students to take up research in biological sciences.		exist at many levels along with ecological, environmental and cellular inputs The Degree courses will enable students to go for higher studies like Masters and Ph.D in Zoology and Allied subjects
	Semester V **BOSOSOIT** Diversity of Non-Chordates, Parasitology and Economic Zoology **BOS0502T** Diversity of Chordates and Comparative Anatomy **B050S03P** Lab on Virtual Dissection, Anatomy, Economic Zoology and Parasitol	The student at the completion of the course will be able to: The student at the completion of the course will be able to: • demonstrate comprehensive identification abilities of non-chordate diversity • explain structural and functional diversity of non-chordate • explain evolutionary relationship amongst non-chordate groups • Get employment in different applied sectors • Students can start their own business i.e. self employments. • Enable students to take up research in Biological Science The student at the completion of the course will be able to: • Demonstrate comprehensive identification abilities of chordate diversity • Explain structural and functional diversity of chordates • Explain evolutionary relationship amongs The student at the completion of the course will be able to:		

		• demonstrate comprehensive identification abilities of chordate and non- chordates diversity • explain structural and functional diversity of chordates and non-chordates • explain evolutionary relationship amongst chordates and non-chordates • Generate self employment • Enable students to take up research in biological sciences		
	Semester VI **B050601T** Evolutionary and Developmental Biology **B050602T** Ecology, Ethology, Environmental Science and Wildlife **B050603P** Lab on Environmental Science, Behavioral Ecology, Developmental Biology, Wildlife, Ethology	The student at the completion of the course will be able to: • Understand that by biological evolution we mean that many of the organisms that inhabit the earth today are different from those that inhabited it in the past. • Understand that natural selection is one of several processes that can bring about evolution, although it can also promote stability rather than change. • Understand how the single cell formed at fertilisation forms an embryo and then a full adult organism. • Integrate genetics, molecular biology, biochemistry, cell biology, anatomy and physiology during embryonic development. • Understand a variety of interacting processes, which generate an organism's heterogeneous shapes, size, and structural features. • Understand how a cell behaves in response to an autonomous determinant or an external signal, and		

	the scientific reasoning exhibited in experimental life science. The student at the completion of the course will learn: • Complexities and interconnectedness of various environmental levels and their functioning. • Global environmental issues, their causes, consequences and amelioration. • To understand and identify behaviours in a variety of taxa. • The proximate and ultimate causes of various behaviours. • About the molecules, cells, and systems of biological timing systems. • Conceptualizing how species profitably inhabit in the temporal environment and space out their activities at different times of the day and seasons. • To interpret the cause and effect of lifestyle disorders contributing to public understanding of biological timing. • To understand the importance of wildlife conservation. The student at the completion of the course will be able to: • To understand the basic concepts, importance, status and interaction between organisms and environment. • Get employment in forest services, sanctuaries, conservatories etc. • Enable students to take up research	

	in wildlife.			
BBA Semester I-VI	**Semester I** **F010101T:** Business Economics & Basic Accounting **F010102T:** Business Statistics & Principals of Management **F010103T:** Business Ethics and Governance & Computer Applications **Semester II** **F010201T:** Organisational Behaviour & Business Finance **F010202T:** Human Resource Development & Marketing Theory & Practices **F010202T:** Business Mathematics & Advertising Management **Semester III** **F010301T:** Management & Cost Accounting & Business Law F010302T: Production Management & Business Policy **F010303T:** Business Communication & Business Environment **Semester IV** **F010401T:** Supply Chain management & Research Methodology **F010402T:** Specialised Accounting & Consumer Behaviour **F010403T:** Investment Analysis & Portfolio Management & Company Law **Semester V** **N401:** Consumer Behaviour	• To provide knowledge about business economics. • To provide knowledge about Demand Analysis. • To Determine Production and cost analysis. • To Make aware with pricing and profit management. • To Introduce about Accounting Principles and other aspects of accounting. • To provide knowledge about rectification of errors. • To make able about valuation of stocks. • To make aware with share and Debenture. • To provide knowledge about basic concepts of Statistics. • To provide knowledge measurement of central tendency. • To give an overview of correlation and regression analysis. • To make able to know the sampling and probability. • To provide knowledge about Managerial functions. • To make aware with management thinkers and their contributions. • To develop understanding of business ethics and values. • To provide relationship between ethics and corporate excellence. • To give an overview about Gandhian philosophy and social responsibility.	The Program which students exposure to our culture, traditions, ancient & modern History, Geography, Political Environment, Home Making Skill & Communication skill.	The Students will be able gain knowledge, skill & concepts related to Political science, History, Geography, Hindi Literature, Sanskrit Literature and Home Science. This will enable them to aspire for excellence and high values to be good humans. It will also help them to contribute in communal harmony and progress of the country. This program will also increase their communication & professional skills. It will help them to acquire jobs as Teachers, Journalists, Media person, Translators, Food Inspectors, Chefs, Archivists, Political analysts and Meteorologists.

	N402: Financial Management **N403:** Production Management **N404:** Sales Management **N405:** Research Methodology **N406:** Operation Research	• To provide knowledge about computer and its application. • To provide knowledge about components and working on computer. • To give an overview about software system and Data base management.		
	Semester VI **N501:** Managerial Economics **N502:** Entrepreneurship & Small Business Management **N503:** Income Tax **N504:** Cost and Management Accounting **N505:** Industrial Law **N506:** Computer Applications	• To provide knowledge about Organisational Behaviour. • To provide knowledge about individual and group behaviour. • To provide knowledge about business finance and investment decisions. • To provide knowledge about financing and dividend decision. • To give an overview about working capital. • To provide knowledge about Marketing Theory and Practices. • To provide knowledge • about advertisement and its use in business, • To make able about advertisement concept and its management. • To learn about the use of advertisement in business. • To give the basic knowledge about the Management and Cost accounting • To give the basic knowledge about the rules and regulation of execution of Business • To give the basic knowledge about the Production Management in History.		

		• to give the basic knowledge about the Business Communication. • To give the basic knowledge about the business environment in industry • To give the basic knowledge about the Supply Chain Management tor goods and services. • To give the basic knowledge about the Research Methodology • To give the basic knowledge about the specialised Accounting • To give the basic knowledge about the investment analysis and portfolio management. To give the basic knowledge about the Company Law		
BCA Semester I- VI	**<u>Semester I</u>** **BCA-S101T:** Computer Fundamental & Office Automation **BCA-S102T:** Programming Principle & Algorithm **BCA-S103:** Principle of Management **BCA-S104:** Business Communication **BCA-S105:** Mathematics —I **BCA-SIOIP:** Computer Laboratory and Practical Work of Office Automation **BCA-S102P:** Computer Laboratory and Practical Work of Programming Principle & Algorithm	• Converse in basic computer terminology. • Formulate opinions about the impact of computers on society. • Possess the knowledge of basic hardware peripherals. • Know and use different number systems and the basics of programming. • Solve basic computational problems with C language. • Understand and apply communication theory. • Critically think about communication processes and messages. • Write effectively for a variety of contexts and audiences. • Interact skilfully and ethically.	• Understand the fundamental concepts of computers, software hardware and peripheral devices and evolution of computer technologies. • Familiarized with business environment and information technology and its applications in different domains. • Gain knowledge to identify, explain and apply functional programming and object-oriented programming techniques and use of databases to develop computer programs.	• Understand, analyze and develop computer programs in the areas related to algorithm, web design and networking for efficient design of computer based system. • There is a growing need for qualified computer engineers and a BCA can help you create a multi-faceted career in the industry. • If you hold a BCA degree you can be employed in these

		• Develop and deliver professional presentations.	• Analyze, design, implement and evaluate computerized solutions to real life problems, using appropriate computing methods including web applications. • Understand the front end and backend of software applications. • Gain expertise in at least one emerging technology. • Acquire knowledge about computer networks, network devices and their configuration protocols, security concepts at various level etc. • Apply techniques of software validation and reliability analysis to the development of computer programs. • Acquire technical, communication and management skills to convey or present information, applications, instructions, policies, procedures, decisions, documentations etc. verbally as well as in writing. • Recognize the various issues related to society, environment, health and	sectors: healthcare, IT, finance, trading, transportation, software, and education. • A BCA graduate has a great scope in jobs as a Web Designer, System Manager, Software Developer, Computer Programmer, Web Developer, Software Developer, software tester, etc.
	<u>Semester II</u> **BCA-S106T:** C Programming **BCA-S107:** Digital Electronics & Computer Organization **BCA-S108:** Organization Behaviour **BCA-S109:** Financial Accounting & Management **BCA-SIIO:** Mathematics 11 **BCA-S106P:** Computer Laboratory and Practical Work of C Programming	• Develop a C program. • Control the sequence of the program and give logical outputs. • Implement strings in your C program. • Store different data types in the same memory. • Manage I/O operations in your C program. • Repeat the sequence of instructions and points for a memory location. • Explain and apply international accounting standards. Critically evaluate financial statement information. Evaluate and compare different investments. • Identify the logic gates and their functionality. • Perform number conversions from one system to another system. • Design basic electronic circuits (combinational circuits). • Perform a comparative analysis of the components of different memory units. Perform number conversions.		

	Semester III **BCA-S201T:** Object Oriented Programming Using **BCA-S202T:** Data Structure Using C & C++ **BCA-S203:** Computer Architecture & Assembly Language **BCA-S204:** Business Economics **BCA-S205:** Elements of Statistics **BCA-S201P:** Computer Laboratory and Practical Work of OOPS **BCA-S202P:** Computer Laboratory and Practical Work of DS	• Describe OOPs concepts. • Use functions and pointers in your C++ program. • Understand tokens, expressions, and control structures. • Explain arrays and strings and create programs using them. • Describe and use constructors and destructors. • Understand and employ file management. • Ability to program data structures and use them in implementations of abstract data types. Ability to devise novel solutions to small scale programming challenges involving data structures and and recursion. Understanding of basic algorithmic complexity. • Define the principal concepts about probability. Express the concepts of factorial and the basic principal of counting. Solve the problems about permutation, combination and Binomial Theorem	vivid cultures and understand the responsibilities to contribute in providing the solutions. • Acquire technical skills to lead a productive life in the society as a professional or as an entrepreneur.	
	Semester IV **BCA-S206T:** Computer Graphics & Multimedia Application **BCA-S207:** Operating System **BCA-S208:** Software Engineering **BCA-S209:** Optimization Techniques **BCA-S210:** Mathematics-III **BCA-S206P:** Computer Laboratory and Practical Work of Computer Graphics & Multimedia Application	• Know basic components of an operating system. • Comprehend how an operating system virtualises CPU and memory. • discuss various scheduling and swapping policies. • Learn basic concurrent programming in C and assembly code. • Explain how a simple file system		

	organizes data in the hard disk. • Understand the basics of computer graphics, different graphics systems and applications of computer graphics. • Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. • Use of geometric transformations on graphics objects and their application in composite form. • Extract scene with different clipping methods and its transformation to graphics display device. • Explore projections and visible surface detection techniques for display of 3D scene on 2D screen. • Render projected objects to naturalize the scene in 2D view and use of illumination models for this. • Plan a software engineering process life cycle , including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance and quality requirements. • Able to elicit, analyze and specify software requirements through a productive working relationship with various stakeholders of the project. • Analyze and translate a specification into a design, and	

		then realize that design practically, using an appropriate software engineering methodology. • Know how to develop the code from the design and effectively apply relevant standards and perform testing, and quality management and practice. • Able to use modern engineering tools necessary for software project management, time management and software reuse.		
	Semester V **BCA-S301T:** Introduction to DBMS **BCA-S302T:** Java Programming and Dynamic Webpage Design **BCA-S303:** Computer Network **BCA-S304:** Numerical Methods **BCA-S305:** Minor Project **BCA-S306:** Viva-Voice on Summer Training **BCA-S301P:** Computer Laboratory and Practical Work of DBMS **BCA-S302P:** Computer Laboratory and Practical Work of Java Programming & Dynamic Webpage Design	• Understand the normalization of databases through various case studies. • Use of query optimization techniques, backup and recovery features of database management software. • Create a new database and administer the database management software. • Develop different web databases and object oriented database management system. • To identify Java language components and how they work together in applications. To design and program stand-alone Java applications. To learn how to design a graphical user interface (GUI) with Java Swing. • To gain valuable skills in computer networks (switching, routing), system and network administration, computer and network security.		

		• Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations.		
	Semester VI **BCA-S307:** Computer Network Security **BCA-S308:** Information System: Analysis Design & Implementation **BCA-S309:** E-Commerce **BCA-S310:** Knowledge Management **BCA-S311:** Major Project **BCA-S312:** Presentation/Seminar based on Major Project	• Understand the sensitive data safe from cyber attacks and ensures the network is usable and trustworthy. • Analyze the impact of E-commerce on business models and strategy. Describe the major types of E-commerce. • Explain the process that should be followed in building an E-commerce presence. • To analyze business problems. They will learn to assess how information technology can be used to achieve a competitive advantage and excellence in service. • Understand, analyze and develop computer programs in the areas related to algorithm, web design and networking for efficient design of computer based system.		
LL.B. Semester I - VI	**First Semester** **Paper –I** Constitutional Law — I **Paper- II** Law of Contract — I **Paper- III** Law of Tort including MV Accident and Consumer Protection Laws **Paper- IV** Family Law — I **Paper- V** Public International Law	**PAPER I** • To expose students about concepts in Constitutional Law; • Concept of Distribution of power; Constitutional Organs; • To expose the students about organs of state, Emergency Provisions, Amendment of Constitution, Doctrine of Basic	Our college offered an LL.B. (three-year course). Following are some of the course outcomes of the program upon completion. **Legal Knowledge**: To acquire & apply legal knowledge to the complex Socio-legal problems.	**An LLB or three-years Bachelor of Law program opens the gateway of opportunities for those who wish to make a career in Law.**

		Structure, Contractual and Tortious Liability of State, Right to Property and freedom of Trade & Commerce. **PAPER II** • To develop understanding of formation of contract; • To expose students about basic legal principles of vitiating factors in formation of contract; • To develop general and special **PAPER III** Student will know that not all laws are codified but there are same laws which are judge made While learning law of torts student will learn to relate laws with the case laws as the subject of law of torts only can be learned through different case laws Such as: Introduction and Principles in Tort; State Liability for Torts : Doctrine of Sovereign Immunity; Liability under the M.V. Act, 1988; Torts against Person; Assault, Battery and False Imprisonment; Torts against property; Negligence; *Res Ipsa Loquitor*; Contributory Negligence; Strict and Absolute Liability; Nervous Shock; Nuisance; Defamation Consumer Protection Act: Consumerism in India (Historical Background); Consumers: the concept, definition, scope and object of C.P. Act, Rights of Consumers. **PAPER IV**	Exhibit ones knowledge of and comprehension of substantive, procedural, and constitutional law. And to develop an attitude of self-reflection while learning & Recognize the need for, and have the preparation and ability to Engage in independent and life-long learning in the broadest context of changing legal contexts. **Professional Skills**: To possess professional skills required for legal practice such as Argument, Pleading, drafting, conveyance etc. To develop legal research skills & legal reasoning and apply it during programme & in Legal practice. **Professional Practice**: to make students eligible to practice in Courts, Legal firms, Companies as legal practitioner. Develop the ability to perform legal analysis and reasoning, legal research, problem solving, written and oral communication in the legal context and apply it in legal practice and real life situation. **Professional Ethics**: Demonstrate familiarity with	➢ Understanding the law and applying them in practical field. Degrees at reputed academic institutions, corporate and judicial services. ➢ Strong foundation on practical subjects such contract drafting, moot court which has strong links and application in training the students to face the court rooms with confidence. Inculcate the spirit of providing legal aid to citizens. ➢ Provide knowledge of a wide range of legal matters and application of such knowledge in other domains. ➢ Provide advanced knowledge on varied topics in law empowering the students to pursue higher degrees at reputed academic institutions, corporate and judicial services.

		Students studying Hindu law learn about basic concepts like marriage, divorce, parental custody, domestic abuse and children's rights under Hindu Law. Family law examines historical and social contexts that have influenced the modern definition and regulation of families. Students should be able to demonstrate a high level of understanding in the domain of family law both in the form of legislations and the judgments passed by the courts of law from time to time Students studying family law learn about concepts like Succession, Inheritance Students should possess the ability to articulate and evaluate how Family Law and Justice caters to the various needs of the society. Nature & Sources of Muslim Law, Who is Muslim? Muslim Marriage: Essentials, Option of puberty, Kinds of Marriage under Sunni Law & Shia Law, **PAPER V** The objectives of this paper are to acquaint students with basics of Public International law like Nature, Definition, Origin and Basis of International Law; Sources of International Law; Subjects of International Law; Relationship between International Law and Municipal Law and update them with the latest development; Gives a brief understanding Sources of International Law and Recognition, Extradition and	the rules of professional ethics and exhibit its application in legal profession. **Develop interdisciplinary Understanding**: the interdisciplinary nature of law and relate it with other disciplines like humanities, social sciences and management. **Self-employability**: To develop leadership qualities amongst students and provide a platform of self-employability by developing professional skills in legal industry.	➢ Nurture problem solving skills, thinking, creativity through assignments, project work. ➢ Assist students in preparing (personal guidance, books) for competitive examse.g. NET, SET, Judicial services etc. Following are some of the employability opportunity of the program on the completion: • Practice of Law in Bar • Legal Analyst • Judicial Services • Public Prosecutor • Legal Process Outsourcing • As Legal Advisor in Law Firm • Non-Governmental Organization • As Prosecutors • As Law Clerk • Government Services • Legal Journalist/Writer • Legal officers in PSUs

		the Law of the Sea. Also develops an understanding of Contemporary International Issues. U.N.: Origin, Object, Principles and Membership. Also develops understanding Main organs of U.N. and Settlement of International Dispute.		and Private Organizations
	Second Semester **Paper –I** Constitutional Law — II **Paper- II** Law of Contract — II **Paper- III** Family Law — II **Paper- IV** Law of Crime — I (Indian Penal Code) **Paper- V** Administrative Law	**PAPER I** The objectives of this paper are to acquaint students with basics of Fundamental Rights; Rights to Constitutional Remedies; Directive Principles, Fundamental Duties, Social Justice and Right to Information. **PAPER II** (Specific Contract and Law of Partnership); The objectives of this paper are to acquaint students with able to demonstrate a high level of understanding in the matters commercial agreements and other kinds of agreements and legal instruments. Students should be able to understand Indemnity and Guarantee; Bailment and Pledge; Agency; Partnership and Sales of Goods. Students should be able to learn with utmost preciseness the pros and cons of effective contract management. **PAPER III** The objective of the paper is to apprise the students with the laws relating to Joint Hindu Family; Partition: reopening and Reunion; Hindu Succession Act,		

		1956 under Muslim law concept of Hiba ; Will ; Pre-emption; Inheritance under Sunni Law, Doctrine of Aul and Raddh. **PAPER IV** This paper will deal with the basic principles of criminal law; Definition and elements of Crime, Stages of Crime; Determining criminal liability and punishment. Also talks about general exception like Accident, Necessity, Infancy, Insanity, Intoxication, consent, Good Faith, Private Defense against body and property etc. Crime against body and property etc. **PAPER V** The paper will make students aware of various aspects of Administrative Law including quasi-legislative, quasi-judicial and other ministerial functions of administration and control thereof with a practical approach. Gives a better understanding of natural justices. Better understanding of Judicial Functions of Administration, Administrative Discretion and Judicial Control of Administrative Action	

	<u>Third Semester</u> **Paper –I** Jurisprudence **Paper- II** Interpretation of Statutes and Principles of Legislation **Paper- III** Company Law **Paper- IV** Labour Law - I **Paper- V** Property Law **Paper – VI** General English and Legal Language	**PAPER I** The students should get familiar with various approaches to law and legal processes. They should be able to appreciate dynamic character of the law and legal systems particularly in the context of Socio-political history of the society. Endeavour should be made to develop among students critical thinking about the law, legal system and legal processes. The students should be in position to appreciate how diverse approaches to law influence decision-making in judicial courts. Gives a better understanding of various schools of jurisprudence and their theories and Concept of Rights and Duties; Personality Possession; Ownership and Property **PAPER II** The paper is aimed to enhance the critical skills to equip the Students with various aspects of interpretations of Statutes; various rules of interpretation; Interpretation of Constitutional Law; Aids to Interpretation and principals of Principles of Legislation **PAPER III** The paper will make students aware of various aspects of Company Law including introductory knowledge about Meaning and formation of a company, its types, characteristics, and necessary		

		documents required for the formation of the same. Gives a brief understanding of Corporate Governance and better knowledge regarding finance corporate; Capital Formation and Regulation and Winding up of Companies. **PAPER IV** The objectives of this paper are to acquaint students with basics of Industrial Relation, Labour Problem and Labour Policy in India; History and Development of Trade Union and procedure, Collective Bargaining. Industrial Dispute Act, 1947 ; Philosophy of Labour Welfare **PAPER V** The objective of this paper is to focus on concept of property and the natures of property right are basic to the understanding of law relating to property. The objective of this paper is to focus on concept and classification of property as well as principles governing transfer of immovable property. **PAPER VI** Good communication skill is necessary for developing a career as a lawyer. This course is designed to imbue among the students: To understand, identify, develop and practice essential English speaking skills during their legal studies and in their everyday life.		

		To appreciate the constituents of good oral and written language. To develop techniques to communicate effectively. To inculcate amongst students courtroom language.		
	Fourth Semester **Paper –I** Labour Law -II **Paper- II** Civil Procedure Code and Limitation Act. **Paper- III** Law of Evidence **Paper- IV** Law of Crime — 11 (Criminal Procedure Code) **Paper- V** Professional Ethics and Professional Accounting System (Clinical)	**PAPER I** It would further help students to get an insight of the Labour laws, labour movements and its enormous significance. The students would learn about the importance of the consolidation and firmness of the Labour Laws and Legislations. The students will be able to understand the legal provisions of the Employees Compensation Act, 1923. To familiarize the students with the Maternity Benefit Act, 1961; Minimum Wages Act, 1948. The Students will be able to understand: Payment of Wages Act. **PAPER II** The paper will focus on the civil procedures followed in instituting a suit. The students will be familiarized with certain important concepts and practical skill development activity will provide insights into the actual working of the court procedures. Gives the knowledge regarding how to take		

Initial Steps in a Suit. Develop a great knowledge of Appeal, Reference, Review and Revision.

PAPER III

This course is designed to create among the students: Analyses and define the concept and general nature of evidence, and illustrate the different types of evidence and court procedures relating to evidence. Define the term „evidence" and illustrate its general nature. Analyze the different types of evidence with

Reference to: real, oral, direct, circumstantial, original, hearsay, primary, secondary, documentary. Specify the standard of proof in civil and criminal cases. Determine and analyses the standard of proof and burden of proof in civil and criminal cases, and specify types of presumptions. Analyze and evaluate the rules governing examination in chief, cross examination and re-examination, and establish the procedures in the conduct of a civil or criminal trial determine the rules relating to competence and compellability of witnesses in relation to case study material.

PAPER IV

This paper is to give students thorough knowledge of procedural aspects of working of criminal courts and other machineries. Gives a better

		understanding of Arrest, Bail and Pre-Trial Proceedings and their procedure. Also briefly explains Trial Proceedings and steps involved in it. Also briefly explains Appeal, Revision and Reference **PAPER V** This paper is to give students thorough knowledge of Development of Legal Profession in India; Professional ethics and Advocacy; Bench-Bar Relationship and Contempt of Court Act, 1971.		
	<u>Fifth Semester</u> **Paper – I** Human Rights Law and Practice **Paper- II** Environmental Law **Paper- III** Land Law and Land Revenue Code, 2006 **Paper- IV Banking** Law **Paper- V** Pleading Drafting and Conveyancing (Clinical)	**PAPER I** The objective of this course is to lay the foundation of the Human Rights law and acquaint the students with basic human rights Institutions. Gives a better understanding of International Human Rights Law and National Human Rights Law. **PAPER II** To familiarize the students with the overall environmental legal regime of the country as well as its international obligations and would further equip the students with basic knowledge and skills to Understand environmental issues. Students should be able to exposed to the ground realities of how environment is affected both at the global and the local level it would draw the attention of the very functioning of protection mechanisms deployed for the protection and conservation of safe environment. Students should be able		

		to understand the historical perspectives and comparative account of the evolution of Environmental law in various countries and the best practices adopted for the greater awareness. Students should be able to foster a high level of understanding in the matters pertaining to Environmental law, common law aspects, constitutional provisions etc. Awareness regarding the problem of environmental pollution and Law as a means of prevention of Environmental pollution and protection of environment. **PAPER III** This course students will be able to: Explain the notion of agricultural land and apply land law concepts relating to tenure holders, ownership, possession, succession, surrender, abandonment, mortgage, lease and tenancies. Learn about maintenance and revision of village records. Learn about consolidation proceedings, mutation proceedings and its effect. Gain knowledge about the concept of land revenue and its assessment. Understand about the procedure of Revenue Courts and remedies in case of any illegal encroachment. Get a deep insight about the management of land and other property by local authorities. **PAPER IV**		

		The objective of this paper is to provide broad understanding of basic concepts Concept of Bank and Banker, Functions of Bank, Classification of Banks, Relationship between Bank and Customer. Students will have a brief about Reserve Bank of India Act, 1934 and Negotiable Instrument Act, 1881. **PAPER V** The object of this paper is to train students in the art of drafting Both for court purposes as well as for other legal forums. It Gives better understanding regarding Fundamental Rules of Pleadings.		
	Sixth Semester **Paper – I** Principles of Taxation Law **Paper- II** Penology & Victimology **Paper- III** Copyright **Paper- IV** Alternative Dispute Resolution (Clinical) **Paper- V** Moot Court Exercise and Internship (Clinical)	**PAPER I** This paper focuses on various aspect of History of Income Tax Law in India To understand the concept of Taxation, heads of income, including foreign income assessment procedures, adjudication and settlement of tax disputes are the focus points of study in this paper. Also explores legal aspects of Residential Status, Chargeability. Develop a better understanding regarding Heads of Income and Rules of Tax. Its also give knowledge of Settlement of Grievances. **PAPER II** Criminology is a socio-legal subjects its deals with the concept of crimes, causes of crimes and its prevention. Its also covers the subject relating to		

statutory bodies established for the prevention of crime and punishment and reformation of criminals. The course includes concept of punishment and its forms and concept of Capital Punishment and also Parole and Probation of offenders in India and other countries of World.

PAPER III

The objective of this course is to acquaint the students with basics of intellectual property rights with special reference to Indian law and practice. Develop a legal prospective regarding The Copyrights (Indian Copyright Act, 1957). Gives deep legal understanding of Trademarks (The Trademarks Act, 1999), Patent (The Patents Act, 1970).

PAPER IV

This course tends to achieve the following out comes: To ensure that students are well acquainted with the various methods of dispute resolution. To familiarize them with the various legal provisions and case laws relating to the paper ADR. To develop their legal acumen so that they can help their clients and society select and employ the
Most effective, just and human methods of dispute settlement.

		PAPER V Students are in a position to identify different stages in civil and criminal cases. Give knowledge of Interviewing techniques and Pre-Trial preparations and Internship diary. Shall understand the relevancy of documents and expert witnesses in special situations. They can draft notices- different pleadings in civil litigations. Shall be able to understand and prepare for court trial and proceedings like cross examinations and arguments. Observance of Trial in two cases, one Civil and one Criminal. Student will be required to undertake legal awareness programmed in association with N.S.S. and other authorities as directed by the Department.		
B.Ed. Semester I-IV	**<u>Semester I</u>** **101:** Perspectives in Sociological and Philosophical Bases of Education **102**: Perspectives in Psychology of Teaching, Learning and Development **103**: Knowledge and Curriculum **104**: Educational Technology and Computer assisted instruction.		The course develops the theoretical and pedagogical understanding about the teaching profession. Learning groups of B.Ed. programme become the prospective Teachers of the society which play the crucial role for shaping the foundation of secondary levels students according to our current education policy (NEP-2020). The content of B.Ed. programme increases the psychological understanding towards learner and their learning process. B.Ed.	
	<u>Semester II</u> **201:** Contemporary Indian Education **202:** Assessment of Learning **203:** Action Research in Education **204:** Inclusive Education **Practicum**			

	Semester III **301:** Pedagogy of School Subject —1 **302:** Pedagogy of School Subject — 2 **Practicum** **Internship**		programme increase the awareness about society future needs, and make efficient in ICT for teaching and learning process.	
	Semester IV **401:** Environmental Education in Indian perspective **402:** Gender, School and Society **403 & 404:** Any two of the following a. Guidance and counselling in school b. School management c. Value education and moral ethics d. History of Indian Education. **Practicum**		This course make a prospective teacher equipped with teaching pedagogy, teaching technology, educational, sociology and philosophy for making mentally prepare for upcoming problem in teaching learning process, Educational psychology make them studying the behaviour of learner for effective teaching learning.	
M.Com. Semester I-IV SEM	**Semester I** **MC 101:** Accounting for Managerial Decisions **MC 102:** Financial Management **MC 103:** Marketing Management **MC 104:** Human Resource Management ***One Elective Paper** **MC 105:** Survey Research Project Report	To familiarize students with the accounting concepts and methods used by managers for Planning and controlling business operations. To help students to understand the conceptual framework of Financial Management and its applications under various environmental constraints. To develop in students an understanding of the underlying concepts, strategies and issues involved in the marketing of product and services. The objective of the course is to acquaint students with the techniques		

		and principles to manage human resource of an organisation.		
	Semester II **MC 201:** Advanced Statistical Analysis **MC 202:** Organisational Behaviour ***SELECT ANY TWO OF FOLLOWING** **MC 203:** Corporate Tax Planning & Management **MC 204:** Business Environment **MC 205:** Sales Management **MC 206:** Management Training and Development **MC 207:** Strategic Management ***One Elective Paper** **MC 208:** Survey Research Project Report	To give advance knowledge of the subject to make the students learn the application of Statistical Tools and Techniques for decision making. To impart the students an understanding of behavioural components in the process of management & to develop an understanding of organizational and individual variants that effect organizations To emphasize the role of tax factors in the use of management accounting techniques along with tax laws and their impact on management decisions. This course develops ability to understand and scan business environment analysis opportunities and take decisions under uncertainty. The aim of the course is to build knowledge, understanding and skills of sales management among the students. To provide an in-depth understanding of the role of Training in the HRD and		

		to enable the course participants to manage the training systems and processes. To impart an understanding of the comprehensive process of top management of a business enterprise so as develop the ability to analyze business problems and their solutions.		
	<u>Semester III</u> **MC 301:** Research Methodology **MC 302**: Entrepreneurial Development & small Business in India **Elective Papers** **(Any two of MC 303 - MC 306)** **MC 303:** Accounting for Plannig & Control **MC 304:** Management of Financial Services **MC 305:** Services Marketing **MC 306:** Industrial Relation **MC 307:** Research project**	To Familiarize students with the accounting concepts and methods used by managers for Planning and controlling business operations. To familiarize the prospective managers with the various financial services and institutions and their role in the overall financial system. Provide exposure to the students to the entrepreneurial culture and industrial growth so as to preparing them to set up and manage their own small units.		

	Semester IV **[SELECT ANY ONE GROUP]** **GROUP A: Accounting and Finance** **MC 401:** Security Analysis & Portfolio Management **MC 402:** International financial management **MC 403:** Management Information System **GROUP B: Marketing** **MC 401:** International marketing **MC 402:** Advertising Management **MC 403:** Digital Marketing **GROUP C: Human Resource Management** **MC 401:** Labour Legislation in India **MC 402:** Human Resource Planning and Development **MC 403:** Performance and Compensation Management **MC 404:** Survey Research Project **MC 405:** Comprehensive Viva	To impart knowledge to students regarding the theory and practice of Security Analysis and Portfolio Management. To acquaint the students with the basics of Information technology and related aspects.		
M.A Semester I-II HINDI (NEP)	**Semester I** **PG1HIN7SE M1P:** हिन्दी भाषा और साहित्य का आरंभ **PG1HIN7SE M2P:** आदिकाल: इतिहास और साहित्य	इस प्रश्न पत्र के माध्यम से आदिकालीन साहित्य की पृष्ठभूमि, विभिन्न परिस्थितियाँ, भाषा रूपों का अध्ययन अपेक्षित है। साथ ही भविष्य के हिन्दी साहित्य और संस्कृति की पीठिका की समझ का निर्माण भी होगा। 'कतिपय चयनित अंशों के माध्यम से आदिकालीन रचना परिदृश्य को समझने का प्रयास होगा।	Hindi bhasha sahitya aur vimarsh ke kshetra me paramparik aur nai Kshitijon ka anveshak paashilin evam prakshikshit pathyakram ka uddeshya hai. Prathmik kakshaon ke uccha kakshaon tak rajya, rashtra evam antar rashtriya ster tak Hindi adhayan adhayapan hetu prashikshit	विभिन्न पत्रों के माध्यम से अर्जित होने वाले साहित्य, सौन्दर्य दृष्टि के साथ ही रोजगारपरक संभावनाओं के निर्माण पाठ्यक्रम का लक्ष्य है। लिखित एवं प्रायोगिक परीक्षाओं के माध्यम से यह अध्ययन किया जाएगा कि सीखने के

	PG1HIN7SE M3P: हिन्दी साहित्य का इतिहास लेखन: परंपरा और दृष्टि **PG1HIN7SE M4P:** भारतीय एवं पश्चात्य काव्य शास्त्र **PG1HIN7SE M5P:** हिन्दी सिनेमा	हिन्दी साहित्य के इतिहास लेखन संबंधी विभिन्न दृष्टियाँ रही हैं। इस पत्र के माध्यम से इतिहास दर्शन साहित्य के इतिहास की परंपरा, काल विभाजन एवं प्रमुख सिद्धान्तों का विवेचन किया जायेगा। पत्र का उद्देश्य विभिन्न दृष्टियों की स्पष्ट समझ का निर्माण करना है। इस प्रश्न पत्र के माध्यम से सिनेमा संसार और हिंदी सिनेमा का व्यापक परिचय प्राप्त हो सकेगा पत्र में हिंदी सिनेमा की | उक्त प्रश्न | सांस्कृतिक चिंतन प्रक्रिया और समाज दृष्टि का अध्ययन अपेक्षित है पत्र के अध्ययन से हिंदी सिनेमा में प्रयुक्त तकनिकी | लेखन आदि की सम्यक जानकारी प्राप्त हो सकेगी , रंग निर्देशन , अभिनय कौशल ,	yuwaon ke rozgar poorak lakshyon ko samarpit pathyakramo ki bahuvidhi sambahvanayein hai. Issi tarah jansansar ke vividh kshetro jaise print media, drishya media, dharavahik evam patkatha lekhan ke vividh kshetro me rozgaar ki awayashaktaon ki drishiti me bhi yah upyogi hai.	संप्रत्ययों को कितना अर्जित किया गया है।
	Semester II **PG1HIN8SE M1P: पूर्व मध्यकाल (भक्तिकाल) इतिहास और साहित्य** **PG1HIN8SE M2P: उत्तर मध्यकाल (रीतिकाल): इतिहास और साहित्य** **PG1HIN8SE M3P: भाषा विज्ञान एवं भाषा अध्ययन के नए क्षेत्र** **PG1HIN8SE M4P: तुलनात्मक साहित्य, अवधि लोक साहित्य, अनुवाद विज्ञान एवं भोजपुरी लोक साहित्य में से किसी एक प्रश्न पत्र का अध्ययन अनिवार्य है।** **PG1HIN8SE M5P: हिन्दी नाटक और रंगमंच**			

Semester III **PG3HIN9SEM1P:** Aadhunik Kaal (Gadya Kaal): Itihas aur Sahitya (Bhartendu evam Dwivedi Yug) **PG3HIN9SEM2P:** Aadhunik Kaal Itihas aur Sahitya (Swachhandtawad, Chhayawad, uttar Chhayawad nai kavita evam navgeet **PG3HIN9SEM3P:** Adhunik Gadya : Premchand Yug **PG3HIN9SEM4P:** Kathettar Gadya Vidyayein (Sansmaran, Rekhachitra, Reportaj) **PG3HIN9SEM5P:** Hindi Patrakarita evam Jansanchar Madhyam	
Semester IV **PG4HIN10SEM1P:** Aadhunik Kaal: Itihas aur Sahitya **PG4HIN10SEM2P:** Hindi Aalochana PG4HIN10SEM3P: Bharatiya Sahitya **Elective Paper (Any one of These)** **PG4HIN10SEM4P-A:** Stree Vimarsh **PG4HIN10SEM4P-B:** Dalit Vimarsh **PG4HIN10SEM4P-C:** Aadivasi Vimarsh **PG4HIN10SEM4P-D:** Tritiya Lingi Vimarsh (Third Gender) **PG4HIN10SEM4P-E:** Diaspora **PG4HIN10SEM5P:** Pathkatha evam Vigyapan Lekhan	

M.A Semester I-IV POLITICAL SCIENCE	**Semester I** **MPS 101:** Ancient and Medieval Western Political Thought **MPS 102:** Theory of International Relation **MPS 103:** Comparative Politics: Concept and Theories **MPS 104:** Indian Political System **MPS 105:** Research Project			
	Semester II **MPS 201:** Early Modern Political Thought **MPS 202:** Indian Political thought **MPS 203:** Principle of Public Administration ***Optional (any two)** **MPS 204 (A):** International Relations **MPS 204 (B):** State Politics in India **MPS 204 (C):** Political thought of developing countries **MPS 204 (D):** Introduction to the regions of Indo-Pacific **MPS 205:** Research Project			

	Semester III **MPS 301:** Contemporary Political Theory **MPS 302:** Political Tradition and Recent Debates **MPS 303:** Governance and Public Policy in India **Elective Papers (Any one of These)** **MPS 304A:** India's Foreign Policy **MPS 304B:** Federal System of India **MPS 304C:** Political Philosphy in the 20th Century **MPS 304D:** Introduction to the region of South Asia **MPS 305:** Research Project			
	Semester IV **MPS 401:** Research Methodology **OPTIONAL(Any one from MPS 402A-402D)** **MPS 402A:** International Law **MPS 402B:** State Politics: Special Reference to U.P. **MPS 402C:** Feminist Political Party **MPS 402D:** Introduction to the West Asian Countries **OPTIONAL(Any one from MPS 403A-403D)** **MPS 403A:** International Organisation **MPS 403B:** Social and Political movement in India **MPS 403C:** Contemporary Social Theory **MPS 403D:** Traditional Non-Traditional Security issues in West Asia and Indo-Pacific Region			

	OPTIONAL(Any one from MPS 404A-404D) **MPS 404A:** Conflict and Peace-Resolution **MPS 404B:** Regional Disputes and Security issues in India **MPS 404C:** Social and Political thoughts of Ambedkar **MPS 404D:** India, Indo-Pacific and West Asia **MPS 405:** Research Project			
M.A Sem. I-IV ENGLISH	**Semester I (NEP)** **Paper- I:** English Literature from Chaucer to Shakespeare **Paper- II:** English Literature from Donne to Blake **Paper- III:** English Literature From Wordsworth to Hardy **Paper- IV:** Elementary Linguistics and the Structure of English			
	Semester II (NEP) **Paper-V:** Twentieth Century Literature **Paper-VI:** Literary Criticism **Paper-VII:** American and Canadian Literature **Paper-VIII:** Indian English Literature **OR** Contemporary Indian English Novel			
	Semester III **Paper-IX:** New Literatures in English **Paper-X:** Contemporary Literary Theory **Paper-XI:** Translation: Theory and Practice **OR** Literature and Environment			

	Paper-XII: Post-Colonial Theory and Literature OR Subaltern Theory and Literature			
	Semester IV **Paper- XIII:** African and Caribbean Literature **OR** Dalit Literature **Paper- XIV:** Indian Literature in Translation **OR** English Language Teaching **Paper-XV:** Women's Writing **OR** Feminist Writers **Paper-XVI:** Gender Studies **OR** Russian Literature in Translation			
M.A Sem. I-IV **PSYCHOLOGY**	**Semester I (NEP)** **MGKPSYPG101:** Perception, Attention and Memory **MGKPSYPG102-** Research Design and Methodology **MGKPSYPG103:** Classical Perspectives in Personality Theories **MGKPSYPG104-** Basics of Neuropsychology **MGKPSYPG105:** Practical (Lab Work) **MGKPSYPG106:** Research Proposal	1. To provide simple exposition of various psychological principles underlying attention, perception, verbal learning and memory. 2. To familiarize students with some of the major approaches and perspectives in cognitive psychology. 3. To provide an in-depth understanding of some of the	• To build a robust research-oriented theoretical basis in psychology that is in step with recent achievements in the field. • To allow students to approach the curriculum in a creative, empirical, and ethical manner by combining conceptual repertoire and research	**PSO1.** Develop the understanding of psychological science with special focus on conceptual and empirical approaches as well as Communicate, articulate and explain key concepts. **PSO2.** Understand research methods, design and techniques of data

		cognitive processes in terms of current theories, models and applications. 4. To facilitate the learning of traditional and emergent fields of cognitive psychology. 5. To understand-brain—behaviour relationship in day-to-day life. 6. Understand the conceptual understanding of research and research design. 7. Distinguish a purpose of research question, hypothesis, and research objectives. 8. Identify the overall process of designing psychological research. 9. Know the conventions with good APA style for scholarly writing. 10. Students become oriented to the following areas of psychology - abnormal psychology or clinical psychology. 11. Students will be able to answer what our personalities are, how they work, and what they can mean to our own and others' futures. 12. By conducting practical on quantitative research methods students have developed the scientific understanding of the	methodologies from both quantitative and qualitative traditions. • To provide students the chance to apply what they've learned in the classroom to real-world situations in order to foster a healthy relationship between academics and society. • To develop a thorough understanding of diverse areas of psychology and to instil an ethical approach to research. • To cultivate and nurture sensibility and sensitivity various cross cutting issues has also been included across the syllabi gender equity, environmental concerns, sustainable development goals, human values, innovative and entrepreneurship as well as employability skills among students.	collection. **PSO3.** Critically evaluate information, issues and assumptions from different perspectives and apply scientific knowledge to solve problems **PSO4.** Understand and apply appropriate quantitative and/or qualitative data analysis techniques and use statistical software also. **PSO5**. Inculcate indigenous Indian psychological knowledge through scriptures. **PS06**. Apply psychology to diverse fields i.e.; organization behaviour, health, counseling psychology, and clinical psychology etc. **PSO7**. Understand and execute assessment tools related to psychological processes and attributes like personality, intelligence, aptitude etc. **PSO8**. Identify, adhere and

		discipline. A foundation has been laid for developing experimental and correlation research design and conducting studies based on them. 13. Students have learnt writing a scientific research proposal. Each student has to learn to identify a research problem, outline the objective and hypothesis, select the sampling method and sample, do the related review of literature, figure out the data collection tools under the supervision of the guide/proposal supervisor faculty of the department and submit the proposal at the end of the semester for evaluation. Students will learn writing the research proposal for conducting the study		apply ethical principles to resolve ethical dilemmas. **PSO9.** Practically impart psychological knowledge to intervene for mitigating psychological problems and promote positive behaviour and well-being at individual, group, and social level. **PS010.** To cultivate and nurture sensibility and sensitivity various cross cutting issues like gender equity, environmental concerns, sustainable development goals, human values, innovative and entrepreneurship as well as employability skills among students**.**
	Semester II (NEP) **MGKPSYPG201:** Learning, Language, and Thinking **MGKPSYPG202:**Motivational and Affective Process **MGKPSYPG203:** Modern perspectives in Personality Theory. **ELECTIVE*** **MGKPSYPG204A:** Advanced Statistics **MGKPSYPG204B:** Advanced Neuropsychology **MGKPSYPG205:** Practical **MGKPSYPG206:** Survey Report **MGKPSYPG207:** Minor Foundation of Human Behavior	1. Learnt the types and functions of muscular and glandular systems. 2. Biological bases of motivation and emotion, and basics of behavioural genetics. 3. Developed the ability to understand the applications of neuropsychology.		

	Semester III **MGKPSYPG301:** Advanced Social Psychology **MGKPSYPG302:** Mental Disorder with Associated Criteria-I **MGKPSYPG303:** Fundamentals of Psychological Assessments **Elective** **MGKPSYPG304A:** Psycho-Diagnostic Techniques **MGKPSYPG304B:** Organisational Behaviour **MGKPSYPG305:** Lab Work **MGKPSYPG306:** Project/Dissertaion			
	Semester IV **MGKPSYPG401:** Mental Disorders with Associated Criteria – II **MGKPSYPG402:** Applied Social Psychology **Elective** **MGKPSYPG403A:** Psycho-Therapeutic Techniques **MGKPSYPG403B:** Indian psychology **Elective** **MGKPSYPG404A:** Organisational Behaviour **MGKPSYPG404B:** Rehabilitation Psychology **MGKPSYPG405:** Lab Work **MGKPSYPG406:** Dissertation			

M.A./ M.Sc. Semester I- IV GEOGRAPHY	**Semester I** **GR1O1:** Geomorphology **GR102:** Advanced Geography of India **GR103:** Economic Geography **GR104:** Environmental Geography **GRP105:** Practical Cartography **and** Field-Cum – Lab Work **Project/Dissertation**	The course is designed to provide basic knowledge to the students regarding Remote Sensing and GIS with the fundamentals of geospatial tools and technologies. Through our MA/MSc programmes students will develop mathematical and personal skills leading to exciting careers or further study.		
	Semester II **GR201 :** Physical Landscape **GR202 :** Hydrology and Oceanography **GR203 :** Geography of Resources **GR204 :** Basics of Remote Sensing **GRP205:** Practical Map Projections, Representation of Statistical Data and Aerial Photographs **Project/Dissertation**			
	Semester III **GR301:** Climatology **GR302:** Geo-informatics and Geographic Information System (GIS) Applications			

	GR303: Students are required to opt any one of the following: • **GR303A:** Urban Geography • **GR303B:** Population Geography • **GR303C:** Disaster Management **GR304:** Students are required to opt any one of the following: • **GR304A:** Geography of Rural Settlements • **GR304B:** Geography of Tourism • **GR304C:** Industrial Geography **GRP305:** Practical Examination			
	Semester IV **GR401:** Geographical Thoughts **GR402:** Research Methods & Techniques **GR403:** Students are required to opt any one of the following: • **GR403A:** Agricultural Geography • **GR403B:** Transport Geography • **GR403C:** Regional Planning & Development **GR404:** Students are required to opt any one of the following: • **GR404A:** Geography of Rural Development • **GR404B:** Political Geography • **GR404C:** Population & Development **GRP405:** Study Tour and Report and			

	Viva-Voce			
M.A./ M.Sc. **Semester I- IV** **STATISTICS**	**Semester I** **MSTC 101:** Measure Theory **MSTC 102:** Mathematical Methods **MSTC 103:** Statistical Computing **MSTC 104:** Sampling Theory **MSTP 101:** Practical I	• Explain classes of open and closed sets of R. • To understand the concept of semi-ring, ring, field, sigma-ring, sigma-field and monotone class with the help of examples. • Explain the concept of additive and totally additive set functions with the help of certain examples. • To be familiar with outer measure and counting measure. • To understand the concept of Lebesgue measure. • Identify the properties of measurable functions. • Distinguish between Lebesgue integral and Riemann integral. • State and prove monotone convergence theorem and Lebesgue dominated convergence theorem. • Explain the concept of convergence in a sequence of measurable functions. • To be familiar with the concept of absolute continuity and singularity. • State and prove Radon-Nikodym theorem. • Define the basic concepts of R software and R packages • Describe various concepts required for developing the R Language	1. Gain sound knowledge in theoretical and practical aspects of Statistics. 2. Describe complex statistical ideas to non-statisticians. 3. Handle and analyses big databases with computer skills and use their results and interpretations to make practical suggestions for improvement. 4. Get wide range of job opportunities in industry as well as in government sector.	

		• Build our own new functions in R • Illustrate different R-Graphics facilities • Perform programming of different statistical methods and procedures		
	Semester II **MSTC 201:** Linear Models and Time Series **MSTC 202**: Theory of Estimation **MSTC 203:** Probability Theory **MSTC 204:** Distribution Theory **MSTP 201:** Practical 2	• Be acquainted with the theory of linear models and their use in analysis of variance. • Have a deeper understanding of assumptions, estimation and testing of hypothesis linear models. • Generate different components of a time series data • List the important terms of stationary time series • Choose an appropriate model for time series data using the concept of linear time series models. • List the important properties of estimators of an unknown parameter of a distribution • Derive the UMVUE of a parameter or function of a parameter • Apply the concept of Rao-Blackwell and Lehmann-Scheffe theorems • Able to select the best estimators using different properties • Differentiate between classical and Bayesian inference • Determine the estimators of unknown parameters using methods like MLE, Method of moments etc. • Differentiate between location and scale family of distributions • Outline Bayes estimation of		

		parameters of standard distributions		
	Semester III **MSTC 301:** Stochastic Processes **MSTC 302:** Order Statistics & Non-Parametric Methods **MSTC 303:** Design of Experiments **MSTC 304:** Testing of Hypothesis **MSTP 301:** Practical			
	Semester IV **MSTC 401:** Multivariate Analysis **MSTC 402:** Demography **MSTP 401:** Practical **Elective Papers (Any two of these)** **MSTE 401:** Bayesian Inference **MSTE 402:** Statistical Processes and Quality Control **MSTE 403:** Econometrics **MSTE 404:** Operation Research **MSTE 405:** Reliability			
M.A./ M.Sc. **Semester I- IV** **MATHEMATICS**	**Semester I** **MC101:** Group Theory **MC102:** Real Analysis **MC103:** Complex Analysis **MC104:** Hydrodynamics **MME1:** Elementary Number Theory **(Minor)** **Research Project***	**CO1.** Compute the automorphism of groups, group action and also to prove Burnside basis theorem. **C02.** Prove Cauchy's theorem for finite groups and understand the structure of groups of order pq, p^2q and pqr. **CO3.** Prove Schreier's refinement theorem and Jordan Holder theorem and also able to compute commutator subgroups of groups.		

		CO4. understand the notion of solvability and nilpotency, their relationships and equivalent characterization of nilpotent groups **CO5.** understand the summation of positive and negative terms of real number and application of Riemann's theorem. **CO6.** Understand higher order derivatives and be able to apply Taylor's theorem with remainder. **CO7.** learn the concepts of integration, Existence of R-S Integral and fundamental theorem of Integral calculus. **CO8.** Learn the concept of integration of a bounded function over the monotonic function. **C09.** learn concepts of convergence of sequence of functions of real numbers and the role of Weierstrass approximation theorem. **CO10.** understand analytic function as a mapping on the planc, Mobius transformation and branch of logarithm. **CO11.** know about the Maximum modules theorem and its applications **CO12.** computation of number of zeros and singularities leading to the argument principle and Rouche's theorem		

		CO13. know the infinite product of complex numbers and its convergence and factorization of entire functions. **CO14.** Understand the concept of fluid and their classification, models and approaches to study the fluid flow. **CO15.** Formulate mass and momentum conservation principle and obtain solution for non viscous flow. **CO16.** Know potential theorems, minimum energy theorem and circulation theorem. **CO17.** Understand two dimensional motion, circle theorem and Blasius theorem. **CO18**. Understand motion of sphere through a liquid at rest at infinity and Equation of motion of a sphere		
	Semester II **MC201 –** Ring & Field Theory **MC202 –** Topology **MC203 –** Differential Equation **ME204 –** Classical Mechanics **ME205 –** Operations research-I **Research Project***	**CO1.** Identify and construct examples of fields, distinguish between Maximal and prime ideals. **CO2.** To find the relationship between UFD, PID, ED and check the irreducibility criteria for polynomials. **CO3.** Classify finite fields using roots of unity and Galois theory and prove that every finite separable extension is simple. **CO4.** Use Galois theory of equations to prove that a polynomial equation over a field of characteristic zero is solvable by radicals iff its group (Galois) is a		

		solvable group and hence deduce that a general quintic equation is not solvable by radicals. **CO5.** Determine interior, closure, and boundary, limit points of subsets and basis and sub basis of topological spaces. **CO6.** check whether a collection of subsets is a basis for a given topological spaces or not, and determine the topology generated by a given basis **CO7.** Identify the continuous maps between two spaces and maps from a space into product space and determine common topological property of given two spaces. **CO8.** Determine the connectedness and path connectedness of the product of an arbitrary family of spares. **C09.** Find Hausdorff spaces using the concept of net in topological spaces and learn about I^{st} and 2^{nd} countable spaces, separable and Lindelöf spaces. **CO10.** Learn Bolzano-Weierstrass property of a space and prove Urysohn's lemma and Ticize extension theorem.	

	Semester III **MC301:** Measure and Integration **MC302:** Advanced Linear Algebra **Elective Papers (Any two of these)** **ME303:** Mathematical Methods **ME304:** Differential Geometry **ME305:** Operations Research-II **ME306:** Discrete Mathematics			
	Semester VI **Elective Papers (Any four of these)** **ME401:** Functional Analysis **ME402:** Normed linear spaces and Theory of Integration **ME403:** Algebric topology **ME404:** Fluid Mechanics **ME405:** Module Thoery **ME406:** Special theory of Relativity **ME407:** Representation theory of finite groups			
M.Sc. Semester I-IV PHYSICS	**Semester I** **PHY-101:** Mathematical Physics **PHY-102:** Classical Mechanics **PHY-103:** Electromagnetic Theory **PHY-104:** Quantum Mechanics **PHY-105:** Practical **Research Project**			

Semester II

PHY-201: Advanced Quantum Mechanics
PHY-202: Condensed Matter Physics
PHY-203: Atomic and Molecular Physics
PHY-204: Electrodynamics and Plasma Physics
PHY-205: Practical
Research Project

Semester III

PHY-301: Lasers & Opto-electronics
PHY-302: Nuclear Physics-I
PHY-303(S1): Electronics-I
PHY-304(S1): Electronics-II
PHY-303(S2): Biophysics-I: Cells and Genetic Information
PHY-304(S2): Biophysics-II: Macromolecules
PHY-303(S3): Solid State Physics-I: Crystallography and Imperfection in crystals
PHY-304(S3): Solid State Physics-II: Characterization of Solids
PHY-305: Practical
Project/Dissertation**

Semester IV

PHY-401: Statistical Mechanics
PHY-402: High Energy Physics
PHY-403 (S1): Advanced Electronics -I

	PHY-404 (S1): Advanced Electronics -II **PHY-403 (S2):** Electronics-IV **PHY-404 (S2):** Biophysics-III **PHY-403 (S3):** Biophysics-IV **PHY-404 (S3):** Solid State Physics-III **PHY-405:** Solid State Physics-IV **Research Project****			
M.Sc. Semester I-IV CHEMISTRY	**Semester I** **CHE-101:** Inorganic Chemistry-I **CHE-102:** Organic Chemistry-I **CHE-103:** Physical Chemistry-I **CHE-104:** • **Sec-A:** Computers for Chemists (Compulsory for all students) • **Sec-B:** Mathematics for Chemists (For students without Mathematics in B.Sc.) **OR** • **Sec-C:** Biology for Chemists (For students without Biology in B.Sc.) **CHE-105:** Practical **Research Project**		Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in analytical, Inorganic, Organic and Physical Chemistries. Students will be able to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments. Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems. Students will be able to explore new areas of research in both chemistry and allied fields of science and technology. Students will appreciate the	Certificate in Bioorganic and Medicinal Chemistry will give the student a basic knowledge of all the fundamental principles of chemistry like molecular polarity , bonding theories of molecules, Periodic properties of more than 111 elements, mechanism of organic Reactions, Stereochemistry, basic mathematical concepts and computer knowledge, chemistry of carbohydrates, proteins and nucleic acids: medicinal chemistry, synthetic polymers, synthetic dyes, Student will be able to do to qualitative quantitative and bio chemical analysis of the compounds in the laboratory. This certificate
	Semester II **CHE-201:** Inorganic Chemistry-II **CHE-202:** Organic Chemistry-II **CHE-203:** Physical Chemistry-II **CHE-204:** Spectroscopy and Diffraction methods **CHE-205:** Practical			

	Semester III **CHE-301:** Application of Spectroscopy **CHE-302:** Bioinorganic and Bioorganic Chemistry **CHE-303:** Environmental Chemistry & Photochemistry **CHE-304:** Biophysical chemistry and Solid state chemistry **CHE-305:** Practical		central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine. Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems. Students will be able to function as a member of an interdisciplinary problem solving team.	course is definitely going to prepare the students for various fields of chemistry and will give an insight into all the branches of chemistry and enable our students to join the knowledge and available opportunities related to chemistry in the government and private sector services particularly in the field of food safety, health inspector, pharmacist etc. Have a broad foundation in chemistry that stresses scientific reasoning and analytical problem solving with a molecular perspective
	Semester IV **CHE-400 (A-O): Elective Papers (Any of four of these)** **A:** Organotransition Metal Chemistry **B:** Bioinorganic and Supramolecular Chemistry **C:** Photo Inorganic Chemistry **D:** Analytical Chemistry **E:** Polymers **F:** Organic Synthesis-I **G:** Organic Synthesis-II **H:** Heterocyclic Chemistry **I:** Chemistry of Natural Products **J:** Medicinal Chemistry **CHE-401:** Practical **Research project****			
M.Sc. Semester I-IV BOTANY	**Semester I** **BOT 101:** MICROBIOLOGY, PLANT VIROLOGY & BACTERIOLOGY **BOT 102:** MYCOLOGY **BOT 103:** PHYCOLOGY AND LICHENS **BOT 104:** BRYOPHYTES **BP 105:** Practical **BOT 106:** WATER RESOURCE			

	MANAGEMENT **Research Project***			
	Semester II **BOT 201:** PTERIDOPHYTA **BOT 202:** GYMNOSPERMS AND PALAEOBOTANY **BOT 203:** ANGIOSPERMS: TAXONOMY, MORPHOLOGY ANDECONOMIC BOTANY **BOT 204:** ANATOMY, EMBRYOLOGY AND MORPHOGENESIS **BP 205:** Practical **Research Project***			
	Semester III **BOT 301:** PLANT PHYSIOLOGY **BOT 302:** GENETICS ,PLANT BREEDING AND BIOSTATISTICS **BOT 303:** ECOLOGY, PLANT-SOIL RELATIONSHIP **BOT 304:** PLANT BIOCHEMISTRY **BP 305: Practical** (BASED ON PAPER 301-304)			
	Semester IV **BOT 401:** CELL BIOLOGY **BOT 402:** PLANT BIOTECHNOLOGY **BOT 403:** PLANT MOLECULAR BIOLOGY **BOT 404:** SPECIAL PAPERS **(ANY ONE OF THESE) :** • **BOT 404A:** ENVIRONMENTAL BOTANY			

	• **BOT 404B:** ADVANCED PLANT PHYSIOLOGY • **BOT 404C:** PLANT PATHOLOGY **BP 405: Practical** BASED ON PAPER I , II ,III (PAPER 401403) **BP 406 : Practical** BASED ON PAPER IV SPECIAL PAPER:404			
M.Sc. Semester I-IV ZOOLOGY	**Semester I (NEP)** **ZOO101 :** Non-chordata **ZOO102 :** Biostatistics, Biosystematics and Bioinstrumentation **ZOO103 :** Environmental Biology **ZOO104 :** Biochemistry **ZOO105 :** Practical Examination		.	• Developing better understanding of concepts of biology at biochemical, molecular and cellular level, physiology and reproduction studying them at organism level, and ecological impact on animal behavior. • Developing the advance level of statistical knowledge which helps in data handling and practical Assessments. There is extensive study of instruments so that the students can handle them with ease for further research work. • Developing the concept of animal adaptation by exploring the diversity of functional characteristics of
	Semester II (NEP) **ZOO201 :** Chordata **ZOO202 :** Animal Physiology **ZOO203 :** Cytology and Genetics **ZOO204 :** Molecular Biology **ZOO205 :** Practical Examination			
	Semester III **ZOO301:** Applied Zoology **ZOO302:** Development Biology **ZOO303:** Endocrinology **ZOO304A:** Fish-Taxonomy **ZOO304B:** Entomology-Morphology **ZOO304C:** Cell Biology-Cytological Techniques **Practical Examination** **ZOO305A:** Practical Examination (GENERAL) **ZOO305B**: Practical Examination (SPECIAL)			

Semester IV **ZOO401:** Biosystematics and Evolution **ZOO402:** Animal Behaviour **ZOO403A:** Fish Biology **ZOO403B:** Entomology **ZOO403C:** Cell Biology **ZOO404:** Dissertation **ZOO405A:** Practical Examination (General) **ZOO405B:** Practical Examination (Special)		various kinds of organisms which is closely related to evolutionary processes and environmental changes. • Understanding of Mendel's principle of heredity, its extension and chromosomal basis; chromosomal anomalies and associated diseases; developing concepts of regulation of gene activity in prokaryotes and eukaryotes of transcriptional and post transcriptional level. • Study of environment is focused with the aim to make students aware of the structure and function of environment and the climate change, adaptations and losses due to it. • Development of an understanding of animal science for its application in entomology, apiculture, aquaculture,

		agriculture and modern medicine. • Detailed acquaintance of developmental biology correlating it to the evolution. Elucidation of early embryonic development and organogenesis of invertebrates and vertebrates, explanation of embryonic stem cells and their application. • To understand animal physiology in detail and a comparative outlook between non vertebrates and vertebrate physiology. • Development of theoretical and practical knowledge in handling the animals and using them as model organism. • Each semester is having a departmental seminar in order to make students aware of the research paper writing and presentation.

		• To understand the impact of chemicals on biodiversity of microbes, animals and plants; Bioindicator and biomarkers of environmental health. Biodegradation and bioremediation of chemicals; competition and existence; intraspecific and interspecific interactions